

Classification of Yukon Vegetation Associations



A Field Guide to Identifying Treed Associations

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Ecological field sampling throughout the Yukon began in the mid-1970s. The federal government (Department of Indian Affairs and Northern Development, or DIAND) conducted expansive forest inventory, mensuration and mapping programs throughout the southern half of the Yukon from 1975 to 1982. From 1978 to 2023, field data were collected under the auspices of various inventory programs by the territorial government, federal government and First Nation governments. Private consulting companies completed intensive biophysical inventory and mapping programs for various resource development projects to support the environmental assessment process; those programs have also contributed to development of these vegetation associations.

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The classification published in this guide is based on analyses of data collected at 3,500 plots throughout the Yukon, by a variety of sources. This classification dataset was harmonized from the Yukon Biophysical Inventory System (YBIS) and from additional data from numerous sources. Ken Baldwin, Kim Chapman, Karen McKenna and Nadele Flynn assisted in the development of Yukon vegetation associations compatible with the Canadian National Vegetation Classification (CNVC) system. Richard Legner contributed to the development and maintenance of YBIS.

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1.0 Introduction

1.1 Guide content

This guide contains seven chapters:

- 1.0 Introduction
- 2.0 Vegetation association classification and fact sheets: an overview
- 3.0 Keys to treed associations
- 4.0 Overview of treed associations
- 5.0 Conifer associations
- 6.0 Deciduous associations
- 7.0 Mixed-wood associations

1.2 Objectives/ scope

This field guide presents vegetation associations describing the treed ecosystems of the Yukon, following the Canadian National Vegetation Classification, or CNVC (<http://cnvc-cnvc.ca>) system protocols.

Vegetation associations are part of the Yukon's Ecological and Landscape Classification (ELC) framework. Associations are vegetation classification units “defined on the basis of a characteristic range of species composition, diagnostic species occurrence, habitat conditions and physiognomy” (Baldwin et al. 2019: 128). They describe the current vegetation of the Yukon and are often used to characterize the vegetation growing on a specific ecosite.

Canadian National Vegetation Classification, or CNVC (<http://cnvc-cnvc.ca>) system protocols are used to identify, name and describe vegetation associations and sometimes, subassociations. Some Yukon vegetation associations are at a different scale than the national associations. For example, a Yukon association is sometimes a national subassociation. This is the result of the process of developing national associations, where existing vegetation types were correlated between jurisdictions, and so jurisdictional protocols sometimes had to be taken into account.

The goals of this guide are to:

- describe all known treed vegetation associations that exist throughout the Yukon
- assist the user in classifying vegetation associations in the field
- provide a common language to discuss ecosystems
- provide insight into the ecological conditions of the vegetation associations to support ecosystem based management; and
- provide a framework for incorporation of ecological knowledge

1.3 Other sources of Information

In order to use this guide to identify ecosystem units, some field data are generally required, including data on site, soil and vegetation features. To assist with the collection of this data, the *Field Manual for Describing Yukon Ecosystems* (Environment Yukon, 2017) is recommended.

Definitions for terminology in this guide can be found in the glossary of the *Yukon Ecological and Landscape Classification Mapping Guidelines* (Flynn and Francis 2016).

Cody's *Flora of the Yukon Territory* (1996) is a comprehensive reference for vascular plant identification, although it is not up to date with current taxonomy and nomenclature. Other useful guides include *Plants of Northern British Columbia* (MacKinnon et al. 1992), *Mosses, Lichens and Ferns of Northwest North America* (Vitt et al. 2007) and *Plants of the Western Boreal Forest and Aspen Parkland* (Johnson et al. 1995).

For those interested in soils and terrain classification, refer to *The Canadian System of Soil Classification* (SCWG 1998) and *Terrain Classification System for British Columbia* (Howes and Kenk 1997). The *Canadian Wetland Classification System* (NWWG 1997) is also a useful reference. Wetland ecosites mentioned in the text are described further in *Wetlands Ecosites of the Yukon* (Meidinger and McKenna, 2026).

The scientific names of plant species follow those used by the Yukon Conservation Data Centre (CDC). For vascular plants, names are generally consistent with the Flora of North America association (<http://floranorthamerica.org>).

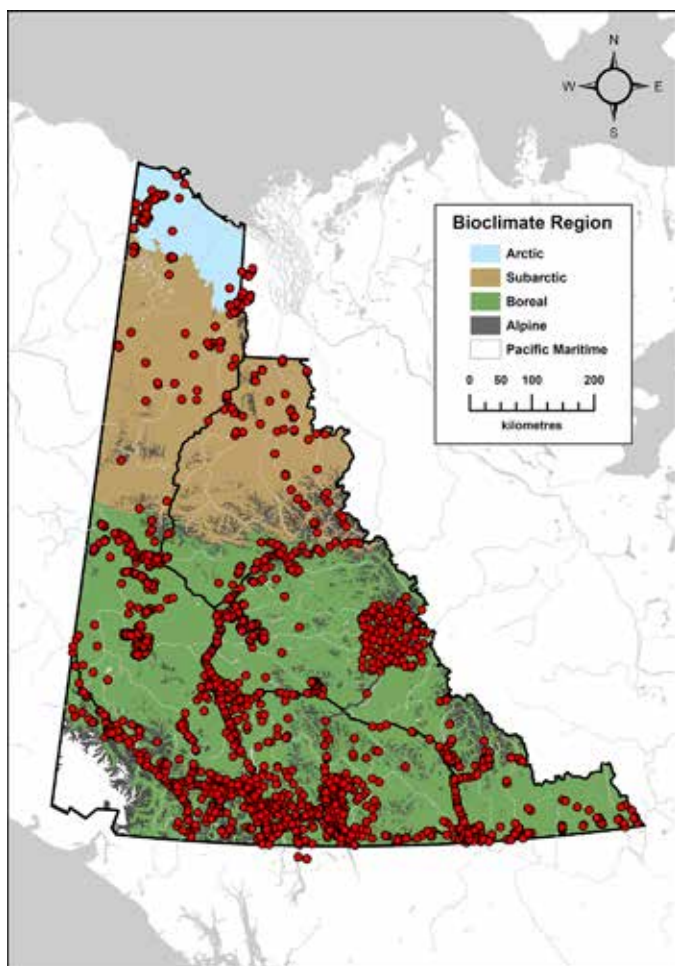


Figure 1.1 Distribution of biophysical plot locations throughout the Yukon

1.4 Limitations of this guide

All available data was used to develop the classification and present the descriptions; 3,500 plots were assigned to an association. Most association descriptions are based on a reasonable amount of plot data, but some are based on relatively few plots. In addition, in some associations, soil data are very limited and certain taxonomic groups (such as bryophytes and willows), are often not identified to species. This limits the information presented for these units. Over time and where necessary, identified gaps will be filled in and updated.

In using the keys and identification tools, it is possible that a forest stand will be encountered that does not appear to fit any of the described associations. This could arise for various reasons:

1. The association classification was developed from the available data. Single plots or small series of plots where the vegetation, site and soil data did not clearly identify a unique vegetation or site unit were not classified as a vegetation association.
2. Data may not have been specific enough to adequately characterize a potential association. In other words, the vegetation and soil data was very limited or of poor quality or too general in nature (such as many plants identified only to genus).
3. No data was available due to gaps in sampling. The data used is a compilation of data from various projects conducted over the past 50 years. No specific program has systematically sampled the vegetation of Yukon.

In cases where a stand does not appear to fit an association a user could do one of the following:

Consider the “best fit” using the descriptions of key vegetation and soil properties, and the location relative to other plots of the association. Describe the reasons for identifying it as a particular association.

Note if the stand appears to be an undescribed association and explain why.

1.5 Training courses

Training will help with the use of this guide. Contact elc@yukon.ca at Yukon Environment to enquire about training opportunities.

2.0 Vegetation association classification and fact sheets: an overview

2.1 Names and codes

Every vegetation association has a name and code. The names and codes are described briefly here. See *Yukon Ecological and Landscape Classification and Mapping Guidelines* Version 1.0 (Flynn and Francis 2016) for more detail.

Vegetation associations are named according to one or more dominant and/or indicator species. Species of different layers — tree, shrub, ground shrub, herb, bryophyte or lichen — are separated by a forward slash (/). Species within the same layer are separated by an en dash (–). Vegetation subassociations are generally used to characterize variation in species composition that is not considered significant enough to be an association. A single species name is appended to the association to name the subassociation. Alpha characters are assigned to tree species in this guide (Table 2.1).

Table 2.1 Alpha characters, treed associations

Alpha character	Treed association
A	Aspen
B	Balsam poplar
F	Subalpine fir
L	Larch
P	Lodgepole pine
Sb	Black spruce
Sw	White spruce
W (Wp, Wa, Ww)	White birch (paper, Alaska, water)

Each vegetation association is assigned an alphanumeric code. The alpha portion codes one or more species of the treed or non-treed vegetation overstorey (see Table 2.1). The numeric portion (Table 2.2) represents the soil moisture as a relative ranking. If sub-associations are used they are coded with a single, lower-case letter added to the association code.

Table 2.2 Numeric codes used in vegetation association codes

Numeric character	Landscape context	Soil moisture
01–19	Upland sites	xeric to dry
20–39	Wetland sites	mesic to moist
40–49	Bogs	moist to wet
50–69	Fens, swamps, marshes	wet
70–79	Shallow open water	wet

The vegetation association/subassociation code can be appended to an ecosite code to further describe the current vegetation conditions on an ecosite, or can be used separately (such as where ecosites have not yet been characterized).

Table 2.3 Yukon Bioclimatic Zones — overview of vegetation, topography and climatic features

Bioclimate	Code	Description
Boreal bioclimate zones (southern Yukon)		
Boreal Low	BOL	Continuously forested areas at low to middle elevations (i.e., below the BOH) of all mountain valley and plateau regions of southern and central Yukon. Winters are long and cold, with short, cool and dry summers. Forests are generally mixed-wood (lodgepole pine, white spruce and aspen) with moderately developed understories. Wetlands are common.
Boreal High	BOH	Middle to upper elevations of forested areas in all mountain valley and plateau regions of southern and central Yukon. This zone is found above the BOL in large valleys. It is characterized by steep slopes in the southern mountainous regions and gentle rolling plateaus in the central regions. Summers are brief, cool and moist, with long cold winters. Forests are dominated by white spruce, lodgepole pine and subalpine fir. Forests tend to be more open than those of the BOL.
Subalpine	BOS	Shrub communities with sparse tree cover (<10%) at moderate to higher elevations on steep slopes above the BOH and BOL. This forms a transitional zone between forested BOL and BOH and the higher elevation, nontreed alpine bioclimate zone. Sparse canopy conifer forests (tree cover <10%) and tall to medium shrub communities are characteristic vegetation. Depending on the geographic area, either subalpine fir or white spruce tree species may occur. Winters are long and cold, while summers are short, cool and moist.
Subarctic bioclimate zones (northern Yukon)		
Subarctic Woodland	SUW	Coniferous or mixed-wood forested areas with an open canopy in northern Yukon. Generally occur in valley bottoms and lower slopes of mountain valleys, or on plateaus and plains. Slope position, aspect and the distribution and depth of permafrost are major influences on vegetation distribution and dynamics. In steep terrain, active slope processes (rock slides, slumps, talus cones) make a major contribution to the distribution of forests.
Subarctic Subalpine	SUS	This zone is dominated by tall or low shrubs, with sparse or sporadic tree cover. It generally occurs at high elevations in northern mountain systems. However, its distribution in some areas of northern Yukon appears to be influenced by arctic weather systems; this situation may require a different bioclimate zone designation.
Arctic bioclimate zones (northern Yukon)		
Arctic Low Shrub Tundra Zone	ARLS	The Arctic Low Shrub Tundra zone occurs between sea level and 350–500 m elevation in the foothills of the British and Richardson mountains. The ARLS occurs below the Arctic Dwarf Shrub Tundra montane subzone in the mountains and is bounded to the south and east by the Subarctic Woodland zone in the Old Crow basin and the Mackenzie delta. Along the coast in the west, the ARLS gives way to the Arctic Dwarf Shrub Tundra lowland subzone, where shrub cover is greatly reduced and colder oceanic influences predominate. Zonal vegetation has low shrubs, often >40 cm tall. Tussock tundra with low shrubs, tall shrub riparian ecosystems and peat development are common features. Relative to other Yukon arctic zones, ecosystem diversity is high. The ARLS bioclimate zone is equivalent to the “E” bioclimate subzone in the Circumpolar Arctic Vegetation Map (CAVM Team 2003).
Arctic Dwarf Shrub Tundra Zone	ARDS	The Arctic Dwarf Shrub Tundra zone occurs above the Arctic Low Shrub Tundra zone in the British and Richardson mountains between approximately 500 and 1,500 m. This zone also occurs at low elevations on Herschel Island and along the coast west of the Firth River, extending into Alaska’s Arctic National Wildlife Refuge. Zonal vegetation is dominated by Dryas species. Taller shrubs (>40 cm) are restricted to lower elevation riparian and snow-protected sites. This bioclimate zone is equivalent to the “D” and “C” bioclimate subzones in the Circumpolar Arctic Vegetation Map (CAVM Team 2003). Three bioclimate subzones occur in the ARDS zone.
Alpine Tundra bioclimate region (boreal, subarctic)		
Alpine	AT/ BOA	In the Boreal region, the alpine tundra zone occurs above the Boreal Subalpine (BOS) zone at high elevations (above altitudinal treeline). Moving northwards into the subarctic, the alpine tundra zone occurs at mid to high elevations, above the Subarctic Subalpine (SUS) zone.
Pacific maritime bioclimate region		
Pacific Maritime Glacierized	PMG	This zone has high elevations associated with the Saint Elias Mountains and Pacific Ocean influences. In the Yukon it is also known as the Saint Elias Icefields. Rock, ice and snow comprise the dominant ground cover. Nunataks occasionally rise above the icefields and host a sparse vegetation of herbs, cryptograms and dwarf shrubs.

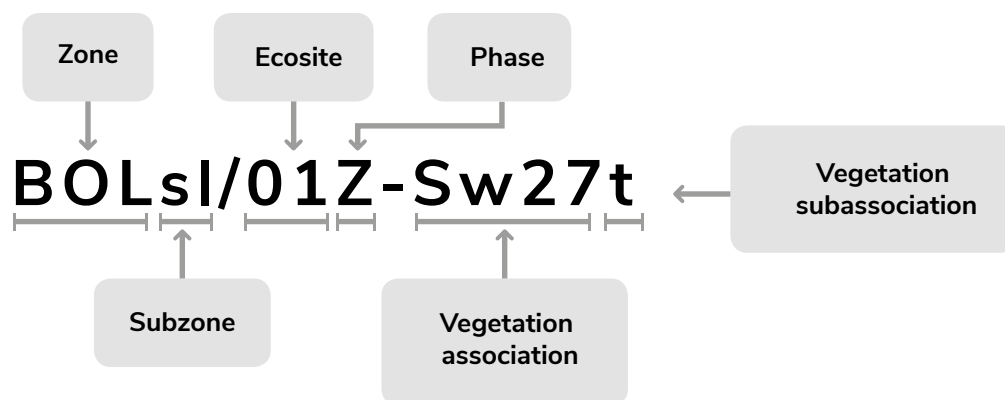


Figure 2.1 Ecosite coding format used for naming an ecosite within the Yukon Bioclimate Ecosystem Classification system

2.2 Descriptions of vegetation associations

At this time, vegetation association classification has been conducted for the treed vegetation of Yukon, and for some non-treed vegetation; for example, wetland, grassland and Arctic vegetation. Descriptions of vegetation associations (fact sheets) and identification tools (keys and tables) for the treed associations are presented by overstorey species, such as white spruce associations, aspen – spruce associations, etc.

Each grouping includes several identification tools:

- Flowchart of vegetation associations, using diagnostic species as an aid to identifying associations; species listed in parentheses indicate occasional presence.
- Summary information table, comparing key site and vegetation features for each association.
- Vegetation summary tables, comparing floristic features among associations.

2.3 Overview of fact sheets

Descriptions of vegetation associations include two-page fact sheets, which include the following information:

- An introductory statement that outlines the general ecological conditions and distribution of the association.
- Text descriptions
 - Vegetation: dominant, characteristic and common associates along with comments on vegetation structure and variability; species listed in the text description may not necessarily be diagnostic of the association and may not be shown in the vegetation summary table.
 - Environment: the dominant and characteristic site and soil conditions
 - Dynamics: brief information about the impact of disturbance on the development of the association.
- Comments: includes key characteristics and the CNVC association, if it has been determined.
- Photo from a field sample assigned to the association. *Photos are not available for all fact sheets.*
- Environment table: Specific values for selected environmental attributes. Elevation, slope and vegetation cover may have multiple values that are presented as a range, with the mean value in bold. Values in parentheses indicate a state that may also be present on the site, but is not the most commonly encountered state.
- Range map: Shows locations of plots assigned to the unit and the Boreal, Subarctic and Arctic bioclimatic regions. *Range maps are not available for all fact sheets.*
- Vegetation summary table: This lists species (both diagnostic species and others with high constancy) organized by layer. A table of the range and mean of vegetation cover for vegetation layers is also included.

3.0 Keys to treed associations

Key 1 Determining association: stand composition

Greater than 85% of stand composition is conifers	Conifer association	Key 2
Greater than 85% of stand composition is deciduous hardwoods	Deciduous association	Key 3
Neither of the above; mixed stand of conifer and deciduous hardwood trees	Mixed-wood association	Key 4

Key 2 Conifer associations

Strongly dominated by one conifer tree species		
Black spruce	Black spruce associations	Sb
Fir	Fir associations	F
Larch	Black spruce – Larch associations	SbL
Pine	Pine associations	P
White spruce	White spruce associations	Sw
Mixed conifer species		
Black spruce – larch, black spruce – white spruce – larch, or black spruce – pine –	Black spruce – Larch associations	SbL
Black spruce – white spruce	Black spruce – White spruce associations	SbSw
Fir – black spruce, or fir – black spruce – white spruce, or fir – black spruce – pine	Fir – Black Spruce associations	SbF
Fir – white spruce, fir – pine, or fir – pine – white spruce	Fir – White spruce (Pine) associations	FSw
Pine – black spruce, or pine – black spruce – white spruce	Pine – Black spruce (White spruce) associations	PSbSw
Pine – white spruce	Pine – White spruce associations	PSw

Key 3 Deciduous associations

Strongly dominated by one deciduous hardwood tree species		
Alaska birch, paper birch, or water birch	Birch associations	W
	Aspen – Birch associations	AW
Aspen	Aspen associations	A
Balsam poplar	Balsam poplar associations	B
Mixed deciduous hardwood species		
Aspen – birch (Alaska birch, paper birch, or water birch)	Birch associations	W
	Aspen – Birch associations	AW

Key 4 Mixed-wood associations

Aspen mixed-wood		
Aspen – black spruce mixed stand	Aspen – Spruce associations	ASb
Aspen – pine, aspen – pine – white spruce, aspen – pine – black spruce, or aspen – fir – pine mixed stand	Aspen – Pine associations	AP
Aspen – white spruce mixed stand	Aspen – Spruce associations	ASw
Balsam poplar mixed-wood		
Balsam poplar – white spruce, balsam poplar – birch – white spruce, or balsam poplar – aspen – white spruce	White spruce – Balsam poplar associations	SwB
Balsam poplar – white spruce – fir	White spruce – Balsam poplar associations	FSwB
Birch mixed-wood (Alaska birch, paper birch or water birch)		
Birch – black spruce, birch – black spruce – white spruce, or birch – black spruce – pine mixed stand (sometimes with some aspen)	Black spruce – Birch associations	SbSwW
Birch – white spruce, birch – fir – white spruce, or birch – pine – white spruce mixed stand	White spruce – Birch associations	SwW

4.0 Overview of associations

4.1 Conifer associations — see Chapter 5

Code	Common name	Scientific name	Source
F	Fir associations		
F01	Fir / Shrub birch / Lichen	Abies lasiocarpa / Betula glandulosa / Cladina	1
F02	Fir / Shrub birch / Arctic mountain-heather / Lichen	Abies lasiocarpa / Betula glandulosa / Cassiope tetragona / Cladina	
F05	Fir / Shrub birch / Crowberry / Haircap moss	Abies lasiocarpa / Betula glandulosa / Empetrum nigrum / Polytrichum juniperinum	
F19	Fir / Shrub birch / Crowberry / Feathermoss	Abies lasiocarpa / Betula glandulosa / Empetrum nigrum / Hylocomium splendens	2
F20	Fir / Crowberry – Arctic mountain-heather / Feathermoss	Abies lasiocarpa / Empetrum nigrum – Cassiope tetragona / Hylocomium – Pleurozium	1
F21	Fir / Juniper / Crowberry / Feathermoss	Abies lasiocarpa / Juniperus communis / Empetrum nigrum / Pleurozium schreberi	
F22	Fir / Crowberry / Feathermoss	Abies lasiocarpa / Empetrum nigrum / Hylocomium splendens	
F24	Fir / Willow / Mountain sagewort – Monkshood	Abies lasiocarpa / Salix spp. / Artemisia norvegica – Aconitum delphiniifolium	
F30	Fir / Swamp red currant / Feathermoss	Abies lasiocarpa / Ribes triste / Hylocomium – Pleurozium	
F32	Fir / Willow / Crowberry – Sweet coltsfoot / Step moss – Glow moss	Abies lasiocarpa / Salix spp. / Empetrum nigrum – Petasites frigidus / Hylocomium splendens – Aulacomnium palustre	
F33	Fir / Crowberry / Step moss – Peat moss	Abies lasiocarpa / Empetrum nigrum / Hylocomium splendens – Sphagnum spp.	
F	Fir krummholz associations		
F26	Fir / Crowberry – Arctic mountain-heather / Feathermoss Krummholz	Abies lasiocarpa / Empetrum nigrum – Cassiope tetragona / Hylocomium – Pleurozium Krummholz	1
F27	Fir / Feathermoss Krummholz	Abies lasiocarpa / Pleurozium schreberi Krummholz	
F28	Fir / Shrub birch / Crowberry / Feathermoss Krummholz	Abies lasiocarpa / Betula glandulosa / Empetrum nigrum / Pleurozium schreberi Krummholz	
F29	Fir / Willow / Monkshood – Arctic raspberry – Tall Jacob’s-ladder Krummholz	Abies lasiocarpa / Salix spp. / Aconitum delphiniifolium – Rubus arcticus – Polemonium acutiflorum Krummholz	
FSwFPSw FP	Fir – White spruce (pine) associations		
FPSw01	Fir – Pine – White spruce / Shrub birch / Crowberry / Lichen	Abies lasiocarpa – Pinus contorta – Picea glauca / Betula glandulosa / Empetrum nigrum / Cladina	1
FSw01	Fir – White spruce / Shrub birch / Crowberry / Lichen	Abies lasiocarpa – Picea glauca / Betula glandulosa / Empetrum nigrum / Cladina	
FPSw11	Fir – Pine – White spruce / Juniper / Kinnikinnick	Abies lasiocarpa – Pinus contorta – Picea glauca / Juniperus communis / Arctostaphylos uva-ursi	
FP21	Fir – Pine / Tall blueberry / Feathermoss	Abies lasiocarpa – Pinus contorta / Vaccinium membranaceum / Pleurozium schreberi	
FPSw20	Fir – Pine – White spruce / Shrub birch / Crowberry / Feathermoss	Abies lasiocarpa – Pinus contorta – Picea glauca / Betula glandulosa / Empetrum nigrum / Hylocomium – Pleurozium	
FSw20	Fir – White spruce / Shrub birch / Crowberry / Feathermoss	Abies lasiocarpa – Picea glauca / Betula glandulosa / Empetrum nigrum / Hylocomium – Pleurozium	
FSw21	Fir – White spruce / Tall blueberry / Feathermoss	Abies lasiocarpa – Picea glauca / Vaccinium membranaceum / Hylocomium – Pleurozium	
FSw22	Fir – White spruce / Crowberry / Feathermoss	Abies lasiocarpa – Picea glauca / Empetrum nigrum / Hylocomium – Pleurozium	

4.1 Conifer associations (continued)

Code	Common name	Scientific name	Source
FSw23	Fir – White spruce / Crowberry – Arctic mountain-heather / Step moss	<i>Abies lasiocarpa</i> – <i>Picea glauca</i> / <i>Empetrum nigrum</i> – <i>Cassiope tetragona</i> / <i>Hylocomium splendens</i>	2
FSw25	Fir – White spruce / Shrub birch – Tall blueberry / Feathermoss	<i>Abies lasiocarpa</i> – <i>Picea glauca</i> / <i>Betula glandulosa</i> – <i>Vaccinium membranaceum</i> / <i>Hylocomium</i> – <i>Pleurozium</i>	
FSw32	Fir – White spruce / Willow / Sweet coltsfoot / Step moss	<i>Abies lasiocarpa</i> – <i>Picea glauca</i> / <i>Salix</i> spp. / <i>Petasites frigidus</i> / <i>Hylocomium splendens</i>	1
FSw33	Fir – White spruce / Alder / Step moss	<i>Abies lasiocarpa</i> – <i>Picea glauca</i> / <i>Alnus alnobetula</i> / <i>Hylocomium splendens</i>	
FSw35	Fir – White spruce / Shrub birch – Labrador tea / Step moss – Peat moss	<i>Abies lasiocarpa</i> – <i>Picea glauca</i> / <i>Betula glandulosa</i> – <i>Rhododendron groenlandicum</i> / <i>Hylocomium splendens</i> – <i>Sphagnum</i> spp.	
FSw36	Fir – White spruce / Currant / Horsetail – Tall bluebells / Step moss	<i>Abies lasiocarpa</i> – <i>Picea glauca</i> / <i>Ribes</i> spp. / <i>Equisetum</i> spp. – <i>Mertensia paniculata</i> / <i>Hylocomium splendens</i>	
FSw37	Fir – White spruce / Crowberry / Arctic mountain-heather / Horsetail	<i>Abies lasiocarpa</i> – <i>Picea glauca</i> / <i>Empetrum nigrum</i> / <i>Equisetum</i> spp. / <i>Hylocomium</i> – <i>Pleurozium</i>	2
SbF FPS FSbSw	Fir – black spruce associations		
SbF14	Black spruce – Fir / Shrub birch / Lichen – Feathermoss	<i>Picea mariana</i> – <i>Abies lasiocarpa</i> / <i>Betula glandulosa</i> / <i>Cladina</i> – <i>Pleurozium schreberi</i>	1
FPSb22	Fir – Pine – Spruce / Feathermoss	<i>Abies lasiocarpa</i> – <i>Pinus contorta</i> – <i>Picea</i> spp. / <i>Hylocomium</i> – <i>Pleurozium</i>	2
SbF25	Black spruce – Fir / Feathermoss	<i>Picea mariana</i> – <i>Abies lasiocarpa</i> / <i>Hylocomium</i> – <i>Pleurozium</i>	1
FSbSw33	Fir – Black spruce – White spruce / Alder – Willow / Feathermoss	<i>Abies lasiocarpa</i> – <i>Picea mariana</i> – <i>P. glauca</i> / <i>Alnus</i> – <i>Salix</i> spp. / <i>Hylocomium splendens</i>	2
SbF31	Black spruce – Fir / Cloudberry / Feathermoss – Peat moss	<i>Picea mariana</i> – <i>Abies lasiocarpa</i> / <i>Rubus chamaemorus</i> / <i>Hylocomium splendens</i> – <i>Sphagnum</i> spp.	
SbF41	Black spruce – Fir / Labrador tea / Feathermoss – Peat moss	<i>Picea mariana</i> – <i>Abies lasiocarpa</i> / <i>Rhododendron groenlandicum</i> / <i>Hylocomium</i> – <i>Pleurozium</i> – <i>Sphagnum</i> spp.	1
P	Pine associations		
P01	Pine / Kinnikinnick / Lichen	<i>Pinus contorta</i> / <i>Arctostaphylos uva-ursi</i> / <i>Cladina</i> spp.	1
P02	Pine / Kinnikinnick	<i>Pinus contorta</i> / <i>Arctostaphylos uva-ursi</i>	
P10	Pine / Shrub birch / Lichen	<i>Pinus contorta</i> / <i>Betula glandulosa</i> / <i>Cladina</i> spp.	
P21	Pine / Lowbush cranberry – Twinflower	<i>Pinus contorta</i> / <i>Vaccinium vitis-idaea</i> – <i>Linnaea borealis</i>	
P22	Pine / Soapberry	<i>Pinus contorta</i> / <i>Shepherdia canadensis</i>	
P23	Pine / Alder / Feathermoss	<i>Pinus contorta</i> / <i>Alnus alnobetula</i> / <i>Hylocomium splendens</i>	
P24	Pine / Alder – Labrador tea / Feathermoss	<i>Pinus contorta</i> / <i>Alnus alnobetula</i> – <i>Rhododendron groenlandicum</i> / <i>Hylocomium splendens</i>	
P25	Pine / Purple reedgrass	<i>Pinus contorta</i> / <i>Calamagrostis purpurascens</i>	
P26	Pine / Grass – Kinnikinnick – Lowbush cranberry	<i>Pinus contorta</i> / Poaceae – <i>Arctostaphylos uva-ursi</i> – <i>Vaccinium vitis-idaea</i>	
P27	Pine / Labrador tea / Lowbush cranberry	<i>Pinus contorta</i> / <i>Rhododendron groenlandicum</i> / <i>Vaccinium vitis-idaea</i>	
P28	Pine / Lowbush cranberry / Step moss	<i>Pinus contorta</i> / <i>Vaccinium vitis-idaea</i> / <i>Hylocomium splendens</i>	
P29	Pine / Labrador tea / Feathermoss	<i>Pinus contorta</i> / <i>Rhododendron groenlandicum</i> / <i>Hylocomium splendens</i>	
P30	Pine / Shrub birch / Altai fescue	<i>Pinus contorta</i> / <i>Betula glandulosa</i> / <i>Festuca altaica</i>	
P31	Pine / Shrub birch / Feathermoss	<i>Pinus contorta</i> / <i>Betula glandulosa</i> / Feathermoss	

4.1 Conifer associations (continued)

Code	Common name	Scientific name	Source
PSb PSbSw	Pine – black spruce (white spruce) associations		
PSb07	Pine – Black spruce / Shrub birch / Lichen	<i>Pinus contorta</i> – <i>Picea mariana</i> / <i>Betula glandulosa</i> / <i>Cladina</i>	1
PSb09	Pine – Black spruce / Labrador tea / Lowbush cranberry / Lichen	<i>Pinus contorta</i> – <i>Picea mariana</i> / <i>Rhododendron groenlandicum</i> / <i>Vaccinium vitis-idaea</i> / <i>Cladina</i>	2
PSb11	Pine – Black spruce / Lowbush cranberry – Kinnikinnick / Lichen	<i>Pinus contorta</i> – <i>Picea mariana</i> / <i>Vaccinium vitis-idaea</i> – <i>Arctostaphylos uva-ursi</i> / <i>Cladina</i>	1
PSb23	Pine – Black spruce / Alder / Feathermoss	<i>Picea mariana</i> – <i>Pinus contorta</i> / <i>Alnus alnobetula</i> / <i>Hylocomium splendens</i>	
PSb25	Pine – Black spruce / Labrador tea / Feathermoss	<i>Picea mariana</i> – <i>Pinus contorta</i> / <i>Rhododendron groenlandicum</i> / <i>Hylocomium splendens</i>	
PSbSw03	Pine – Black spruce – White spruce / Lowbush cranberry / Lichen	<i>Pinus contorta</i> – <i>Picea mariana</i> – <i>P. glauca</i> / <i>Vaccinium vitis-idaea</i> / <i>Cladina</i>	
PSbSw22	Pine – Black spruce – White spruce / Lowbush cranberry	<i>Pinus contorta</i> – <i>Picea mariana</i> – <i>P. glauca</i> / <i>Vaccinium vitis-idaea</i>	
PSbSw23	Pine – Black spruce – White spruce / Lowbush cranberry / Feathermoss	<i>Pinus contorta</i> – <i>Picea mariana</i> – <i>P. glauca</i> / <i>Vaccinium vitis-idaea</i> / <i>Hylocomium splendens</i>	1
PSbSw31	Pine – Black spruce – White spruce / Blueberry willow / Feathermoss	<i>Pinus contorta</i> – <i>Picea mariana</i> – <i>P. glauca</i> / <i>Salix myrtillofolia</i> / <i>Hylocomium splendens</i>	2
PSw	Pine – white spruce associations		
PSw01	Pine – White spruce / Kinnikinnick / Lichen	<i>Pinus contorta</i> – <i>Picea glauca</i> / <i>Arctostaphylos uva-ursi</i> / <i>Cladina</i>	1
PSw02	Pine – White spruce / Kinnikinnick	<i>Pinus contorta</i> – <i>Picea glauca</i> / <i>Arctostaphylos uva-ursi</i>	2
PSw03	Pine – White spruce / Lowbush cranberry / Lichen	<i>Pinus contorta</i> – <i>Picea glauca</i> / <i>Vaccinium vitis-idaea</i> / <i>Cladina</i>	1
PSw05	Pine – White spruce / Purple reedgrass	<i>Pinus contorta</i> – <i>Picea glauca</i> / <i>Calamagrostis purpurascens</i>	
PSw09	Pine – White spruce / Labrador tea / Lowbush cranberry / Lichen	<i>Pinus contorta</i> – <i>Picea glauca</i> / <i>Rhododendron groenlandicum</i> / <i>Vaccinium vitis-idaea</i> / <i>Cladina</i>	2
PSw20	Pine – White spruce / Shrub birch – Willow / Grass	<i>Pinus contorta</i> – <i>Picea glauca</i> / <i>Betula glandulosa</i> – <i>Salix</i> spp. / <i>Poaceae</i>	
PSw21	Pine – White spruce / Shrub birch / Crowberry	<i>Pinus contorta</i> – <i>Picea glauca</i> / <i>Betula glandulosa</i> / <i>Empetrum nigrum</i>	
PSw23	Pine – White spruce / Lowbush cranberry – Twinflower	<i>Pinus contorta</i> – <i>Picea glauca</i> / <i>Vaccinium vitis-idaea</i> – <i>Linnaea borealis</i>	1
PSw24	Pine – White spruce / Lowbush cranberry – Twinflower / Feathermoss	<i>Pinus contorta</i> – <i>Picea glauca</i> / <i>Vaccinium vitis-idaea</i> / <i>Hylocomium splendens</i> – <i>Pleurozium schreberi</i>	
PSw25	Pine – White spruce / Altai fescue	<i>Pinus contorta</i> – <i>Picea glauca</i> / <i>Festuca altaica</i>	
PSw26	Pine – White spruce / Soapberry / Feathermoss	<i>Pinus contorta</i> – <i>Picea glauca</i> / <i>Shepherdia canadensis</i> / <i>Hylocomium splendens</i>	
PSw27	Pine – White spruce / Labrador tea / Crowberry / Feathermoss	<i>Pinus contorta</i> – <i>Picea glauca</i> / <i>Rhododendron groenlandicum</i> / <i>Empetrum nigrum</i> / <i>Hylocomium splendens</i>	2
PSw28	Pine – White spruce / Shrub birch – Labrador tea / Crowberry / Step moss	<i>Pinus contorta</i> – <i>Picea glauca</i> / <i>Betula glandulosa</i> – <i>Rhododendron groenlandicum</i> / <i>Empetrum nigrum</i> / <i>Hylocomium splendens</i>	

4.1 Conifer associations (continued)

Code	Common name	Scientific name	Source
Sb	Black spruce-dominated associations		
Sb10	Black spruce / Labrador tea / Lichen woodland	<i>Picea mariana</i> / <i>Rhododendron groenlandicum</i> - <i>tomentosum</i> / <i>Cladina</i>	1
Sb12	Black spruce / Willow – Labrador tea / Lichen	<i>Picea mariana</i> / <i>Salix</i> – <i>Rhododendron groenlandicum</i> / <i>Cladina</i>	
Sb22	Black spruce / Lowbush cranberry / Feathermoss	<i>Picea mariana</i> / <i>Vaccinium vitis-idaea</i> / <i>Hylocomium-Pleurozium</i>	
Sb23	Black spruce / Labrador tea / Feathermoss	<i>Picea mariana</i> / <i>Rhododendron groenlandicum</i> / <i>Hylocomium-Pleurozium</i>	
Sb24	Black spruce / Alder / Sweet coltsfoot – Horsetail / Feathermoss	<i>Picea mariana</i> / <i>Alnus</i> spp. / <i>Petasites frigidus</i> – <i>Equisetum arvense</i> / <i>Hylocomium-Pleurozium</i>	
Sb26	Black spruce / Shrub birch / Lowbush cranberry / Feathermoss	<i>Picea mariana</i> / <i>Betula glandulosa</i> / <i>Vaccinium vitis-idaea</i> / <i>Hylocomium-Pleurozium</i>	
Sb31	Black spruce / Horsetail / Step moss	<i>Picea mariana</i> / <i>Equisetum</i> / <i>Hylocomium splendens</i>	
Sb32	Black spruce / Blueberry willow / Dwarf scouring-rush / Step moss	<i>Picea mariana</i> / <i>Salix myrtillifolia</i> / <i>Equisetum scirpoides</i> / <i>Hylocomium splendens</i>	
Sb33	Black spruce / Labrador tea – Blueberry willow / Dwarf scouring-rush / Step moss	<i>Picea mariana</i> / <i>Rhododendron groenlandicum</i> – <i>Salix myrtillifolia</i> / <i>Equisetum scirpoides</i> / <i>Hylocomium splendens</i>	
Sb34	Black spruce / Labrador tea / Lowbush cranberry / Feathermoss – Peat moss	<i>Picea mariana</i> / <i>Rhododendron groenlandicum</i> / <i>Vaccinium vitis-idaea</i> / <i>Hylocomium-Pleurozium</i> – <i>Sphagnum</i> spp.	
Sb35	Black spruce / Alder – Labrador tea / Lichen – Peat moss	<i>Picea mariana</i> / <i>Alnus alnobetula</i> – <i>Rhododendron groenlandicum</i> - <i>tomentosum</i> / <i>Cladina</i> – <i>Sphagnum</i> spp.	2
Sb36	Black spruce / Labrador tea / Lowbush cranberry / Lichen – Peat moss	<i>Picea mariana</i> / <i>Rhododendron groenlandicum</i> / <i>Cladina</i> – <i>Sphagnum</i> spp.	
Sb41	Black spruce / Labrador tea / Sedge / Peat moss	<i>Picea mariana</i> / <i>Rhododendron groenlandicum</i> - <i>tomentosum</i> / <i>Carex</i> / <i>Sphagnum</i> spp.	1
Sb42	Black spruce / Labrador tea / Lichen – Peat moss	<i>Picea mariana</i> / <i>Rhododendron groenlandicum</i> / <i>Cladina</i> – <i>Sphagnum</i> spp.	
Sb43	Black spruce / Labrador tea / Feathermoss – Peat moss	<i>Picea mariana</i> / <i>Rhododendron groenlandicum</i> / <i>Hylocomium-Pleurozium</i> – <i>Sphagnum</i> spp.	
Sb43s	Black spruce / Labrador tea / Feathermoss – Peat moss; slope phase	<i>Picea mariana</i> / <i>Rhododendron groenlandicum</i> / Feathermoss – <i>Sphagnum</i> spp.; slope phase	
Sb44	Black spruce / Labrador tea / Cloudberry – Lowbush cranberry / Peat moss	<i>Picea mariana</i> / <i>Rhododendron groenlandicum</i> / <i>Rubus chamaemorus</i> – <i>Vaccinium vitis-idaea</i> / <i>Sphagnum</i> spp.	
Sb50	Black spruce / Spruce muskeg sedge	<i>Picea mariana</i> / <i>Carex lugens</i>	
Sb51	Black spruce / Shrub birch / Spruce muskeg sedge	<i>Picea mariana</i> / <i>Betula glandulosa</i> / <i>Carex lugens</i>	2
Sb52	Black spruce / Leatherleaf / Spruce muskeg sedge	<i>Picea mariana</i> / <i>Chamaedaphne calyculata</i> / <i>Carex lugens</i>	
Sb54	Black spruce / Water sedge / Brown moss	<i>Picea mariana</i> / <i>Carex aquatilis</i> / <i>Tomentypnum-Aulacomnium</i>	
Sb55	Black spruce / Tussock cottongrass	<i>Picea mariana</i> / <i>Eriophorum vaginatum</i>	1
Sb56	Black spruce / Close-sheathed cottongrass	<i>Picea mariana</i> / <i>Eriophorum brachyantherum</i>	2
SbL SL	Black spruce – larch associations		
SbL05	Black spruce – Larch / Lowbush cranberry / Lichen	<i>Picea mariana</i> – <i>Larix laricina</i> / <i>Vaccinium vitis-idaea</i> / <i>Cladina</i>	2
SbL23	Spruce – Larch / Lowbush cranberry / Step moss	<i>Picea glauca-mariana</i> – <i>Larix laricina</i> / <i>Vaccinium vitis-idaea</i> / <i>Hylocomium splendens</i>	
SbL31	Black spruce – Larch / Blueberry / Red bearberry / Step moss	<i>Picea mariana</i> – <i>Larix laricina</i> / <i>Vaccinium uliginosum</i> / <i>Arctous rubra</i> / <i>Hylocomium splendens</i>	
SbL44	Black spruce – Larch / Labrador tea / Peat moss	<i>Picea mariana</i> – <i>Larix laricina</i> / <i>Rhododendron groenlandicum</i> / <i>Sphagnum</i> spp.	
SbL45	Black spruce – Larch / Leatherleaf / Peat moss	<i>Picea mariana</i> – <i>Larix laricina</i> / <i>Chamaedaphne calyculata</i> / <i>Sphagnum</i> spp.	

4.1 Conifer associations (continued)

Code	Common name	Scientific name	Source
SbL50	Black spruce – Larch / Shrub birch / Water sedge / Glow moss – Peat moss	<i>Picea mariana</i> – <i>Larix laricina</i> / <i>Betula glandulosa</i> / <i>Carex aquatilis</i> / <i>Aulacomnium palustre</i> – <i>Sphagnum</i> spp.	1
SbL51	Black spruce – Larch / Labrador tea / Feathermoss – Glow moss	<i>Picea mariana</i> – <i>Larix laricina</i> / <i>Rhododendron groenlandicum</i> / <i>Hylocomium splendens</i> – <i>Aulacomnium palustre</i>	2
SbSw	Black spruce – white spruce associations		
SbSw22	Black spruce – White spruce / Lowbush cranberry – Feathermoss	<i>Picea mariana</i> – <i>P. glauca</i> / <i>Vaccinium vitis-idaea</i> / <i>Hylocomium-Pleurozium</i>	1
SbSw24	Black spruce – White spruce / Shrub birch / Feathermoss	<i>Picea mariana</i> – <i>P. glauca</i> / <i>Betula glandulosa</i> / <i>Hylocomium-Pleurozium</i>	2
SbSw25	Black spruce – White spruce / Shrub birch / Red bearberry / Feathermoss	<i>Picea mariana</i> – <i>P. glauca</i> / <i>Betula glandulosa</i> / <i>Arctous rubra</i> / <i>Hylocomium-Pleurozium</i>	
SbSw30	Black spruce – White spruce / Labrador tea / Feathermoss	<i>Picea mariana</i> – <i>P. glauca</i> / <i>Rhododendron groenlandicum</i> / <i>Hylocomium-Pleurozium</i>	1
SbSw31	Black spruce – White spruce / Blueberry willow / Feathermoss	<i>Picea mariana</i> – <i>P. glauca</i> / <i>Salix myrtillifolia</i> / <i>Hylocomium splendens</i>	
SbSw32	Black spruce (White spruce) / Red bearberry / Feathermoss – Brown moss	<i>Picea mariana</i> (<i>P. glauca</i>) / <i>Arctous rubra</i> / <i>Hylocomium-Tomentypnum</i>	
SbSw33	Black spruce – White spruce / Labrador tea – Blueberry willow / Feathermoss	<i>Picea mariana</i> – <i>P. glauca</i> / <i>Rhododendron groenlandicum</i> – <i>Salix myrtillifolia</i> / <i>Hylocomium splendens</i>	2
SbSw38	Black spruce (White spruce) / Labrador tea / Red bearberry / Feathermoss – Brown moss	<i>Picea mariana</i> (<i>P. glauca</i>) / <i>Rhododendron groenlandicum</i> / <i>Arctous rubra</i> / <i>Hylocomium</i> – <i>Amblystegiaceae</i>	
SbSw39	Black spruce – white spruce / Willow / Horsetail / Brown moss	<i>Picea glauca</i> – <i>P. mariana</i> / <i>Salix</i> spp. / <i>Equisetum</i> / <i>Amblystegiaceae</i>	
SbSw41	Black spruce – White spruce / Shrub birch / Feathermoss – Brown moss	<i>Picea mariana</i> – <i>P. glauca</i> / <i>Betula glandulosa</i> / <i>Tomentypnum nitens</i>	
SbSw53	Black spruce – White spruce / Leatherleaf / Bluejoint reedgrass	<i>Picea mariana</i> – <i>P. glauca</i> / <i>Chamaedaphne calyculata</i> / <i>Calamagrostis canadensis</i>	
SbSw54	Black spruce – White spruce / Leatherleaf / Peat moss	<i>Picea mariana</i> – <i>P. glauca</i> / <i>Chamaedaphne calyculata</i> / <i>Sphagnum</i> spp.	
SbSw55	Black spruce – White spruce / Leatherleaf / Tussock cottongrass	<i>Picea mariana</i> – <i>P. glauca</i> / <i>Chamaedaphne calyculata</i> / <i>Eriophorum vaginatum</i>	
SbSw56	Black spruce – White spruce / Water sedge / Brown moss	<i>Picea glauca</i> – <i>P. mariana</i> / <i>Carex aquatilis</i> / <i>Aulacomnium</i> / <i>Tomentypnum</i>	
Sw	White spruce-dominated associations		
Sw01	White spruce / Kinnikinnick / Lichen	<i>Picea glauca</i> / <i>Arctostaphylos uva-ursi</i> / Lichen	1
Sw02	White spruce / Kinnikinnick	<i>Picea glauca</i> / <i>Arctostaphylos uva-ursi</i>	
Sw05	White spruce / Mountain-avens – Lapland rosebay – Kinnikinnick	<i>Picea glauca</i> / <i>Dryas integrifolia</i> – <i>Rhododendron lapponicum</i> – <i>Arctostaphylos uva-ursi</i>	
Sw09%	White spruce / Alder / Yellow mountain-avens	<i>Picea glauca</i> / <i>Alnus alnobetula</i> / <i>Dryas drummondii</i>	
Sw11	White spruce / Mountain-avens – Alpine bearberry	<i>Picea glauca</i> / <i>Dryas integrifolia</i> - <i>octopetala</i> – <i>Arctous alpinus</i>	
Sw14	White spruce / Mountain-heather / Step moss	<i>Picea glauca</i> / <i>Cassiope tetragona</i> / <i>Hylocomium splendens</i>	2
Sw15	White spruce / Blueberry / Mountain-avens – Lapland rosebay	<i>Picea glauca</i> / <i>Vaccinium uliginosum</i> / <i>Dryas integrifolia</i> – <i>Rhododendron lapponicum</i>	1
Sw16	White spruce / Alder / Mountain-avens – Lapland rosebay	<i>Picea glauca</i> / <i>Alnus alnobetula</i> / <i>Dryas integrifolia</i> – <i>Rhododendron lapponicum</i>	
Sw17	White spruce / Highbush cranberry / Feathermoss	<i>Picea glauca</i> / <i>Viburnum edule</i> / <i>Hylocomium-Pleurozium</i>	
Sw18	White spruce / Red-osier dogwood / Horsetail – Mitrewort	<i>Picea glauca</i> / <i>Cornus sericea</i> / <i>Equisetum arvense-pratense</i> – <i>Mitella nuda</i>	
Sw20	White spruce / Grass – Kinnikinnick	<i>Picea glauca</i> / <i>Poaceae</i> – <i>Arctostaphylos uva-ursi</i>	

4.1 Conifer associations (continued)

Code	Common name	Scientific name	Source
Sw21	White spruce / Lapland rosebay – Net-veined willow – Marsh horsetail	<i>Picea glauca</i> / <i>Rhododendron lapponicum</i> – <i>Salix reticulata</i> – <i>Equisetum palustre</i>	1
Sw22	White spruce / Willow – Blueberry / Polargrass / Feathermoss	<i>Picea glauca</i> / <i>Salix</i> – <i>Vaccinium uliginosum</i> / <i>Arctagrostis latifolia</i> / <i>Hylocomium-Pleurozium</i>	
Sw23	White spruce / Mountain-avens – Lapland rosebay – Horsetail	<i>Picea glauca</i> / <i>Dryas integrifolia</i> – <i>Rhododendron lapponicum</i> – <i>Equisetum arvense</i>	
Sw24	White spruce / Mountain-avens – Lapland rosebay – Muskeg sedge	<i>Picea glauca</i> / <i>Dryas integrifolia</i> – <i>Rhododendron lapponicum</i> – <i>Carex bigelowii</i> ssp. <i>lugens</i>	
Sw25	White spruce / Shrub birch – Willow / Altai fescue – Kinnikinnick	<i>Picea glauca</i> / <i>Betula glandulosa</i> – <i>Salix glauca</i> / <i>Festuca altaica</i> – <i>Arctostaphylos uva-ursi</i>	
Sw26	White spruce / Soapberry / Step moss	<i>Picea glauca</i> / <i>Shepherdia canadensis</i> / <i>Hylocomium splendens</i>	
Sw27	White spruce / Feathermoss	<i>Picea glauca</i> / <i>Hylocomium splendens</i>	
Sw28	White spruce / Shrub birch / Crowberry / Reindeer lichen	<i>Picea glauca</i> / <i>Betula glandulosa</i> / <i>Empetrum nigrum</i> / <i>Cladina</i>	
Sw29	White spruce / Labrador tea / Crowberry / Feathermoss	<i>Picea glauca</i> / <i>Rhododendron groenlandicum</i> / <i>Empetrum nigrum</i> / <i>Hylocomium splendens</i>	
Sw30	White spruce / Shrub birch / Crowberry / Feathermoss	<i>Picea glauca</i> / <i>Betula glandulosa</i> / <i>Empetrum nigrum</i> / <i>Hylocomium-Pleurozium</i>	
Sw31	White spruce / Willow / Red bearberry / Feathermoss	<i>Picea glauca</i> / <i>Salix</i> spp. / <i>Arctous rubra</i> / <i>Hylocomium splendens</i>	
Sw32	White spruce / Willow / Red bearberry / Brown moss	<i>Picea glauca</i> / <i>Salix</i> spp. / <i>Arctous rubra</i> / <i>Amblystegiaceae</i>	
Sw34	White spruce / Alder – Highbush cranberry / Wild sarsaparilla – Mitrewort	<i>Picea glauca</i> / <i>Alnus</i> – <i>Viburnum edule</i> / <i>Aralia nudicaulis</i> – <i>Mitella nuda</i>	
Sw35	White spruce / Red raspberry – Devil's club	<i>Picea glauca</i> / <i>Rubus idaeus</i> – <i>Oplopanax horridus</i>	
Sw36	White spruce / Highbush cranberry / Horsetail	<i>Picea glauca</i> / <i>Viburnum edule</i> / <i>Equisetum arvense-pratense</i>	
Sw37	White spruce / Alder / Feathermoss – Brown moss	<i>Picea glauca</i> / <i>Alnus</i> / <i>Hylocomium splendens</i> – <i>Amblystegiaceae</i>	2
Sw39	White spruce / Willow / Horsetail / Brown moss	<i>Picea glauca</i> / <i>Salix</i> spp. / <i>Equisetum arvense-pratense</i> / <i>Aulacomnium</i> – <i>Tomentypnum</i>	1
Sw41	White spruce / Shrub birch / Feathermoss – Brown moss	<i>Picea glauca</i> / <i>Betula glandulosa</i> / <i>Hylocomium splendens</i> – <i>Aulacomnium</i> – <i>Tomentypnum</i>	
Sw50	White spruce / Water sedge / Golden fuzzy fen moss	<i>Picea glauca</i> / <i>Carex aquatilis</i> / <i>Tomentypnum nitens</i>	
Sw51	White spruce / Shrub birch / Water sedge	<i>Picea glauca</i> / <i>Betula glandulosa</i> / <i>Carex aquatilis</i>	
Sw52	White spruce / Shrub birch / Bluejoint reedgrass	<i>Picea glauca</i> / <i>Betula glandulosa</i> / <i>Calamagrostis canadensis</i>	2
Sw54	White spruce / Shrub birch / Sedge / Golden fuzzy fen moss	<i>Picea glauca</i> / <i>Betula glandulosa</i> / <i>Carex</i> / <i>Tomentypnum nitens</i>	
Sw55	White spruce / Mountain-avens / Tussock cottongrass	<i>Picea glauca</i> / <i>Eriophorum vaginatum</i> / <i>Dryas integrifolia</i>	1
Sw56	White spruce / Shrub birch / Grass / Peat moss	<i>Picea glauca</i> / <i>Betula glandulosa</i> / <i>Poaceae</i> / <i>Sphagnum</i> spp.	2

Source: 1. Concept authors: Del Meidinger, Catherine Kennedy, Karen McKenna, Nadele Flynn, Ken Baldwin and Kim Chapman. May 2014. Initial association development 2012–2014; 2. Del Meidinger. 2017–2023. Subsequent association development for ecosite guides.

4.2 Deciduous associations — see Chapter 6

Code	Common name	Scientific name	Source
A	Aspen-dominated associations		
A02	Aspen / Juniper	<i>Populus tremuloides</i> / <i>Juniperus communis</i>	1
A03	Aspen / Kinnikinnick	<i>Populus tremuloides</i> / <i>Arctostaphylos uva-ursi</i>	
A04	Aspen / Prickly rose / Grass	<i>Populus tremuloides</i> / <i>Rosa acicularis</i> / Poaceae	
A09	Aspen / Shrub birch / Altai fescue	<i>Populus tremuloides</i> / <i>Betula glandulosa</i> / <i>Festuca altaica</i>	
A20	Aspen / Grass – Kinnikinnick	<i>Populus tremuloides</i> / Poaceae – <i>Arctostaphylos uva-ursi</i>	
A21	Aspen / Soapberry / Kinnikinnick	<i>Populus tremuloides</i> / <i>Shepherdia canadensis</i> / <i>Arctostaphylos uva-ursi</i>	1
A25	Aspen / Willow / Purple reedgrass / Thread-moss	<i>Populus tremuloides</i> / <i>Salix</i> spp. / <i>Calamagrostis purpurascens</i> / <i>Gemmabryum caespiticium</i>	
A26	Aspen / Highbush cranberry / Bunchberry	<i>Populus tremuloides</i> / <i>Viburnum edule</i> / <i>Cornus canadensis</i>	
A28	Aspen / Labrador tea	<i>Populus tremuloides</i> / <i>Rhododendron groenlandicum</i>	
A29	Aspen / Prickly rose / Fireweed	<i>Populus tremuloides</i> / <i>Rosa acicularis</i> / <i>Chamaenerion angustifolium</i>	
A34	Aspen / Horsetail	<i>Populus tremuloides</i> / <i>Equisetum arvense</i>	
A35	Aspen / Ostrich fern	<i>Populus tremuloides</i> / <i>Matteuccia struthiopteris</i>	
AB03	Aspen – Balsam poplar / Rocky Mountain fescue – Yukon lupine	<i>Populus tremuloides</i> – <i>Populus balsamifera</i> / <i>Festuca saximontana</i> – <i>Lupinus kuschei</i>	
B	Balsam poplar associations		
B01	Balsam poplar / Juniper / Kinnikinnick	<i>Populus balsamifera</i> / <i>Juniperus communis</i> / <i>Arctostaphylos uva-ursi</i>	1
B22	Balsam poplar / River alder – Red-osier dogwood / Horsetail	<i>Populus balsamifera</i> / <i>Alnus incana</i> – <i>Cornus sericea</i> / <i>Equisetum</i>	
B23	Balsam poplar / Highbush cranberry / Horsetail	<i>Populus balsamifera</i> / <i>Viburnum edule</i> / <i>Equisetum</i>	
B24	Balsam poplar / River alder / Horsetail	<i>Populus balsamifera</i> / <i>Alnus incana</i> / <i>Equisetum</i>	
B25	Balsam poplar / Alder – Highbush cranberry / Dwarf raspberry – Bunchberry	<i>Populus balsamifera</i> / <i>Alnus alnobetula</i> – <i>Viburnum edule</i> / <i>Rubus pubescens</i> – <i>Cornus canadensis</i>	
B27	Balsam poplar / Willow – Soapberry / Alpine hedsarum	<i>Populus balsamifera</i> / <i>Salix</i> – <i>Shepherdia canadensis</i> / <i>Hedysarum alpinum</i>	
B29	Balsam poplar / Shrubby cinquefoil – Soapberry / Alpine hedsarum	<i>Populus balsamifera</i> / <i>Dasiphora fruticosa</i> – <i>Shepherdia canadensis</i> / <i>Hedysarum alpinum</i>	
B31	Balsam poplar / Willow / Fireweed	<i>Populus balsamifera</i> / <i>Salix</i> spp. / <i>Chamaenerion angustifolium</i>	
W	Birch associations and aspen-birch associations		
AW22	Aspen – Paper birch / Highbush cranberry / Twinflower	<i>Populus tremuloides</i> – <i>Betula papyrifera</i> / <i>Viburnum edule</i> / <i>Linnaea borealis</i>	2
W25	Alaska birch / Alder – Prickly rose	<i>Betula neoalaskana</i> / <i>Alnus alnobetula</i> – <i>Rosa acicularis</i>	1
W26	Alaska birch / Highbush cranberry – Prickly rose / Tall bluebells	<i>Betula neoalaskana</i> / <i>Viburnum edule</i> – <i>Rosa acicularis</i> / <i>Mertensia paniculata</i>	2
W27	Alaska birch / Prickly rose / Bluejoint reedgrass	<i>Betula neoalaskana</i> / <i>Rosa acicularis</i> / <i>Calamagrostis canadensis</i>	
W28	Alaska birch / Labrador tea / Lowbush cranberry / Step moss	<i>Betula neoalaskana</i> / <i>Rhododendron groenlandicum</i> / <i>Vaccinium vitis-idaea</i> / <i>Hylocomium splendens</i>	
W29	Alaska birch / Prickly rose / Horsetail	<i>Betula neoalaskana</i> / <i>Rosa acicularis</i> / <i>Equisetum</i>	

Code	Common name	Scientific name	Source
W30	Alaska birch / Currant / Horsetail	<i>Betula neoalaskana</i> / <i>Ribes</i> / <i>Equisetum</i>	1
W32	Water birch / Shrub birch – Labrador tea	<i>Betula occidentalis</i> / <i>Betula glandulosa</i> – <i>Rhododendron groenlandicum</i>	
W33	Alaska birch / Alder – Northern Labrador tea	<i>Betula neoalaskana</i> / <i>Alnus alnobetula</i> – <i>Rhododendron tomentosum</i>	
W39	Alaska birch / Northern Labrador tea / Peat moss	<i>Betula neoalaskana</i> / <i>Rhododendron tomentosum</i> / <i>Sphagnum</i> spp.	2
W54	Alaska birch / Leatherleaf / Spruce muskeg sedge	<i>Betula neoalaskana</i> / <i>Chamaedaphne calyculata</i> / <i>Carex bigelowii</i> ssp. <i>lugens</i>	
W55	Alaska birch / Leatherleaf / Tussock cottongrass	<i>Betula neoalaskana</i> / <i>Chamaedaphne calyculata</i> / <i>Eriophorum vaginatum</i>	

Source: 1. Concept authors: Del Meidinger, Catherine Kennedy, Karen McKenna, Nadele Flynn, Ken Baldwin and Kim Chapman. May 2014. Initial association development 2012–2014; 2. Del Meidinger. 2017–2023. Subsequent association development for ecosite guides.

4.3 Mixed-wood associations — see Chapter 7

Code	Common association name	Scientific association name	Source
ASw	Aspen – white spruce associations		
ASw05	Aspen – White spruce / Kinnikinnick	<i>Populus tremuloides</i> – <i>Picea glauca</i> / <i>Arctostaphylos uva-ursi</i>	1
ASw06	Aspen – White spruce / Soapberry / Fireweed	<i>Populus tremuloides</i> – <i>Picea glauca</i> / <i>Shepherdia canadensis</i> / <i>Chamaenerion angustifolium</i>	
ASw07	Aspen – White spruce / Purple reedgrass – Kinnikinnick	<i>Populus tremuloides</i> – <i>Picea glauca</i> / <i>Calamagrostis purpurascens</i> – <i>Arctostaphylos uva-ursi</i>	
ASw12	Aspen – White spruce / Shrub birch / Crowberry	<i>Populus tremuloides</i> – <i>Picea glauca</i> / <i>Betula glandulosa</i> / <i>Empetrum nigrum</i>	
ASw21	Aspen – White spruce / Alder – Highbush cranberry / Dwarf raspberry – Bunchberry	<i>Populus tremuloides</i> – <i>Picea glauca</i> / <i>Alnus viridis</i> – <i>Viburnum edule</i> / <i>Rubus pubescens</i> – <i>Cornus canadensis</i>	
ASw26	Aspen – White spruce / Fireweed – Kinnikinnick	<i>Populus tremuloides</i> – <i>Picea glauca</i> / <i>Chamaenerion angustifolium</i> – <i>Arctostaphylos uva-ursi</i>	
ASw27	Aspen – White spruce / Labrador tea / Lowbush cranberry	<i>Populus tremuloides</i> – <i>Picea glauca</i> / <i>Rhododendron groenlandicum</i> / <i>Vaccinium vitis-idaea</i>	
ASw29	Aspen – White spruce / River alder / Dwarf raspberry – Horsetail	<i>Populus tremuloides</i> – <i>Picea glauca</i> / <i>Alnus incana</i> / <i>Rubus pubescens</i> – <i>Equisetum</i>	
ASw30	Aspen – White spruce / Horsetail – Bunchberry	<i>Populus tremuloides</i> – <i>Picea glauca</i> / <i>Equisetum</i> – <i>Cornus canadensis</i>	
ASb	Aspen – black spruce associations		
ASb05	Aspen – Black spruce / Kinnikinnick	<i>Populus tremuloides</i> – <i>Picea mariana</i> / <i>Arctostaphylos uva-ursi</i>	2
ASb26	Aspen – Black spruce / Lowbush cranberry / Feathermoss	<i>Populus tremuloides</i> – <i>Picea mariana</i> / <i>Vaccinium vitis-idaea</i> / <i>Hylocomium splendens</i>	
ASb27	Aspen – Black spruce / Labrador tea / Lowbush cranberry	<i>Populus tremuloides</i> – <i>Picea mariana</i> / <i>Rhododendron groenlandicum</i> / <i>Vaccinium vitis-idaea</i>	

Code	Common association name	Scientific association name	Source
AP APSw APSB AFP	Aspen – pine associations		
AP04	Aspen – Pine / Kinnikinnick / Lichen	<i>Populus tremuloides</i> – <i>Pinus contorta</i> / <i>Arctostaphylos uva-ursi</i> / Lichen	1
APSw03	Aspen – Pine – White spruce / Kinnikinnick	<i>Populus tremuloides</i> – <i>Pinus contorta</i> – <i>Picea glauca</i> / <i>Arctostaphylos uva-ursi</i>	2
APSw06	Aspen – Pine – White spruce / Purple reedgrass / Kinnikinnick	<i>Populus tremuloides</i> – <i>Pinus contorta</i> – <i>Picea glauca</i> / <i>Calamagrostis purpurascens</i> / <i>Arctostaphylos uva-ursi</i>	1
AFP10	Aspen – Fir – Pine / Shrub birch – Juniper / Kinnikinnick	<i>Populus tremuloides</i> – <i>Abies lasiocarpa</i> – <i>Pinus contorta</i> / <i>Betula glandulosa</i> – <i>Juniperus communis</i> / <i>Arctostaphylos uva-ursi</i>	1
AP22	Aspen – Pine – White spruce / Alder/ Lowbush cranberry / Feathermoss	<i>Populus tremuloides</i> – <i>Pinus contorta</i> – <i>Picea glauca</i> / <i>Alnus alnobetula</i> / <i>Vaccinium vitis-idaea</i> / Feathermoss	
APSw25	Aspen – Pine – White spruce / Soapberry	<i>Populus tremuloides</i> – <i>Pinus contorta</i> – <i>Picea glauca</i> / <i>Shepherdia canadensis</i>	
AP27	Aspen – Pine / Lowbush cranberry / Feathermoss	<i>Populus tremuloides</i> – <i>Pinus contorta</i> / <i>Vaccinium vitis-idaea</i> / <i>Hylocomium</i> – <i>Pleurozium</i>	
APSB26	Aspen – Pine – Black spruce / Lowbush cranberry / Feathermoss	<i>Populus tremuloides</i> – <i>Pinus contorta</i> – <i>Picea mariana</i> / <i>Vaccinium vitis-idea</i> / <i>Hylocomium splendens</i>	2
APSB27	Aspen – Pine – Black spruce / Labrador tea / Lowbush cranberry	<i>Populus tremuloides</i> – <i>Pinus contorta</i> – <i>Picea mariana</i> / <i>Rhododendron groenlandicum</i> / <i>Vaccinium vitis-idea</i>	1
SbW SbSwW PSbW	Black spruce – Birch associations		
SbSwW21	Black spruce – White spruce – Alaska birch / Labrador tea / Lowbush cranberry / Feathermoss	<i>Picea mariana</i> – <i>P. glauca</i> – <i>Betula neoalaskana</i> / <i>Rhododendron groenlandicum</i> / <i>Vaccinium vitis-idaea</i> / <i>Hylocomium splendens</i>	1
PSbW22	Pine – Black spruce – Alaska birch / Alder / Lowbush cranberry – Fireweed / Feathermoss	<i>Pinus contorta</i> – <i>Picea mariana</i> – <i>Betula neoalaskana</i> / <i>Alnus alnobetula</i> / <i>Vaccinium vitis-idaea</i> – <i>Chamaenerion angustifolium</i> / <i>Hylocomium splendens</i>	
SbW22	Black spruce – Alaska birch / Lowbush cranberry / Feathermoss	<i>Picea mariana</i> – <i>Betula neoalaskana</i> / <i>Vaccinium vitis-idaea</i> / <i>Hylocomium splendens</i>	
SbSwW25	Black spruce – White spruce – Alaska birch / Prickly rose / Twinflower – Tall bluebells / Feathermoss	<i>Picea mariana</i> – <i>P. glauca</i> – <i>Betula neoalaskana</i> / <i>Rosa acicularis</i> / <i>Linnaea borealis</i> – <i>Mertensia paniculata</i> / <i>Hylocomium splendens</i>	
SbSwW34	Black spruce – White spruce – Alaska birch / Alder – Prickly rose / Horsetail	<i>Picea mariana</i> – <i>P. glauca</i> – <i>Betula neoalaskana</i> / <i>Alnus alnobetula</i> – <i>Rosa acicularis</i> / <i>Equisetum arvense</i>	
SbW34	Black spruce – Alaska birch / Green alder – Labrador tea / Feathermoss – Peat moss	<i>Picea mariana</i> – <i>Betula neoalaskana</i> / <i>Alnus alnobetula</i> / <i>Rhododendron groenlandicum</i> / <i>Hylocomium splendens</i> – <i>Sphagnum</i> spp.	
SbW35	Black spruce – Alaska birch / Labrador tea – Blueberry / Peat moss	<i>Picea mariana</i> – <i>Betula neoalaskana</i> / <i>Rhododendron groenlandicum</i> – <i>Vaccinium uliginosum</i> / <i>Sphagnum</i> spp.	2
SbW36	Black spruce – Alaska birch / Alder – Labrador tea / Peat moss	<i>Picea mariana</i> – <i>Betula neoalaskana</i> / <i>Alnus alnobetula</i> – <i>Rhododendron groenlandicum</i> / <i>Sphagnum</i> spp.	
SbW50	Black spruce – Alaska birch / Tussock cottongrass	<i>Picea mariana</i> – <i>Betula neoalaskana</i> / <i>Eriophorum vaginatum</i>	

4.3 Mixed-wood associations (continued)

Code	Common association name	Scientific association name	Source
SwB FSwB	White spruce – Balsam poplar associations		
FSwB03	Fir – White spruce – Balsam poplar / Shrub birch – Juniper	<i>Abies lasiocarpa</i> – <i>Picea glauca</i> – <i>Populus balsamifera</i> / <i>Betula glandulosa</i> – <i>Juniperus communis</i>	2
SwB04	White spruce – Balsam poplar / Yukon lupine	<i>Picea glauca</i> – <i>Populus balsamifera</i> / <i>Lupinus kuschei</i>	
SwB20	White spruce – Balsam poplar / Juniper – Soapberry / Red bearberry – Alpine hedysarum	<i>Picea glauca</i> – <i>Populus balsamifera</i> / <i>Juniperus communis</i> – <i>Shepherdia canadensis</i> / <i>Arctous rubra</i> – <i>Hedysarum alpinum</i>	1
SwB22	White spruce – Balsam poplar / Highbush cranberry / Tall bluebells	<i>Picea glauca</i> – <i>Populus balsamifera</i> / <i>Viburnum edule</i> / <i>Mertensia paniculata</i>	
SwB25	White spruce – Balsam poplar / Highbush cranberry – Red-osier dogwood / Wild sarsaparilla	<i>Picea glauca</i> – <i>Populus balsamifera</i> / <i>Viburnum edule</i> – <i>Cornus sericea</i> / <i>Aralia nudicaulis</i>	
SwB27	White spruce – Balsam poplar / Soapberry	<i>Populus balsamifera</i> – <i>Picea glauca</i> / <i>Shepherdia canadensis</i>	
SwB28	White spruce – Balsam poplar / Step moss	<i>Picea glauca</i> – <i>Populus balsamifera</i> / <i>Hylocomium splendens</i>	1
SwB29	White spruce – Balsam poplar / Highbush cranberry / Horsetail	<i>Picea glauca</i> – <i>Populus balsamifera</i> / <i>Viburnum edule</i> / <i>Equisetum</i>	
SwB30	White spruce – Balsam poplar / River alder / Oak fern	<i>Picea glauca</i> – <i>Populus balsamifera</i> / <i>Alnus incana</i> / <i>Gymnocarpium dryopteris</i>	
SwB31	White spruce – Balsam poplar / Alder / Devil's club	<i>Picea glauca</i> – <i>Populus balsamifera</i> / <i>Alnus viridis</i> / <i>Oplopanax horridus</i>	
SwB33	White spruce – Balsam poplar / River alder / Ostrich fern	<i>Picea glauca</i> – <i>Populus balsamifera</i> / <i>Alnus incana</i> / <i>Matteuccia struthiopteris</i>	
SwB35	White spruce – Balsam poplar / Soapberry / Horsetail	<i>Picea glauca</i> – <i>Populus balsamifera</i> / <i>Shepherdia canadensis</i> / <i>Equisetum</i>	
SwB39	White spruce – Balsam poplar / River alder / Variegated scouring-rush	<i>Picea glauca</i> – <i>Populus balsamifera</i> / <i>Alnus incana</i> / <i>Equisetum variegatum</i>	2
SwW FSwW PSwW	White spruce – birch associations		
SwW02	White spruce – Water birch / Shrub birch / Crowberry / Lichen	<i>Picea glauca</i> – <i>Betula occidentalis</i> / <i>B. glandulosa</i> / <i>Empetrum nigrum</i> / <i>Cladina</i>	1
SwW04	White spruce – Water birch / Shrub birch – Juniper / Altai fescue	<i>Picea glauca</i> – <i>Betula occidentalis</i> / <i>B. glandulosa</i> – <i>Juniperus communis</i> / <i>Festuca altaica</i>	
SwW22	White spruce – Water birch / Blueberry / Crowberry	<i>Picea glauca</i> – <i>Betula occidentalis</i> / <i>Vaccinium uliginosum</i> / <i>Empetrum nigrum</i>	
SwW24	White spruce – Alaska birch / Prickly rose / Lowbush cranberry / Feathermoss	<i>Picea glauca</i> – <i>Betula neoalaskana</i> / <i>Rosa acicularis</i> / <i>Vaccinium vitis-idaea</i> / <i>Hylocomium splendens</i>	
SwW25	White spruce – Paper birch / Highbush cranberry – Prickly rose / Bunchberry	<i>Picea glauca</i> – <i>Betula papyrifera</i> / <i>Viburnum edule</i> – <i>Rosa acicularis</i> / <i>Cornus canadensis</i>	
FSwW25	Fir – Spruce – Birch / Prickly rose / Bunchberry	<i>Abies lasiocarpa</i> – <i>Picea</i> spp. – <i>Betula papyrifera</i> / <i>Rosa acicularis</i> / <i>Cornus canadensis</i>	2
PSwW25	Pine – White Spruce – Alaska birch / Alder / Feathermoss	<i>Pinus contorta</i> – <i>Picea glauca</i> – <i>Betula neoalaskana</i> / <i>Alnus alnobetula</i> / <i>Hylocomium splendens</i>	
SwW28	White spruce – Alaska birch / Green alder / Step moss	<i>Picea glauca</i> – <i>Betula neoalaskana</i> / <i>Alnus alnobetula</i> / <i>Hylocomium splendens</i>	1
SwW29	White spruce – Alaska birch / Green alder – Labrador tea	<i>Picea glauca</i> – <i>Betula neoalaskana</i> / <i>Alnus alnobetula</i> – <i>Rhododendron groenlandicum</i>	
SwW30	White spruce – Alaska birch / Labrador tea	<i>Picea glauca</i> – <i>Betula neoalaskana</i> / <i>Rhododendron groenlandicum</i>	
SwW34	White spruce – Alaska birch / Red-osier dogwood – Highbush cranberry / Horsetail	<i>Picea glauca</i> – <i>Betula neoalaskana</i> / <i>Cornus sericea</i> – <i>Viburnum edule</i> / <i>Equisetum arvense</i>	
SwW37	White spruce – Alaska birch / Alder / Peat moss	<i>Picea glauca</i> – <i>Betula neoalaskana</i> / <i>Alnus alnobetula</i> / <i>Sphagnum</i> spp.	2

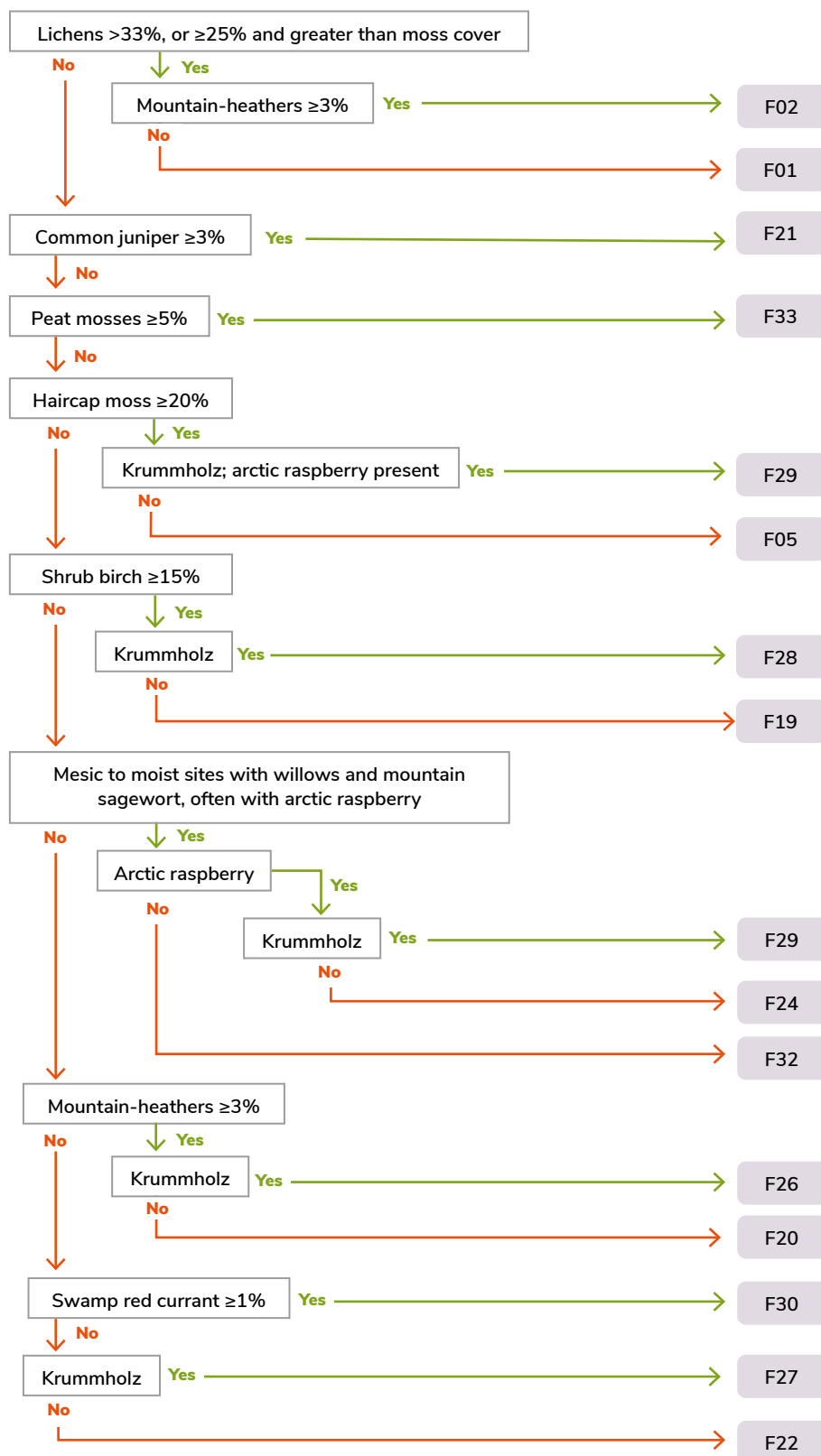
Source: 1. Concept authors: Del Meidinger, Catherine Kennedy, Karen McKenna, Nadele Flynn, Ken Baldwin and Kim Chapman. May 2014. Initial association development 2012–2014; 2. Del Meidinger. 2017–2023. Subsequent association development for ecosite guides.

5.0 Conifer associations

Fir associations

Fir (F) strongly dominates over other canopy species (>85% of canopy composition).

Flowchart Fir associations



Summary of features: Fir associations

Dry and mesic sites

	F01	F02	F05	F19	F20	F21	F22	F24
Zone	BOH, BOS	BOH, BOS (BOA)	BOH, BOS	BOH	BOH, BOS	BOH, BOS	BOH, BOS	BOH, BOS
Geography	central and south	central (south)	central (south)	central and south	central	central and south	central and south	central (south)
Important site features	dry	dry	dry	submesic to mesic	submesic to mesic, snowy	submesic to mesic, often on warm slopes	submesic to mesic	submesic to mesic, lower slopes
Drainage	rapid to moderately well	rapid to moderately well	well (rapid)	moderately well	well to moderately well	well to moderately well	well to moderately well	well to imperfect
Tree canopy	fir	fir	fir	fir	fir	fir	fir	fir
Key understorey species	shrub birch, lichen	arctic mountain-heather, lichen	shrub birch, haircap moss	shrub birch, feathermoss	arctic mountain-heather, feathermoss	common juniper	feathermoss	willows, mountain sagewort, arctic raspberry

Moist sites and high-elevation krummholz

	F26	F27	F28	F29	F30	F32	F33
Zone	BOS, BOA	BOS, BOA (BOH)	BOS	BOS (BOH)	BOH, BOS	BOH	BOH (BOS)
Geography	central and south	central and south	central and southeast	central and southeast	east-central and south	central and south	central and southeast
Important site features	subxeric to mesic, high elevation, windy	subxeric to mesic, high elevation, windy	xeric to submesic, high elevation, windy	mesic, high elevation, windy	submesic to mesic (subhygric)	mesic to subhygric	subhygric to hygric
Drainage	well to moderately well	rapid to moderately well	very rapid to well	well to moderately well	well to moderately well (imperfect)	moderately well (imperfect)	imperfect
Tree canopy	krummholz fir	krummholz fir	krummholz fir	krummholz fir	fir	fir	fir
Key understorey species	arctic mountain-heather	feathermoss	shrub birch, feathermoss	willow, mountain sagewort	swamp red currant, feathermoss	coltsfoot, glow moss	peat moss

Vegetation tables for fir associations

Dry and mesic sites

Layer	Scientific name	F01	F02	F05	F19	F20	F21	F22	F24	Common name
	n =	58	15	9	7	23	4	44	10	
Trees	<i>Abies lasiocarpa</i>	■■■■	■■■■	■■■■	■■■■	■■■■	■■■■	■■■■	■■■■	fir
Shrubs	<i>Abies lasiocarpa</i>	■■■	■■■■	■■■■	■■■	■■■■	■■■■	■■■■	■■■■	fir
	<i>Betula glandulosa</i>	■■■■	■■■	■■■■	■■■■	□□	■■■	■■	■■	shrub birch
	<i>Juniperus communis</i>						■■■			common juniper
	<i>Rhododendron groenlandicum</i>	□□	□□	□□	■■			□□		common Labrador tea
	<i>Salix</i> spp.	□□	□□□	■■■	■■	■■■	■■■■	□□	■■■■	willows
	<i>Vaccinium uliginosum</i>	□□	□	□	■		□□□			blueberry
Ground shrubs	<i>Cassiope tetragona</i>		■■■■	□□		■■■■			□□	arctic mountain-heather
	<i>Phylloce empetriformis</i>		□□				■		□	pink mountain-heather
	<i>Empetrum nigrum</i>	■■■■	■■■■	■■■■	■■■■	■■■	■■■■	■■■	■■■	crowberry
	<i>Rubus arcticus</i>						□		■■	arctic raspberry
	<i>Vaccinium vitis-idaea</i>	■■	■	■■	■■	□	■	■	□	lowbush cranberry
Graminoids	<i>Carex podocarpa</i>						□		■■■	graceful mountain sedge
	<i>Festuca altaica</i>						■■■		■■■	Altai fescue
Forbs	<i>Aconitum delphinifolium</i>						■		■■■	monkshood
	<i>Anemone multifida</i>					□□	□□		■■	cut-leaved anemone
	<i>Artemisia norvegica</i>					□□	■■■		■■■	mountain sagewort
	<i>Chamaenerion angustifolium</i>						■■		■■	fireweed
	<i>Cornus canadensis</i>	□					■■■	■■	■■	bunchberry
	<i>Mertensia paniculata</i>						■■■		■■■	tall bluebells
	<i>Petasites frigidus</i>					□			■■	arctic sweet coltsfoot
	<i>Polemonium acutiflorum</i>					□			■■	tall Jacob's-ladder
	<i>Senecio triangularis</i>								■■■	arrow-leaved groundsel
Bryophytes	<i>Dicranum</i> spp.	□□	□□			□□□	■■■■	□□□		heron's-bill mosses
	<i>Hylocomium / Pleurozium</i>	■■■	□□□□	■■■■	■■■■	■■■■	■■■■	■■■■	■■■■	feathermosses
	<i>Peltigera</i> spp.	■■		■■■	■■	■■	□	■■	■■	pelt lichens
	<i>Polytrichum juniperinum</i>	■■■	■■■	■■■■	□	■■■	□□	□□	□□□	juniper haircap moss
Lichens	<i>Cetraria / Flavocetraria</i> spp.	□□□	■■	■■		□				Iceland / snow lichens
	<i>Cladina</i> spp.	■■■■	■■■■	■■■	■■■■	■■■	■■■	■■■	□□	reindeer lichens
	<i>Cladonia</i> spp.	■■■	■■■	■■■	■■	■■	■■	■■	■	clad lichens
	<i>Nephroma arcticum</i>	■■■	■■■	■■■	□	■■■■	□	■■■		arctic kidney lichen
	<i>Stereocaulon</i> spp.	■■■	■■■	■■■	□	□□	■■		□□	foam lichens

Note: gold cells highlight key diagnostic species

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

Moist sites and high-elevation krummholz

Layer	Scientific name	F26	F27	F28	F29	F30	F32	F33	Common name
	n =	9	17	2	4	12	5	13	
Trees	<i>Abies lasiocarpa</i>	□□	□□□	□	■	■■■■■	■■■■■	■■■■■	fir
Shrubs	<i>Abies lasiocarpa</i>	■■■■■	■■■■■	■■■■■	■■■■■	■■■■■	■■■■■	■■■■■	fir
	<i>Betula glandulosa</i>	□	□	■■■■■	■■■	□	■■■	■■■	shrub birch
	<i>Rhododendron groenlandicum</i>	□					□□	■■■	common Labrador tea
	<i>Ribes triste</i>					■■			swamp red currant
	<i>Salix</i> spp.	□□			■■■■	■	■■■■	■■■	willows
	<i>Spiraea stevenii</i>				□□	□		■■	Steven's spirea
	<i>Vaccinium uliginosum</i>	■■		■■■		□	■	□	blueberry
Ground shrubs	<i>Cassiope tetragona</i>	■■■■						□□	arctic mountain-heather
	<i>Empetrum nigrum</i>	■■■■	■■■	■■	□	■■	■■■■	■■	crowberry
	<i>Linnaea borealis</i>				■	■■	■		twinline
	<i>Rubus arcticus</i>				■■	□			arctic raspberry
	<i>Rubus chamaemorus</i>							■■■	cloudberry
	<i>Vaccinium vitis-idaea</i>	■■	□	■	□	□	■■■	■	lowbush cranberry
Graminoids	<i>Luzula parviflora</i>				■■		□		small-flowered woodrush
	<i>Festuca altaica</i>	■			■■■	□	■		Altai fescue
Forbs	<i>Aconitum delphinifolium</i>				■				monkshood
	<i>Anemonastrum sibiricum</i>	■							narcissus anemone
	<i>Anemone multifida</i>				■■				cut-leaved anemone
	<i>Artemisia norvegica</i>	■	□		■■■	□	■■		mountain sagewort
	<i>Chamaenerion angustifolium</i>				■■■	■	□		fireweed
	<i>Cornus canadensis</i>		□	□	■■	■■■	■■■	□	bunchberry
	<i>Equisetum</i> spp.				■				horsetails
	<i>Spinulum annotinum</i>	□				■	■		stiff club-moss
	<i>Mertensia paniculata</i>				■	■■	□		tall bluebells
	<i>Petasites frigidus</i>				■	□	■■■	□	arctic sweet coltsfoot
	<i>Polemonium acutiflorum</i>				■	■			tall Jacob's-ladder

Table continues on facing page

Moist sites and high-elevation krummholz, continued

Layer	Scientific name	F26	F27	F28	F29	F30	F32	F33	Common name
Bryophytes	<i>Aulacomnium palustre</i>						■■■		glow moss
	<i>Dicranum</i> spp.	□□□	□□□□			■■■	□□		heron's-bill mosses
	<i>Hylocomium splendens</i>	■■■■	□□□		■■■■■	■■■■	■■■■■	■■■■	step moss
	<i>Pleurozium schreberi</i>	■■■■■	■■■■■	■■■■■	■■■■	■■■■■	□□□	□□□□	red-stemmed feathermoss
	<i>Polytrichum juniperinum</i>	□	□□□	□	■■■■	□□		■■■	juniper haircap moss
	<i>Sphagnum</i> spp.							■■■■	peat mosses
Lichens	<i>Cetraria</i> / <i>Flavocetraria</i> spp.	□		□□□	□		■		Iceland / snow lichens
	<i>Cladina</i> spp.	■■■	■■■	■■■■	■	■■■	■■■	■■■	reindeer lichens
	<i>Cladonia</i> spp.	■	■	□□	■■	■■	■■	■	clad lichens
	<i>Dactylina</i> spp.	■	□			□	■	□	fingers lichen
	<i>Masonhalea richardsonii</i>			■					arctic tumbleweed lichen
	<i>Nephroma arcticum</i>	□□	■■■		■	■■	□□□	■■■■	arctic kidney lichen
	<i>Peltigera</i> spp.		■	■■	■■	■■	■■	■■	pelt lichens

Note: gold cells highlight key diagnostic species

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

Fact sheets: Fir associations

F01 **Fir / Shrub birch / Lichen**

F01 is a fir woodland or forest with high lichen ground cover that occurs in the BOH and BOS.

Vegetation: F01 stands mostly have an open tree canopy of fir (*Abies lasiocarpa*), but sometimes the canopy is closed or even dense. Considerable cover of fir can occur in the shrub layer. Shrub birch (*Betula glandulosa*) is almost always present, with varying cover (moderate to very high). Crowberry (*Empetrum nigrum*) and lowbush cranberry (*Vaccinium vitis-idaea*) are prominent ground shrubs. A diversity of lichens characterizes the forest floor. Mosses commonly occur and can be of high cover, but cover is less than that of the lichens. Mosses are mostly juniper haircap moss (*Polytrichum juniperinum*) or feathermosses (*Hylocomium splendens*, *Pleurozium schreberi*). The most abundant lichens are usually reindeer lichens (*Cladonia* spp.) or foam lichens (*Stereocaulon* spp.). Other common lichens include clad lichens (*Cladonia* spp.), pelt lichens (*Peltigera* spp.) and arctic kidney lichen (*Nephroma arcticum*).



Environment: This association occurs at higher elevations on crests and middle to upper slopes that are rapidly drained to moderately well drained. Parent materials vary, mostly morainal, but also glaciofluvial, fluvial or colluvial, and are often shallow. Soils are classified as Brunisols (Eutric, Dystric) or sometimes, Humo-Ferric Podzols. The forest floor often has some cover of woody debris or rocks.

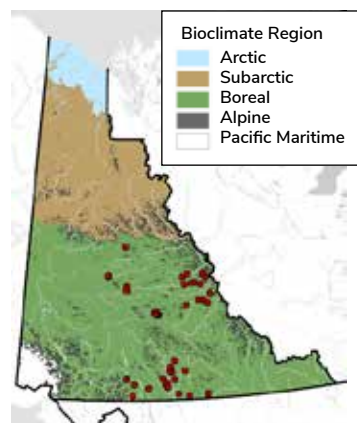
Dynamics: Depending on local seed sources at the time of disturbance, small amounts of other tree species, including pine and white spruce, can occur. Similar associations with a combination of species (FSw01, FPSw01) will have higher cover of pine and white spruce.

Comments

- Key characteristics: dry site; fir dominates; high lichen cover
- Component of CNVC00426 Fir / Shrub Birch / Crowberry / Reindeer Lichens

F01 Environment table

Zone	BOH, BOS
Elevation (m)	1065 – 1300 – 1675
Aspect	variable
Slope (%)	0 – 14 – 60
Soil moisture regime	subxeric, submesic
Soil drainage	rapid to moderately well
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	1 – 2 – 20
Soil class	Brunisols (Eutric or Dystric), Humo-Ferric Podzol

**F01 Vegetation summary (%)**

Trees	0 – 25 – 95	Shrubs	0.5 – 30 – 85	Ground shrubs	0.1 – 17 – 60
Graminoids and Forbs	0 – 3 – 25	Bryophytes	0.5 – 25 – 50	Lichens	25 – 58 – 99

Layer	Scientific name	F01	Common name
		n = 58	
Trees	<i>Abies lasiocarpa</i>	■■■■■	fir
Shrubs	<i>Abies lasiocarpa</i>	■■■	fir
	<i>Betula glandulosa</i>	■■■■■	shrub birch
Ground shrubs	<i>Empetrum nigrum</i>	■■■■■	crowberry
	<i>Vaccinium vitis-idaea</i>	■■■	lowbush cranberry
Bryophytes	<i>Hylocomium / Pleurozium</i>	■■■	feathermosses
	<i>Polytrichum juniperinum</i>	■■■	juniper haircap moss
Lichens	<i>Cladina</i> spp.	■■■■■	reindeer lichens
	<i>Cladonia</i> spp.	■■■	clad lichens
	<i>Nephroma arcticum</i>	■■■	arctic kidney lichen
	<i>Peltigera</i> spp.	■■■	pelt lichens
	<i>Stereocaulon</i> spp.	■■■	foam lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

F02 Fir / Shrub birch / Arctic mountain-heather / Lichen

F02 is a fir woodland or forest, with arctic mountain-heather and high lichen ground cover, that occurs in the BOH and BOS and possibly into the BOA.

Vegetation: F02 stands mostly have an open tree canopy of fir (*Abies lasiocarpa*), but sometimes the canopy is closed. Moderate to high cover of fir also occurs in the shrub layer. Shrub birch (*Betula glandulosa*), of low to high cover, is usually present. Arctic mountain-heather (*Cassiope tetragona*) is characteristic, sometimes with some pink mountain-heather (*Phyllodoce empetrifomis*). Crowberry (*Empetrum nigrum*) is another prominent ground shrub. Mosses commonly occur, and can be of high cover, but cover is less than that of lichens. Mosses are mostly feathermosses (*Hylocomium splendens*, *Pleurozium schreberi*) or juniper haircap moss (*Polytrichum juniperinum*). A diversity of lichens characterizes the forest floor, including reindeer lichens (*Cladonia* spp.), clad lichens (*Cladonia* spp.), foam lichens (*Stereocaulon* spp.) and arctic kidney lichen (*Nephroma arcticum*).



Environment: This association occurs at higher elevations on crests and upper slopes, that are rapidly drained to moderately well drained. Parent materials are mostly morainal or colluvial, but sometimes glaciofluvial or fluvial, and are often shallow. Soils are classified as Brunisols (Dystric), or rarely, Humo-Ferric Podzols or Regosols. The forest floor often has low to moderate cover of rocks or woody debris.

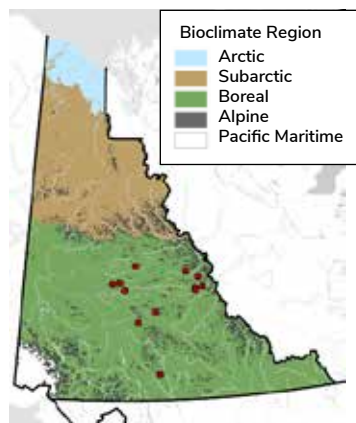
Dynamics: Other tree species rarely occur on these sites, and stands are likely to regenerate back to fir after disturbance.

Comments

- Key characteristics: dry site; fir dominated; arctic mountain-heather moderate cover; high lichen cover
- Component of CNVC00427 Fir / Shrub Birch / Arctic mountain-heather / Reindeer Lichens

F02 Environment table

Zone	BOH, BOS (BOA)
Elevation (m)	1250 – 1430 – 1800
Aspect	variable
Slope (%)	0 – 17 – 60
Soil moisture regime	subxeric, submesic
Soil drainage	rapid to moderately well
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	0.1 – 5 – 20
Soil class	Brunisols (Dystric)

**F02 Vegetation summary (%)**

Trees	0 – 18 – 50	Shrubs	3 – 35 – 98	Ground shrubs	10 – 32 – 60
Graminoids and Forbs	0 – 6 – 30	Bryophytes	2 – 25 – 50	Lichens	25 – 55 – 85

Layer	Scientific name	F02	Common name
		n = 15	
Trees	<i>Abies lasiocarpa</i>	■■■■■	fir
Shrubs	<i>Abies lasiocarpa</i>	■■■■■	fir
	<i>Betula glandulosa</i>	■■■	shrub birch
Ground shrubs	<i>Cassiope tetragona</i>	■■■■■	arctic mountain-heather
	<i>Empetrum nigrum</i>	■■■■■	crowberry
	<i>Vaccinium vitis-idaea</i>	■	lowbush cranberry
Bryophytes	<i>Polytrichum juniperinum</i>	■■■	juniper haircap moss
Lichens	<i>Cetraria</i> spp.	■■	Iceland lichens
	<i>Cladina</i> spp.	■■■■■	reindeer lichens
	<i>Cladonia</i> spp.	■■■	clad lichens
	<i>Nephroma arcticum</i>	■■■	arctic kidney lichen
	<i>Stereocaulon</i> spp.	■■■	foam lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

F05 Fir / Shrub birch / Crowberry / Haircap moss

F05 is a fir woodland, with high juniper haircap moss cover, that occurs in the BOH and BOS.

Vegetation: F05 stands have an open tree canopy of fir (*Abies lasiocarpa*), sometimes with a minor component of pine (*Pinus contorta*). The cover of fir in the shrub layer is often greater than the tree layer. Shrub birch (*Betula glandulosa*) is almost always present, with varying cover (moderate to very high). Crowberry (*Empetrum nigrum*) and lowbush cranberry (*Vaccinium vitis-idaea*) are prominent ground shrubs. Juniper haircap moss (*Polytrichum juniperinum*) dominates the moss cover, along with some feathermosses (*Hylocomium splendens*, *Pleurozium schreberi*). Lichens can be of high cover, usually reindeer lichens (*Cladina* spp.) or foam lichens (*Stereocaulon* spp.).

Environment: This association occurs at moderate to high elevations on well-drained or rapidly drained level sites or gentle, middle to upper slopes. The limited data indicates that parent materials may be shallow, with Brunisol (Dystric) soil development. The forest floor often has some cover of rocks and woody debris.

Dynamics: Scattered cover of other tree species occurs, including pine or white spruce, depending on local seed sources at the time of disturbance.

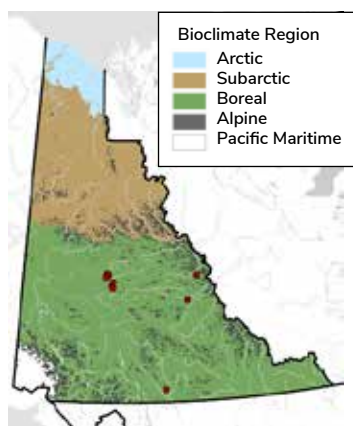
Comments

- Key characteristics: dry site; fir dominated; high cover of juniper haircap moss
- CNVC association not yet determined



F05 Environment table

Zone	BOH, BOS
Elevation (m)	1130 – 1270 – 1460
Aspect	variable
Slope (%)	2 – 17 – 70
Soil moisture regime	subxeric, submesic
Soil drainage	well (rapid)
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	1 – 8 – 40
Soil class	Brunisols (Dystric)

**F05 Vegetation summary (%)**

Trees	1 – 12 – 22	Shrubs	10 – 50 – 99	Ground shrubs	0.3 – 18 – 40
Graminoids and Forbs	0 – 7 – 25	Bryophytes	40 – 68 – 85	Lichens	15 – 32 – 50

Layer	Scientific name	F05	Common name
		n = 9	
Trees	<i>Abies lasiocarpa</i>	■■■■■	fir
Shrubs	<i>Abies lasiocarpa</i>	■■■■■	fir
	<i>Betula glandulosa</i>	■■■■■	shrub birch
	<i>Salix</i> spp.	■■■	willows
Ground shrubs	<i>Empetrum nigrum</i>	■■■■■	crowberry
	<i>Vaccinium vitis-idaea</i>	■■	lowbush cranberry
Bryophytes	<i>Hylocomium</i> / <i>Pleurozium</i>	■■■■■	feathermosses
	<i>Polytrichum juniperinum</i>	■■■■■	juniper haircap moss
Lichens	<i>Cetraria</i> / <i>Flavocetraria</i> spp.	■■	Iceland / snow lichens
	<i>Cladina</i> spp.	■■■	reindeer lichens
	<i>Cladonia</i> spp.	■■■	clad lichens
	<i>Nephroma arcticum</i>	■■■	arctic kidney lichen
	<i>Peltigera</i> spp.	■■■	pelt lichens
	<i>Stereocaulon</i> spp.	■■■	foam lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

F19 Fir / Shrub birch / Crowberry / Feathermoss

F19 is a fir woodland with high shrub birch and feathermoss cover that occurs in the BOH.

Vegetation: F19 stands have an open tree canopy of fir (*Abies lasiocarpa*). The cover of fir in the shrub layer varies. Shrub birch (*Betula glandulosa*) dominates the shrub layer. Crowberry (*Empetrum nigrum*) is prominent in the lightly developed to moderately developed ground shrub layer. Feathermosses (*Hylocomium splendens*, *Pleurozium schreberi*) dominate the moss cover. Lichen cover is low to moderately high and comprised primarily of reindeer lichens (*Cladina* spp.).

Environment: This association occurs at moderate to high elevations on moderately well drained, mostly sloping sites, on lower to middle slopes. The limited data indicates that parent materials are morainal or fluvial, with Brunisol (Dystric or Sombric) soil development. The forest floor often has some cover of woody debris.



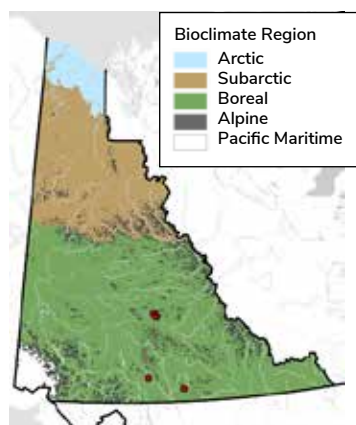
Dynamics: On sites with similar understorey vegetation, other tree species such as white spruce could occur (Sw30, FSw20) or pine (P31). Tree species composition after disturbance depends on local seed sources.

Comments

- Key characteristics: mesic site; fir dominated; shrub birch >15% cover; high feathermoss cover
- CNVC association not yet determined

F19 Environment table

Zone	BOH
Elevation (m)	1065 – 1255 – 1395
Aspect	variable
Slope (%)	2 – 14 – 30
Soil moisture regime	submesic, mesic
Soil drainage	moderately well
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	1 – 2 – 5
Soil class	Brunisols (Dystric, Sombric)

**F19 Vegetation summary (%)**

Trees	1 – 19 – 85	Shrubs	17 – 44 – 80	Ground shrubs	0.1 – 12 – 30
Graminoids and Forbs	0 – 0.5 – 2	Bryophytes	20 – 50 – 75	Lichens	5 – 18 – 30

Layer	Scientific name	F19	Common name
		n = 7	
Trees	<i>Abies lasiocarpa</i>	■■■■■	fir
Shrubs	<i>Abies lasiocarpa</i>	■■■	fir
	<i>Betula glandulosa</i>	■■■■■	shrub birch
	<i>Rhododendron groenlandicum</i>	■ ■	common Labrador tea
	<i>Salix</i> spp.	■■	willows
	<i>Vaccinium uliginosum</i>	■	blueberry
Ground shrubs	<i>Empetrum nigrum</i>	■■■■■	crowberry
	<i>Vaccinium vitis-idaea</i>	■ ■	lowbush cranberry
Bryophytes	<i>Hylocomium / Pleurozium</i>	■■■■■	feathermosses
Lichens	<i>Cladina</i> spp.	■■■■■	reindeer lichens
	<i>Cladonia</i> spp.	■■	clad lichens
	<i>Peltigera</i> spp.	■ ■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

F20 **Fir / Crowberry – Arctic mountain-heather / Feathermoss**

F20 is a fir woodland or forest with arctic mountain-heather and high feathermoss ground cover that occurs in the BOH and BOS.

Vegetation: F20 stands have an open to moderately closed tree canopy of fir (*Abies lasiocarpa*). The cover of fir in the shrub layer varies, but often exceeds the tree layer. Other than the tree regeneration, the shrub layer is usually lightly developed. Arctic mountain-heather (*Cassiope tetragona*), sometimes with pink mountain-heather (*Phyllodoce empetrifolia*), characterizes the ground shrub layer, usually with crowberry (*Empetrum nigrum*). A feathermoss (*Hylocomium splendens*, *Pleurozium schreberi*) carpet dominates the forest floor. Lichen cover varies, usually dominated by arctic kidney lichen (*Nephroma arcticum*).

Environment: This association occurs at moderate to high elevations on moderately well drained to well-drained, mostly middle to upper slopes. Parent materials are colluvial or morainal, or sometimes, fluvial fans. Soils are classified as Brunisols (Dystric) or Regosols. The forest floor has some cover of rocks and woody debris.

Dynamics: These higher-elevation sites, likely with increased snow depths, do not burn often. If disturbed, they would likely regenerate to fir; however, at slightly lower elevations, sites with some spruce are possible (FSw23).

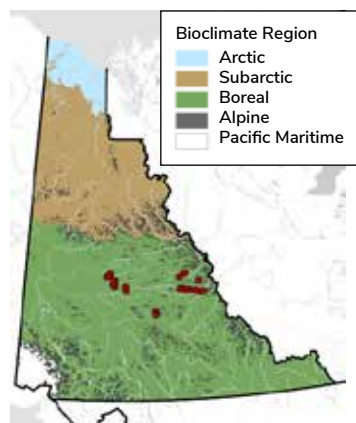
Comments

- Key characteristics: mesic site; fir dominated; moderate cover of arctic mountain-heather; high feathermoss cover
- Component of CNVC00441 Fir / Crowberry – Arctic mountain-heather / Step moss – Arctic Kidney Lichen



F20 Environment table

Zone	BOH, BOS
Elevation (m)	1000 – 1340 – 1500
Aspect	variable
Slope (%)	2 – 24 – 51
Soil moisture regime	submesic, mesic
Soil drainage	well to moderately well
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	1 – 6 – 15
Soil class	Brunisols (Dystric), Regosols

**F20 Vegetation summary (%)**

Trees	0 – 20 – 40	Shrubs	13 – 36 – 85	Ground shrubs	3 – 23 – 50
Graminoids and Forbs	0 – 8 – 40	Bryophytes	35 – 73 – 90	Lichens	3 – 26 – 60

Layer	Scientific name	F20	Common name
		n = 23	
Trees	<i>Abies lasiocarpa</i>	■■■■■	fir
Shrubs	<i>Abies lasiocarpa</i>	■■■■■	fir
	<i>Salix</i> spp.	■■■	willows
Ground shrubs	<i>Cassiope tetragona</i>	■■■■■	arctic mountain-heather
	<i>Empetrum nigrum</i>	■■■	crowberry
Bryophytes	<i>Hylocomium</i> / <i>Pleurozium</i>	■■■■■	feathermosses
	<i>Polytrichum juniperinum</i>	■■■	juniper haircap moss
Lichens	<i>Cladina</i> spp.	■■■	reindeer lichens
	<i>Cladonia</i> spp.	■■	clad lichens
	<i>Nephroma arcticum</i>	■■■■■	arctic kidney lichen
	<i>Peltigera</i> spp.	■■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

F21 Fir / Juniper / Crowberry / Feathermoss

F21 is a fir woodland or forest, with common juniper and high feathermoss cover, that occurs in the BOH and BOS.

Vegetation: F21 stands have an open to moderately closed tree canopy of fir (*Abies lasiocarpa*). Fir also occurs in the shrub layer, along with common juniper (*Juniperus communis*). Willows (*Salix* spp.) or shrub birch (*Betula glandulosa*) can also occur, often with moderate to high cover. Crowberry (*Empetrum nigrum*) and lowbush cranberry (*Vaccinium vitis-idaea*) are the main ground shrubs. Graminoids include Altai fescue (*Festuca altaica*). Forbs include bunchberry (*Cornus canadensis*) and mountain sagewort (*Artemisia norvegica*). A feathermoss carpet, dominated by red-stemmed feathermoss (*Pleurozium schreberi*) characterizes the forest floor. Lichen cover is low.

Environment: This association occurs at moderate to high elevations on moderately well drained to well-drained gentle to moderately steep slopes that occur on warm or sometimes neutral aspects. Parent materials are colluvial. Soils are classified as Brunisols (Dystric) or Regosols. The forest floor has some cover of rocks and woody debris.

Dynamics: These higher-elevation sites do not burn often and if disturbed they would likely regenerate to fir.

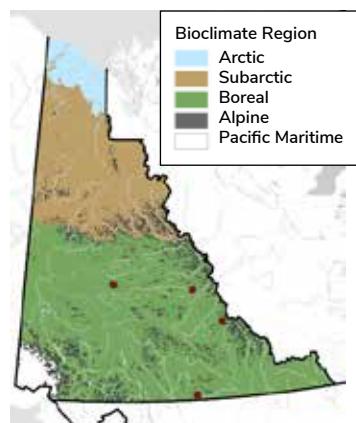
Comments

- Key characteristics: mesic site; fir dominated; common juniper present; high feathermoss cover
- Component of CNVC00434 Fir / Common Juniper / Crowberry / Red-stemmed Feathermoss



F21 Environment table

Zone	BOH, BOS
Elevation (m)	1400 – 1465 – 1525
Aspect	warm (neutral)
Slope (%)	18 – 40 – 70
Soil moisture regime	submesic, mesic
Soil drainage	well to moderately well
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	0 – 3 – 15
Soil class	Brunisols (Dystric), Regosols

**F21 Vegetation summary (%)**

Trees	5 – 21 – 35	Shrubs	25 – 39 – 50	Ground shrubs	0.1 – 12 – 30
Graminoids and Forbs	2 – 26 – 50	Bryophytes	55 – 72 – 85	Lichens	0 – 10 – 25

Layer	Scientific name	F21	Common name
		n = 4	
Trees	<i>Abies lasiocarpa</i>	■■■■	fir
Shrubs	<i>Abies lasiocarpa</i>	■■■■	fir
	<i>Betula glandulosa</i>	■■■	shrub birch
	<i>Juniperus communis</i>	■■■	common juniper
	<i>Salix</i> spp.	■■■■	willows
Ground shrubs	<i>Empetrum nigrum</i>	■■■■	crowberry
	<i>Phyllodoce empetrifolia</i>	■	pink mountain-heather
	<i>Vaccinium vitis-idaea</i>	■	lowbush cranberry
Graminoids	<i>Festuca altaica</i>	■■■	Altai fescue
Forbs	<i>Aconitum delphinifolium</i>	■	monkshood
	<i>Artemisia norvegica</i>	■■■	mountain sagewort
	<i>Chamaenerion angustifolium</i>	■■	fireweed
	<i>Cornus canadensis</i>	■■■	bunchberry
	<i>Mertensia paniculata</i>	■■■	tall bluebells
Bryophytes	<i>Dicranum</i> spp.	■■■■	heron's-bill mosses
	<i>Pleurozium schreberi</i>	■■■■■	red-stemmed feathermoss
Lichens	<i>Cladonia</i> spp.	■■■	reindeer lichens
	<i>Cladonia</i> spp.	■■	clad lichens
	<i>Stereocaulon</i> spp.	■■	foam lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

F22 **Fir / Crowberry / Feathermoss**

F22 is a fir woodland or forest, with a lightly developed understorey and a feathermoss carpet, that occurs in the BOH and BOS.

Vegetation: F22 stands have an open to closed tree canopy of fir (*Abies lasiocarpa*), sometimes with some white spruce (*Picea glauca*). The cover of fir in the shrub layer varies. Shrub birch (*Betula glandulosa*), with low to moderate cover, is often present. Crowberry (*Empetrum nigrum*) is prominent in the lightly to moderately developed ground shrub layer. Feathermosses (*Hylocomium splendens*, *Pleurozium schreberi*) dominate the moss cover. Lichen cover is low to moderately high and comprised primarily of reindeer lichens (*Cladonia* spp.).

Environment: This association occurs at moderate to high elevations on moderately well drained to well-drained, mostly sloping sites, that are primarily on warm or neutral aspects. Parent materials are varied, including morainal, colluvial, fluvial and glaciofluvial. Soils are classified as Brunisols (mostly Dystric), or occasionally, Humo-Ferric Podzols, Cryosols (Static, Turbic) or Regosols. The forest floor often has some cover of woody debris.

Dynamics: On sites with similar vegetation, other tree species could occur, such as white spruce (FSw22). Tree species composition after disturbance depends on local seed sources.

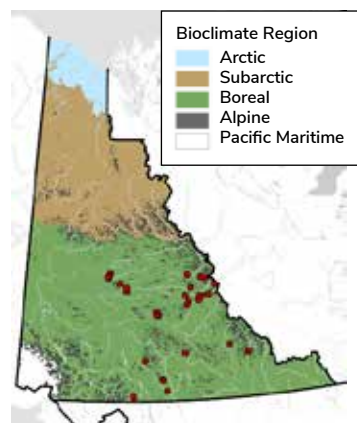
Comments

- Key characteristics: mesic site; fir dominated; shrub birch, if present, <15% cover; high feathermoss cover
- Component of CNVC00435 Fir / Crowberry / Step Moss



F22 Environment table

Zone	BOH, BOS
Elevation (m)	920 – 1290 – 1800
Aspect	warm, neutral
Slope (%)	0 – 16 – 60
Soil moisture regime	submesic, mesic
Soil drainage	well to moderately well
Permafrost presence/depth (cm)	occasional
Unvegetated cover (%)	0 – 4 – 15
Soil class	Brunisols (Dystric), Humo-Ferric Podzols, Cryosols

**F22 Vegetation summary (%)**

Trees	1 – 26 – 99	Shrubs	1 – 23 – 65	Ground shrubs	0 – 11 – 60
Graminoids and Forbs	0 – 6 – 24	Bryophytes	25 – 72 – 99	Lichens	0.3 – 16 – 40

Layer	Scientific name	F22	Common name
		n = 44	
Trees	<i>Abies lasiocarpa</i>	■■■■■	fir
Shrubs	<i>Abies lasiocarpa</i>	■■■■■	fir
	<i>Betula glandulosa</i>	■■	shrub birch
	<i>Rhododendron groenlandicum</i>	■	common Labrador tea
Ground shrubs	<i>Empetrum nigrum</i>	■■■	crowberry
	<i>Vaccinium vitis-idaea</i>	■	lowbush cranberry
Forbs	<i>Cornus canadensis</i>	■	bunchberry
Bryophytes	<i>Hylocomium / Pleurozium</i>	■■■■■	feathermosses
Lichens	<i>Cladina</i> spp.	■■■	reindeer lichens
	<i>Cladonia</i> spp.	■	clad lichens
	<i>Nephroma arcticum</i>	■■■	arctic kidney lichen
	<i>Peltigera</i> spp.	■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

F24 **Fir / Willow / Mountain sagewort – Monkshood**

F24 is a fir woodland, with willows and a diverse herbaceous understorey including mountain sagewort, monkshood, fireweed and bunchberry that occurs in the BOH and BOS.

Vegetation: F24 stands have an open to moderately closed tree canopy of fir (*Abies lasiocarpa*), sometimes with minor white spruce (*Picea glauca*) or pine (*Pinus contorta*). Fir in the shrub layer varies in cover from low to very high. Willows (*Salix* spp.) are prominent shrubs. The understorey is diverse, including mountain sagewort (*Artemisia norvegica*), monkshood (*Aconitum delphiniifolium*), fireweed (*Chamaenerion angustifolium*), Altai fescue (*Festuca altaica*), arctic raspberry (*Rubus arcticus*), tall bluebells (*Mertensia paniculata*), and others. Feathermosses (*Hylocomium splendens*, *Pleurozium schreberi*) dominate the bryophyte layer. Lichen cover is low.

No photo
available

Environment: This association occurs at moderate to high elevations on well-drained to imperfectly drained lower slopes. Based on limited data, parent materials are morainal or colluvial and soils are classified as Brunisols (mostly Dystric) or Regosols. The forest floor often has some cover of rocks and woody debris.

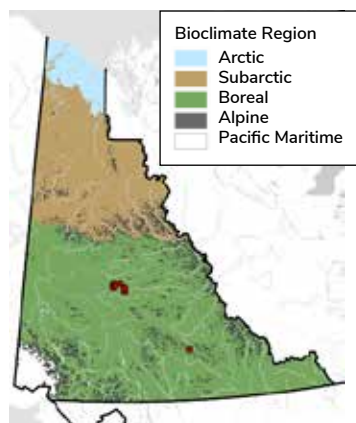
Dynamics: On similar sites, other tree species could occur, such as white spruce. Tree species composition after disturbance depends on local seed sources.

Comments

- Key characteristics: mesic site; fir dominated; willows $\geq 15\%$ cover; diverse herbaceous layer; high feathermoss cover
- Component of CNVC00446 Fir / Willow / Monkshood – Mountain Sagewort

F24 Environment table

Zone	BOH, BOS
Elevation (m)	1160 – 1390 – 1770
Aspect	variable
Slope (%)	4 – 19 – 50
Soil moisture regime	submesic, mesic
Soil drainage	well to imperfect
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	1 – 4 – 5
Soil class	Brunisols (Dystric), Regosols

**F24 Vegetation summary (%)**

Trees	0 – 15 – 35	Shrubs	20 – 57 – 95	Ground shrubs	1 – 4 – 10
Graminoids and Forbs	40 – 75 – 99	Bryophytes	30 – 70 – 99	Lichens	0 – 5 – 10

Layer	Scientific name	F24	Common name
		n = 10	
Trees	<i>Abies lasiocarpa</i>	■■■■■	fir
Shrubs	<i>Abies lasiocarpa</i>	■■■■■	fir
	<i>Betula glandulosa</i>	■ ■	shrub birch
	<i>Salix</i> spp.	■■■■■	willows
Ground shrubs	<i>Empetrum nigrum</i>	■ ■ ■	crowberry
	<i>Rubus arcticus</i>	■ ■	arctic raspberry
Graminoids	<i>Carex podocarpa</i>	■ ■ ■	graceful mountain sedge
	<i>Festuca altaica</i>	■■■	Altai fescue
Forbs	<i>Aconitum delphinifolium</i>	■■■	monkshood
	<i>Anemone multifida</i>	■ ■	cut-leaved anemone
	<i>Artemisia norvegica</i>	■■■	mountain sagewort
	<i>Chamaenerion angustifolium</i>	■ ■	fireweed
	<i>Cornus canadensis</i>	■ ■	bunchberry
	<i>Mertensia paniculata</i>	■ ■ ■	tall bluebells
	<i>Petasites</i> spp.	■ ■	coltsfoot
	<i>Polemonium acutiflorum</i>	■ ■	tall Jacob's-ladder
	<i>Senecio triangularis</i>	■ ■ ■	arrow-leaved groundsel
Bryophytes	<i>Hylocomium</i> / <i>Pleurozium</i>	■■■■■	feathermosses
Lichens	<i>Peltigera</i> spp.	■ ■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ ■ 1 – 3	■ ■ ■ 3 – 10	■ ■ ■ ■ 10 – 25	■ ■ ■ ■ ■ >25

F26 **Fir / Crowberry – Arctic mountain-heather / Feathermoss Krummholz**

F26 is krummholz fir with arctic mountain-heather and high feathermoss cover that occurs in the BOS and BOA.

Vegetation: F26 stands have a moderately high to very high cover of shrubby fir (*Abies lasiocarpa*). Scattered, tree-height fir can occur. Arctic mountain-heather (*Cassiope tetragona*), sometimes with yellow or pink mountain-heather (*Phyllodoce glanduliflora*, *P. empetrifloris*), characterizes the ground shrub layer, usually with crowberry (*Empetrum nigrum*) and lowbush cranberry (*Vaccinium vitis-idaea*). The bryophyte layer is dominated by feathermosses (*Hylocomium splendens*, *Pleurozium schreberi*). Lichen cover varies, usually dominated by reindeer lichens (*Cladonia* spp.).

Environment: This association occurs at high elevations on moderately well drained to well-drained, mostly middle to upper, gentle to moderate slopes. There is a slight tendency towards cool aspects. Parent materials are colluvial. Based on limited information, soils are classified as Brunisols (Dystric or Eutric). The forest floor has some cover of rocks and woody debris.

Dynamics: These are windy, higher-elevation sites, likely with increased snow depths, so do not burn often, if ever. If disturbed, they would likely regenerate to fir.

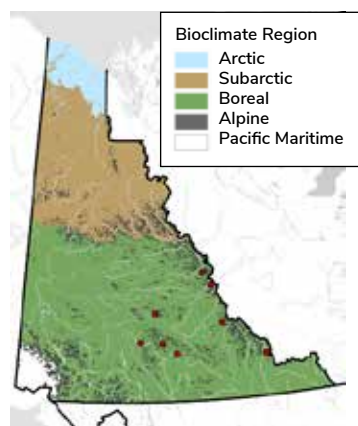
Comments

- Key characteristics: subxeric to mesic site; shrubby krummholz fir; arctic mountain-heather moderate to very high cover; high feathermoss cover
- Component of CNVC00450 Fir / Crowberry – Arctic mountain-heather / Step moss



F26 Environment table

Zone	BOS, BOA
Elevation (m)	1390 – 1505 – 1650
Aspect	variable
Slope (%)	3 – 28 – 60
Soil moisture regime	subxeric to mesic
Soil drainage	well to moderately well
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	0 – 3 – 7
Soil class	Brunisols (Dystric, Eutric)

**F26 Vegetation summary (%)**

Trees	0 – 2 – 9	Shrubs	25 – 60 – 95	Ground shrubs	1 – 32 – 80
Graminoids and Forbs	0.1 – 6 – 20	Bryophytes	20 – 68 – 95	Lichens	1 – 15 – 50

Layer	Scientific name	F26	Common name
		n = 9	
Shrubs	<i>Abies lasiocarpa</i>	■■■■■	fir
	<i>Vaccinium uliginosum</i>	■ ■	blueberry
Ground shrubs	<i>Cassiope tetragona</i>	■■■■■	arctic mountain-heather
	<i>Empetrum nigrum</i>	■■■■■	crowberry
	<i>Vaccinium vitis-idaea</i>	■ ■	lowbush cranberry
Graminoids	<i>Festuca altaica</i>	■	Altai fescue
Forbs	<i>Anemonastrum sibiricum</i>	■	narcissus anemone
	<i>Artemisia norvegica</i>	■	mountain sagewort
Bryophytes	<i>Hylocomium splendens</i>	■■■■■	step moss
	<i>Pleurozium schreberi</i>	■■■■■	red-stemmed feathermoss
Lichens	<i>Cladina</i> spp.	■■■	reindeer lichens
	<i>Cladonia</i> spp.	■	clad lichens
	<i>Dactylina arctica</i>	■	arctic fingers lichen

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ ■ 1 – 3	■ ■ ■ 3 – 10	■ ■ ■ ■ 10 – 25	■ ■ ■ ■ ■ >25

F27 **Fir / Feathermoss Krummholz**

F27 is krummholz fir with high feathermoss ground cover that occurs in the BOS and BOA and sometimes (on windy ridges) in the BOH.

Vegetation: F27 stands have a dense cover of shrubby fir (*Abies lasiocarpa*). Scattered, tree-height fir can occur. Likely due to the high shrub cover, the understorey is poorly developed, with low cover of crowberry (*Empetrum nigrum*) and some scattered forbs. The bryophyte layer is dominated by red-stemmed feathermosses (*Pleurozium schreberi*), but can have a significant component of heron's-bill moss (*Dicranum* spp.), step moss (*Hylocomium splendens*), common leafy liverwort (*Barbilophozia lycopodioides*) or haircap mosses (*Polytrichum* spp.). Lichen cover is low to moderate, usually dominated by reindeer lichens (*Cladina* spp.).



Environment: This association occurs at high elevations on rapidly drained to moderately well drained middle to upper, gentle to moderate slopes. Aspects are warm or neutral. Parent materials are colluvial or morainal. Soil data are very limited, but permafrost is possible.

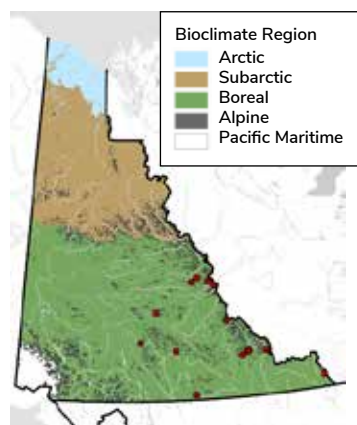
Dynamics: These are windy, higher-elevation sites, so do not burn often. If disturbed, they would likely regenerate to fir.

Comments

- Key characteristics: subxeric to mesic site; shrubby krummholz fir; high feathermoss cover
- Component of CNVC00451 Fir / Red-stemmed feathermoss

F27 Environment table

Zone	BOS, BOA (BOH)
Elevation (m)	1200 – 1410 – 1600
Aspect	warm, neutral
Slope (%)	9 – 26 – 55
Soil moisture regime	subxeric to mesic
Soil drainage	rapid to moderately well
Permafrost presence/depth (cm)	possible
Unvegetated cover (%)	0 – 1 – 10
Soil class	Cryosols (limited data)

**F27** Vegetation summary (%)

Trees	0 – 6 – 10	Shrubs	30 – 80 – 99	Ground shrubs	1 – 6 – 35
Graminoids and Forbs	0 – 5 – 10	Bryophytes	30 – 80 – 99	Lichens	1 – 12 – 25

Layer	Scientific name	F27	Common name
		n = 17	
Shrubs	<i>Abies lasiocarpa</i>	■■■■■	fir
Ground shrubs	<i>Empetrum nigrum</i>	■■■	crowberry
Bryophytes	<i>Dicranum</i> spp.	■■■■	heron's-bill mosses
	<i>Pleurozium schreberi</i>	■■■■■	red-stemmed feathermoss
Lichens	<i>Cladina</i> spp.	■■■	reindeer lichens
	<i>Cladonia</i> spp.	■	clad lichens
	<i>Nephroma arcticum</i>	■■■	arctic kidney lichen
	<i>Peltigera aphthosa</i>	■	freckle pelt lichen

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

F28 **Fir / Shrub birch / Crowberry / Feathermoss Krummholz**

F28 is krummholz fir with high shrub birch and feathermoss cover that occurs in the BOS.

Vegetation: F28 stands have a high to very high cover of shrubby fir (*Abies lasiocarpa*) and shrub birch (*Betula glandulosa*). Crowberry (*Empetrum nigrum*) and lowbush cranberry (*Vaccinium vitis-idaea*) are present. The bryophyte layer is dominated by red-stemmed feathermoss (*Pleurozium schreberi*). Lichen cover varies, but is mostly reindeer lichens (*Cladina* spp.).

Environment: This association occurs at high elevations on very rapid- to well-drained middle to upper, gentle to moderate slopes. Parent materials are colluvial or morainal. Based on very limited data, soils are classified as Regosols (likely that Brunisols are also found). The forest floor has moderately high cover of rocks and some woody debris.

No photo
available

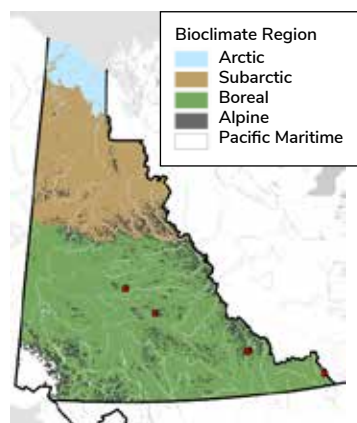
Dynamics: These are windy sites. Fire may occur on the lower-elevation sites. If disturbed, they would likely regenerate to fir, but this would depend on local seed sources.

Comments

- Key characteristics: subxeric to mesic site; shrubby krummholz fir; shrub birch high cover; high feathermoss cover
- Component of CNVC00452 Fir / Shrub Birch / Crowberry / Feathermoss Krummholz

F28 Environment table

Zone	BOS
Elevation (m)	1410 – 1425 – 1440
Aspect	variable
Slope (%)	12 – 24 – 50
Soil moisture regime	xeric to submesic
Soil drainage	very rapid to well
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	2 – 20 – 50
Soil class	Regosols (limited data)

**F28 Vegetation summary (%)**

Trees	0 – 1 – 1	Shrubs	50 – 79 – 99	Ground shrubs	2 – 8 – 15
Graminoids and Forbs	0 – 3 – 9	Bryophytes	20 – 48 – 80	Lichens	20 – 31 – 50

Layer	Scientific name	F28	Common name
		n = 5	
Shrubs	<i>Abies lasiocarpa</i>	■■■■■	fir
	<i>Betula glandulosa</i>	■■■■■	shrub birch
	<i>Vaccinium uliginosum</i>	■■■	blueberry
Ground shrubs	<i>Empetrum nigrum</i>	■■■	crowberry
	<i>Vaccinium vitis-idaea</i>	■	lowbush cranberry
Bryophytes	<i>Pleurozium schreberi</i>	■■■■■	red-stemmed feathermoss
Lichens	<i>Cladina</i> spp.	■■■■■	reindeer lichens
	<i>Masonhalea richardsonii</i>	■	arctic tumbleweed lichen
	<i>Peltigera</i> spp.	■■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

F29 Fir / Willow / Monkshood – Arctic raspberry – Tall Jacob's-ladder – Krummholz

F29 is krummholz fir, with willows and a diverse herbaceous understorey that includes mountain sagewort, monkshood, tall bluebells and tall Jacob's-ladder, and with high feathermoss ground cover. It occurs in the BOS and sometimes (on windy ridges) in the BOH.

Vegetation: F29 stands have a high to very high cover of shrubby fir (*Abies lasiocarpa*). Willows (*Salix* spp.) are prominent shrubs. The understorey is diverse, including arctic raspberry (*Rubus arcticus*), mountain sagewort (*Artemisia norvegica*), monkshood (*Aconitum delphiniiifolium*), fireweed (*Chamaenerion angustifolium*), Altai fescue (*Festuca altaica*), tall bluebells (*Mertensia paniculata*) and tall Jacob's-ladder (*Polemonium acutiflorum*). Feathermosses (*Hylocomium splendens*, *Pleurozium schreberi*) dominate the bryophyte layer. Lichen cover is low.

Environment: This association occurs at moderate to high elevations on moderately well drained to well-drained middle to upper gentle slopes. Aspects are neutral or warm. Parent materials are colluvial or morainal. Soil data are very limited.

Dynamics: These are windy, higher-elevation sites, so do not burn often. If disturbed, they would likely regenerate to fir.

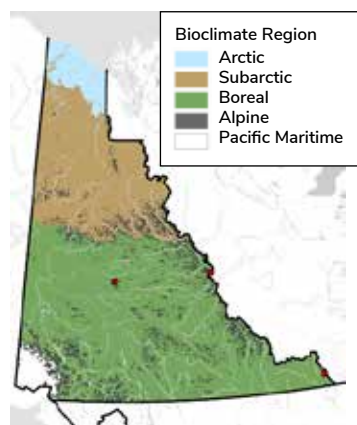
Comments

- Key characteristics: mesic site; shrubby krummholz fir; willows ≥5% cover; diverse herbaceous layer; high feathermoss cover
- Component of CNVC00453 Fir – Willow / Arctic Raspberry – Tall Jacob's-ladder / Step moss



F29 Environment table

Zone	BOS (BOH)
Elevation (m)	1250 – 1355 – 1445
Aspect	neutral, warm
Slope (%)	12 – 17 – 22
Soil moisture regime	mesic
Soil drainage	well to moderately well
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	1 – 8 – 16
Soil class	Brunisols (limited data)

**F29 Vegetation summary (%)**

Trees	0 – 1 – 3	Shrubs	65 – 75 – 85	Ground shrubs	1 – 3 – 6
Graminoids and Forbs	11 – 25 – 60	Bryophytes	60 – 70 – 90	Lichens	1 – 4 – 8

Layer	Scientific name	F29	Common name
		n = 4	
Shrubs	<i>Abies lasiocarpa</i>	■■■■■	fir
	<i>Betula glandulosa</i>	■■■	shrub birch
	<i>Salix</i> spp.	■■■■■	willows
Ground shrubs	<i>Rubus arcticus</i>	■■	arctic raspberry
Graminoids	<i>Festuca altaica</i>	■■■	Altai fescue
Forbs	<i>Aconitum delphinifolium</i>	■	monkshood
	<i>Anemone multifida</i>	■■	cut-leaved anemone
	<i>Artemisia norvegica</i>	■■■	mountain sagewort
	<i>Chamaenerion angustifolium</i>	■■■	fireweed
	<i>Cornus canadensis</i>	■■	bunchberry
	<i>Equisetum pratense / sylvaticum</i>	■	meadow / wood horsetail
	<i>Mertensia paniculata</i>	■	tall bluebells
	<i>Polemonium acutiflorum</i>	■	tall Jacob's-ladder
Bryophytes	<i>Hylocomium splendens</i>	■■■■■	step moss
	<i>Pleurozium schreberi</i>	■■■■	red-stemmed feathermoss
	<i>Polytrichum juniperinum</i>	■■■■	juniper haircap moss
Lichens	<i>Cladina</i> spp.	■	reindeer lichens
	<i>Nephroma arcticum</i>	■	arctic kidney lichen
	<i>Peltigera</i> spp.	■■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

F30 Fir / Swamp red currant / Feathermoss

F30 is a fir forest with swamp red currant, a moderately diverse herbaceous understorey and high feathermoss cover that occurs in the BOH and BOS.

Vegetation: F30 stands have a moderately closed to closed tree canopy of fir (*Abies lasiocarpa*). Fir in the shrub layer varies from moderate to very high cover; otherwise, shrub cover is low. Swamp red currant (*Ribes triste*) occurs with low to moderate cover. The understorey is moderately diverse, with fireweed (*Chamaenerion angustifolium*), bunchberry (*Cornus canadensis*), twinflower (*Linnaea borealis*), stiff club-moss (*Spinulum annotinum*) and tall bluebells (*Mertensia paniculata*). Feathermosses (*Hylocomium splendens*, *Pleurozium schreberi*) dominate the bryophyte layer. Lichen cover is low.

Environment: This association occurs at moderate to high elevations on lower to middle slopes that have average or above average moisture. Parent materials are mostly colluvial, with some morainal or eolian. Soils are classified as Brunisols or Regosols. The forest floor often has some cover of woody debris.

Dynamics: F30 stands do not have other tree species, so regeneration after disturbance is likely to be fir, although local seed sources will determine the outcome.

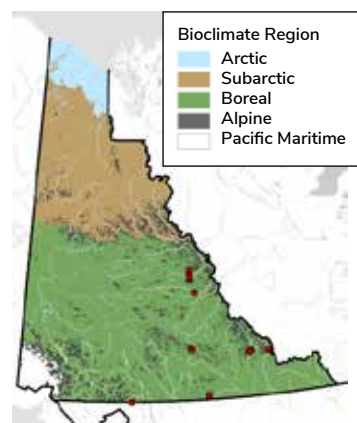
Comments

- Key characteristics: mesic to moist site; fir dominated; swamp red currant; moderately diverse herbaceous layer; high feathermoss cover
- Component of CNVC00447 Fir / Swamp Red Currant / Step Moss



F30 Environment table

Zone	BOH, BOS
Elevation (m)	1035 – 1380 – 1640
Aspect	variable
Slope (%)	15 – 26 – 60
Soil moisture regime	submesic, mesic (subhygric)
Soil drainage	well to moderately well (imperfect)
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	0 – 10 – 30
Soil class	Brunisols (Dystric, Eutric, Melanic), Regosols

**F30 Vegetation summary (%)**

Trees	10 – 41 – 99	Shrubs	1 – 25 – 70	Ground shrubs	0.1 – 3 – 10
Graminoids and Forbs	3 – 13 – 40	Bryophytes	65 – 80 – 99	Lichens	0.5 – 10 – 35

Layer	Scientific name	F30	Common name
		n = 12	
Trees	<i>Abies lasiocarpa</i>	■■■■■	fir
Shrubs	<i>Abies lasiocarpa</i>	■■■■■	fir
	<i>Ribes triste</i>	■■	swamp red currant
	<i>Salix</i> spp.	■	willows
Ground shrubs	<i>Empetrum nigrum</i>	■■	crowberry
	<i>Linnaea borealis</i>	■■	twinflower
	<i>Orthilia secunda</i>	■	one-sided wintergreen
Forbs	<i>Chamaenerion angustifolium</i>	■	fireweed
	<i>Cornus canadensis</i>	■■■	bunchberry
	<i>Spinulum annotinum</i>	■	stiff club-moss
	<i>Mertensia paniculata</i>	■■	tall bluebells
	<i>Polemonium acutiflorum</i>	■	tall Jacob's-ladder
Bryophytes	<i>Dicranum</i> spp.	■■■	heron's-bill mosses
	<i>Hylocomium splendens</i>	■■■■■	step moss
	<i>Pleurozium schreberi</i>	■■■■■	red-stemmed feathermoss
Lichens	<i>Cladina</i> spp.	■■■	reindeer lichens
	<i>Cladonia</i> spp.	■■	clad lichens
	<i>Nephroma arcticum</i>	■■	arctic kidney lichen
	<i>Peltigera</i> spp.	■■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

F32 **Fir / Willow / Crowberry – Sweet coltsfoot / Step moss – Glow moss**

F32 is a fir forest with willows and sweet coltsfoot and a moss carpet of feathermoss with some glow moss that occurs in the BOH.

Vegetation: F32 stands have a moderately closed to closed tree canopy of fir (*Abies lasiocarpa*). Fir in the shrub layer varies in cover from moderate to high. Willows (*Salix* spp.) and shrub birch (*Betula glandulosa*) are the main shrubs in the moderately well developed shrub layer. The understorey is mostly moderately well developed, with crowberry (*Empetrum nigrum*), lowbush cranberry (*Vaccinium vitis-idaea*), arctic sweet coltsfoot (*Petasites frigidus*), mountain sagewort (*Artemisia norvegica*) and bunchberry (*Cornus canadensis*) as the main species. Feathermosses (*Hylocomium splendens*, *Pleurozium schreberi*) dominate the moss cover. Glow moss (*Aulacomnium palustre*) occurs with variable cover. Lichen cover is low to moderate.



Environment: This association occurs at moderate elevations on middle to upper slopes that have average or above-average moisture. Parent materials are colluvial or morainal (based on limited data). Soils are classified as Brunisols or sometimes Cryosols. The forest floor often has some cover of woody debris.

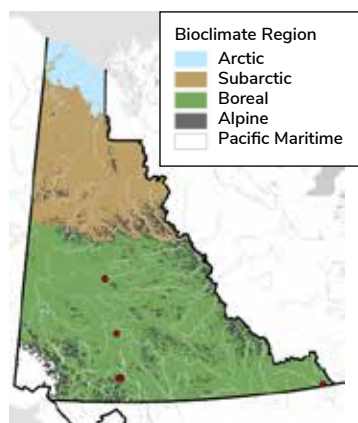
Dynamics: F32 stands sometimes have minor cover of white spruce. Stands (FSw32) with a combination of species are possible on similar sites. The species regenerating after disturbance depend on local seed sources.

Comments

- Key characteristics: mesic to moist site; fir dominated; willows and shrub birch; sweet coltsfoot; glow moss and step moss
- Component of CNVC00454 Fir / Willow – Shrub Birch / Crowberry – Sweet Coltsfoot / Glow Moss

F32 Environment table

Zone	BOH
Elevation (m)	1220 – 1305 – 1360
Aspect	neutral, cool
Slope (%)	14 – 24 – 30
Soil moisture regime	mesic, subhygric
Soil drainage	moderately well, imperfect
Permafrost presence/depth (cm)	possible
Unvegetated cover (%)	0 – 1 – 20
Soil class	Brunisols (Dystric, Eutric), Cryosols

**F32 Vegetation summary (%)**

Trees	0 – 30 – 40	Shrubs	12 – 41 – 65	Ground shrubs	2 – 26 – 40
Graminoids and Forbs	3 – 16 – 35	Bryophytes	55 – 81 – 98	Lichens	0 – 13 – 25

Layer	Scientific name	F32	Common name
		n = 5	
Trees	<i>Abies lasiocarpa</i>	■■■■■	fir
Shrubs	<i>Abies lasiocarpa</i>	■■■■	fir
	<i>Betula glandulosa</i>	■■■	shrub birch
	<i>Salix</i> spp.	■■■■	willows
	<i>Vaccinium uliginosum</i>	■	blueberry
Ground shrubs	<i>Empetrum nigrum</i>	■■■■	crowberry
	<i>Linnaea borealis</i>	■	twinlineflower
	<i>Vaccinium vitis-idaea</i>	■■■	lowbush cranberry
Graminoids	Poaceae	■	grass family
Forbs	<i>Artemisia norvegica</i>	■■	mountain sagewort
	<i>Cornus canadensis</i>	■■■	bunchberry
	<i>Spinulum annotinum</i>	■	stiff club-moss
	<i>Petasites frigidus</i>	■■■	arctic sweet coltsfoot
Bryophytes	<i>Aulacomnium palustre</i>	■■■■	glow moss
	<i>Hylocomium splendens</i>	■■■■■	step moss
Lichens	<i>Cladina</i> spp.	■■■	reindeer lichens
	<i>Cladonia</i> spp.	■■	clad lichens
	<i>Peltigera</i> spp.	■■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

F33 **Fir / Crowberry / Step moss – Peat moss**

F33 is a fir woodland or forest with Steven's spirea, cloudberry, feathermosses and peat mosses that occurs in the BOH and BOS.

Vegetation: F33 stands are mostly open, with much of the fir (*Abies lasiocarpa*) cover in the shrub layer. The shrub layer is moderately developed, with Steven's spirea (*Spiraea stevenii*), along with some shrub birch (*Betula glandulosa*) and common Labrador tea (*Rhododendron groenlandicum*). The understorey is also moderately developed, with crowberry (*Empetrum nigrum*), arctic mountain-heather (*Cassiope tetragona*) and cloudberry (*Rubus chamaemorus*). Feathermosses (*Hylocomium splendens*, *Pleurozium schreberi*) dominate the moss cover, but peat moss (*Sphagnum* spp.) occurs with moderate cover. Arctic kidney lichen (*Nephroma arcticum*) is prominent.

Environment: This association occurs at moderate to high elevations on gentle to moderate, lower to middle slopes that are moist to wet. Parent materials are colluvial or morainal. Soils are classified as Cryosols (Static), Regosols or sometimes Brunisols. The forest floor often has some cover of woody debris. Some sites may fit into the swamp ecosite S18 (FSw – Peat Moss – Feathermoss Swamp).

Dynamics: Stands sometimes have minor cover of white spruce. Stands with a combination of species (FSw35) are possible on similar sites. The species regenerating after disturbance depend on local seed sources.

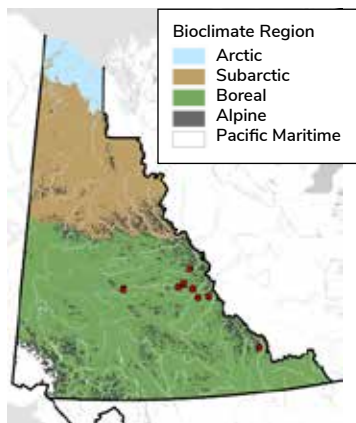
Comments

- Key characteristics: moist to wet site; fir dominated; peat mosses ≥5%; feathermosses high cover
- Component of CNVC00455 Fir / Steven's Spirea / Cloudberry / Step Moss – Arctic Kidney Lichen – Peat Moss



F33 Environment table

Zone	BOH, BOS
Elevation (m)	1090 – 1310 – 1470
Aspect	variable
Slope (%)	0 – 25 – 65
Soil moisture regime	subhygric, hygric
Soil drainage	imperfect
Permafrost presence/depth (cm)	frequent
Unvegetated cover (%)	0 – 6 – 15
Soil class	Cryosols (Static), Regosols

**F33** Vegetation summary (%)

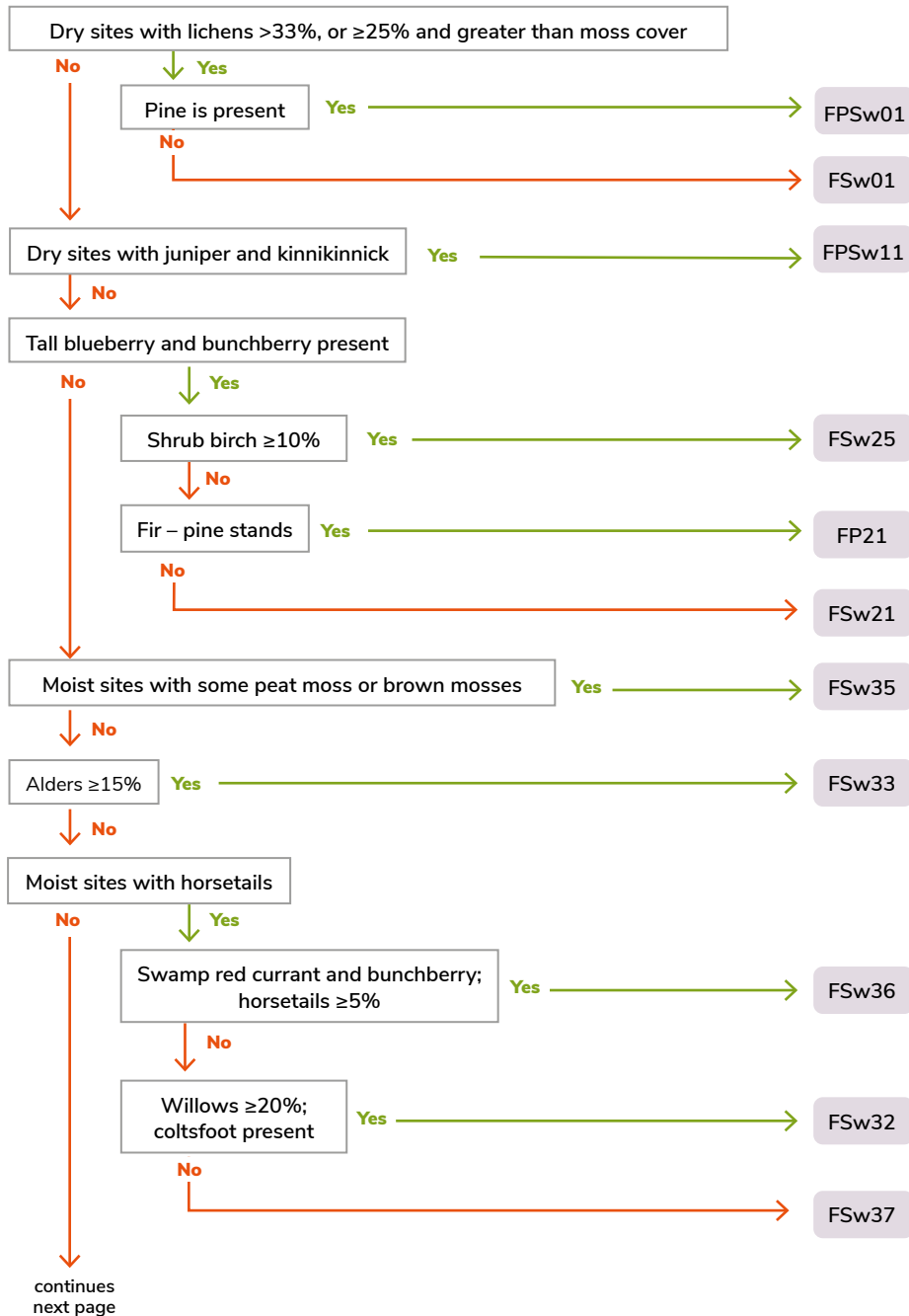
Trees	5 – 22 – 70	Shrubs	15 – 30 – 45	Ground shrubs	0.1 – 11 – 30
Graminoids and Forbs	0 – 9 – 35	Bryophytes	55 – 82 – 95	Lichens	0 – 30 – 60

Layer	Scientific name	F33	Common name
		n = 10	
Trees	<i>Abies lasiocarpa</i>	■■■■■	fir
Shrubs	<i>Abies lasiocarpa</i>	■■■■■	fir
	<i>Betula glandulosa</i>	■■■	shrub birch
	<i>Rhododendron groenlandicum</i>	■■	common Labrador tea
	<i>Salix</i> spp.	■■	willows
	<i>Spiraea stevenii</i>	■■	Steven's spirea
Ground shrubs	<i>Cassiope tetragona</i>	■■	arctic mountain-heather
	<i>Empetrum nigrum</i>	■■	crowberry
	<i>Rubus chamaemorus</i>	■■■	cloudberry
	<i>Vaccinium vitis-idaea</i>	■	lowbush cranberry
Bryophytes	<i>Hylocomium splendens</i>	■■■■■	step moss
	<i>Pleurozium schreberi</i>	■■■■	red-stemmed feathermoss
	<i>Sphagnum</i> spp.	■■■■■	peat mosses
	<i>Polytrichum juniperinum</i>	■■■■■	juniper haircap moss
Lichens	<i>Cladina</i> spp.	■■■	reindeer lichens
	<i>Cladonia</i> spp.	■■	clad lichens
	<i>Nephroma arcticum</i>	■■■■■	arctic kidney lichen
	<i>Peltigera</i> spp.	■■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

Fir – white spruce, fir – white spruce – pine, and fir – pine associations

Fir (F) and white spruce (Sw), or fir, white spruce and pine (P), or fir and pine co-dominate, with none >85% of canopy composition.

Flowchart Fir – white spruce, fir – white spruce – pine, and fir – pine associations



Summary of features: Fir – white spruce, fir – white spruce – pine, and fir – pine associations**Dry sites**

	Fsw01	FPSw01	FPSw11
Zone	BOH (BOS)	BOH	BOH, BOS
Geography	central, east-central	central, south-central	central, south-central
Important site features	dry; level or warm- to neutral-aspect slopes	dry; level or sloping	dry; moderately to steep slopes; warm or neutral aspects
Drainage	rapid to well to moderately well	well (rapid, moderately well)	rapid to well (moderately well)
Tree canopy	fir – white spruce	fir – pine – white spruce	fir – pine – white spruce
Key understorey species	shrub birch, lichen	shrub birch, lichen	common juniper, kinnikinnick, lichen

Mesic sites

	Fsw20	FPSw20	FP21	Fsw21	Fsw22	Fsw23	Fsw25
Zone	BOH (BOS)	BOH, BOS	BOH	BOH	BOH, BOS	BOH, BOS	BOH
Geography	central, south-central	central, south-central	southeast	southeast	central, south-central	central	southeast
Important site features	mesic sites; level or warm to neutral-aspect slopes	mesic; level or warm to neutral-aspect slopes	southeast Yukon; subxeric to mesic sites	southeast Yukon; subxeric to mesic sites	mesic sites; gentle slopes, mostly warm to neutral aspect	mesic sites; level or gentle slopes; neutral or cool aspect	southeast Yukon; mesic sites
Drainage	moderately well (well)	well to moderately well	well	well to moderately well	well to moderately well	well to moderately well	well to moderately well
Tree canopy	fir – white spruce	fir – pine – white spruce	fir – pine	fir – white spruce	fir – white spruce	fir – white spruce	fir – white spruce, fir – pine
Key understorey species	shrub birch, feathermoss	shrub birch, feathermoss	tall blueberry, feathermoss	tall blueberry, feathermoss	feathermoss	arctic mountain-heather, feathermoss	shrub birch, tall blueberry, feathermoss

Moist sites

	Fsw32	Fsw33	Fsw35	Fsw36	Fsw37
Zone	BOH, BOS	BOL, BOH	BOH, BOS	BOL, BOH	BOH
Geography	central, south-central	central, south-central, southeast	central, south-central	central, south-central	central
Important site features	moist sites; level or lower to middle slopes	mesic to moist sites; upper to lower slopes	mesic to moist sites; lower to middle slopes, depressions	moist sites; lower to middle slopes	moist sites; lower to middle slopes
Drainage	imperfect	moderately well (well, imperfect)	moderately well to imperfect	imperfect	moderately well to imperfect
Tree canopy	fir – white spruce	fir – white spruce	fir – white spruce	fir – white spruce	fir – white spruce
Key understorey species	willow, sweet coltsfoot, horsetails	alders	feathermoss, peat moss	swamp red currant, bunchberry, horsetails	horsetails

Vegetation tables for Fir – white spruce, fir – white spruce – pine, and fir – pine associations

Dry sites

Layer	Scientific name	FSw01	FPSw01	FPSw11	Common name
	n =	21	19	9	
Trees	<i>Abies lasiocarpa</i>	□□	■■■■	■■■■	fir
	<i>Picea glauca</i>	■	■	■	white spruce
	<i>Pinus contorta</i>		■■■■	■■■	lodgepole pine
Shrubs	<i>Abies lasiocarpa</i>	■■■■	■	■	fir
	<i>Picea glauca</i>	■	□□	■	white spruce
	<i>Betula glandulosa</i>	■■■■	■■■■	■■■	shrub birch
	<i>Juniperus communis</i>			■■■	common juniper
	<i>Rhododendron groenlandicum</i>	■	■		common Labrador tea
	<i>Rosa acicularis</i>			■	prickly rose
	<i>Salix</i> spp.	■	■	■■■■	willows
	<i>Vaccinium uliginosum</i>	■	■		blueberry
Ground shrubs	<i>Arctostaphylos uva-ursi</i>			■■■■	kinnikinnick
	<i>Empetrum nigrum</i>	■■■■	■■■■	■	crowberry
	<i>Vaccinium vitis-idaea</i>	■	■	■	lowbush cranberry
Graminoids	<i>Festuca altaica</i>		■	■■■■	Altai fescue
Forbs	<i>Anticlea elegans</i>			■	mountain death-camas
	<i>Artemisia norvegica</i>			■	mountain sagewort
	<i>Chamaenerion angustifolium</i>			■	fireweed
	<i>Cornus canadensis</i>		■	□□	bunchberry
	<i>Lupinus arcticus</i>			■	arctic lupine
	<i>Mertensia paniculata</i>			■	tall bluebells
Bryophytes	<i>Hylocomium / Pleurozium</i>	■■■■	■	■■■■	feathermosses
	<i>Polytrichum</i> spp.	■	■		haircap mosses
Lichens	<i>Cetraria / Flavocetraria</i> spp.	□□	■	■	Iceland / snow lichens
	<i>Cladina</i> spp.	■■■■	■■■■	■	reindeer lichens
	<i>Cladonia</i> spp.	■	■	■	clad lichens
	<i>Peltigera</i> spp.	■	■	■	pelt lichens
	<i>Stereocaulon</i> spp.	■	■	■	foam lichens

Note: gold cells highlight key diagnostic species

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ 1 – 3	■ 3 – 10	■ 10 – 25	■ >25

Mesic sites

Layer	Scientific name	FP21	FPSw20	FSw20	FSw21	FSw22	FSw23	FSw25	Common name
	n =	6	27	35	5	50	35	3	
Trees	<i>Abies lasiocarpa</i>	■■■■	■■■■	■■■	■■■■■	■■■■	□	□□□	fir
	<i>Picea glauca</i>		■■■	■■■	■■■■	■■■	■■	■■■	white spruce
	<i>Pinus contorta</i>	■■■■	■■■					□□	lodgepole pine
Shrubs	<i>Abies lasiocarpa</i>	■■■■	■■■■	■■■■	■■■■	■■■	■■■	■■■	fir
	<i>Picea glauca</i>		■■	□			□	□	white spruce
	<i>Pinus contorta</i>		■■					□	lodgepole pine
	<i>Alnus alnobetula</i>	■■■			□□			□□□□	green alder
	<i>Betula glandulosa</i>	■■	■■■■■	■■■■	■■■	■■	■■■	■■■■■	shrub birch
	<i>Betula occidentalis</i>							■■	water birch
	<i>Rhododendron groenlandicum</i>	□	■■■■	■■■	□	■■■	■■■	■	common Labrador tea
	<i>Salix</i> spp.	□□	■■■	■■■	□□□□	■■■	■■■	■■■■■	willows
	<i>Vaccinium membranaceum</i>	■■■			■■■			■■■■	tall blueberry
	<i>Vaccinium uliginosum</i>		■■	■■		■■	■■		blueberry
	<i>Arctous rubra</i>					□	■		red bearberry
	<i>Cassiope tetragona</i>						■■■		arctic mountain-heather
	<i>Empetrum nigrum</i>	■■■	■■■■	■■■■		■■■	■■■■		crowberry
Ground shrubs	<i>Linnaea borealis</i>	□□			■■	□		■	twinflower
	<i>Orthilia secunda</i>	■			■			■	one-sided wintergreen
	<i>Pyrola asarifolia</i>				■■			■	pink wintergreen
	<i>Vaccinium caespitosum</i>	■			□□			■■■	dwarf blueberry
	<i>Vaccinium vitis-idaea</i>	■	■■■	■■	□□	■■	□	■	lowbush cranberry
	Poaceae		■■	□	□□	□		■■	grass family
	<i>Aconitum delphinifolium</i>	□			■			■	monkshood
	<i>Anemonastrum sibiricum</i>							■■	narcissus anemone
Forbs	<i>Artemisia norvegica</i>				■			■■	mountain sagewort
	<i>Chamaenerion angustifolium</i>	■	□		■■			■■■	fireweed
	<i>Cornus canadensis</i>	■■■	■■		■■■■	□□		■■■	bunchberry
	<i>Equisetum</i> spp.				■■			■■	horsetails
	<i>Spinulum annotinum</i>	■■■			■■			■	stiff club-moss
	<i>Mertensia paniculata</i>	■			□□	□		■■	tall bluebells
	<i>Petasites frigidus</i>	□			■■			■	arctic sweet coltsfoot
	<i>Streptopus amplexifolius</i>				□			■	clasping twistedstalk
	<i>Brachythecium</i> spp.				■			■■	ragged mosses
	<i>Dicranum</i> spp.	■■■				□		■■	heron's-bill mosses
Bryophytes	<i>Hylocomium</i> / <i>Pleurozium</i>	■■■■■	■■■■■	■■■■■	■■■■■	■■■■■	■■■■■	■■■■■	feathermosses
	<i>Polytrichum juniperinum</i>	■■	■■■		□□□			■■	juniper haircap moss
Lichens	<i>Cladina</i> spp.	■■■	■■■	■■■		■■■	■■■■	□	reindeer lichens
	<i>Cladonia</i> spp.	■■	■■■	■■		■■	□	■■	clad lichens
	<i>Peltigera</i> spp.	□	■■	■■	□□	■■	□	■	pelt lichens

Note: gold cells highlight key diagnostic species

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

Moist sites

Layer	Scientific name	FSw32	FSw33	FSw35	FSw36	FSw37	Common name
	n =	5	11	14	4	6	
Trees	<i>Abies lasiocarpa</i>	■■■■	■■■■	■■■■	■■■■		fir
	<i>Picea glauca</i>	■■■■	■■■■	■■■■	■■■■	■■	white spruce
Shrubs	<i>Abies lasiocarpa</i>	□□□	■■■	■■■■	■■■	■■■■	fir
	<i>Picea glauca</i>	□□		□□	□	■■	white spruce
	<i>Picea mariana</i>				■■		black spruce
	<i>Alnus alnobetula / incana</i>		■■■■■		■■	□	green / river alder
	<i>Betula glandulosa</i>	□		■■■■		■■■	shrub birch
	<i>Rhododendron groenlandicum</i>	□□	□□	■■■	■■	■■■	common Labrador tea
	<i>Ribes triste</i>		□□□		■■		swamp red currant
	<i>Rosa acicularis</i>	□	■■■		■■■		prickly rose
	<i>Salix</i> spp.	■■■■■	■■■	■■■■	■■■	■■■	willows
	<i>Vaccinium uliginosum</i>	■■■	□□	■■	■	■■	blueberry
	<i>Arctous rubra</i>		□□□			■■	red bearberry
Ground shrubs	<i>Cassiope tetragona</i>					■■■	arctic mountain-heather
	<i>Empetrum nigrum</i>	■■■	■■	■■■	■■	■■■	crowberry
	<i>Linnaea borealis</i>		■■		■■■		twinflower
	<i>Salix reticulata</i>					■■	net-veined willow
	<i>Vaccinium vitis-idaea</i>	■■	■■	■■	■■■		lowbush cranberry
	Poaceae	■■	■■■	■■	□		grass family
Forbs	<i>Cornus canadensis</i>		■■■		■■■		bunchberry
	<i>Equisetum</i> spp.	■■	■■	■■■	■■■■	■■■	horsetails
	<i>Equisetum scirpoides</i>	□	□□		■		dwarf scouring-rush
	<i>Spinulum annotinum</i>				■		stiff club-moss
	<i>Mertensia paniculata</i>	□	■	□	■■		tall bluebells
	<i>Mitella nuda</i>		□		■		naked mitrewort
	<i>Orthilia secunda</i>	□			■■		one-sided wintergreen
	<i>Petasites frigidus</i>	■■		□□	□	□	arctic sweet coltsfoot
Bryophytes	<i>Dicranum</i> spp.	■	□	□□	□		heron's-bill mosses
	<i>Hylocomium / Pleurozium</i>	■■■■■	■■■■■	■■■■	■■■■■	■■■■■	feathermosses
	<i>Sphagnum</i> spp.			■■■■			peat mosses
Lichens	<i>Cladina</i> spp.	■■■	■■	■■■		■■■	reindeer lichens
	<i>Cladonia</i> spp.	■	■	□	□	□□	clad lichens
	<i>Nephroma arcticum</i>	■■		□□□			arctic kidney lichen
	<i>Peltigera</i> spp.	■■	■■	□	■■		pelt lichens

Note: gold cells highlight key diagnostic species

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

Fact sheets: Fir – white spruce, fir – white spruce – pine, and fir – pine associations

FSw01 **Fir – White spruce / Shrub birch / Crowberry / Lichen**

FSw01 is a woodland or stunted forest with a combination of fir and white spruce and with high lichen ground cover that occurs in the BOH and BOS.

Vegetation: FSw01 stands have a tree canopy of fir (*Abies lasiocarpa*) and white spruce (*Picea glauca*), often with most of the cover in the shrub layer. Fir is more abundant than white spruce. Shrub birch (*Betula glandulosa*) is almost always present, with varying cover (low to very high). Common Labrador tea (*Rhododendron groenlandicum*) and blueberry (*Vaccinium uliginosum*) are often present. The ground shrub crowberry (*Empetrum nigrum*) is prominent and lowbush cranberry (*Vaccinium vitis-idaea*) is usually present. Feathermosses (*Hylocomium splendens*, *Pleurozium schreberi*) commonly occur, and can be of high cover, but cover is less than that of the lichens. A diversity of lichens characterizes the forest floor. The most common and abundant lichens are reindeer lichens (*Cladina* spp.) Other lichens are clad lichens (*Cladonia* spp.) and foam lichens (*Stereocaulon* spp.).

No photo
available

Environment: This association occurs at higher elevations, primarily on level sites or gentle slopes of warm to neutral aspect. Soils are rapidly drained to well drained, or can be moderately well drained. Based on limited data, parent materials are variable (morainal or colluvial), and soils are classified as Brunisols (Eutric, Dystric). The forest floor usually has some cover of woody debris or rocks.

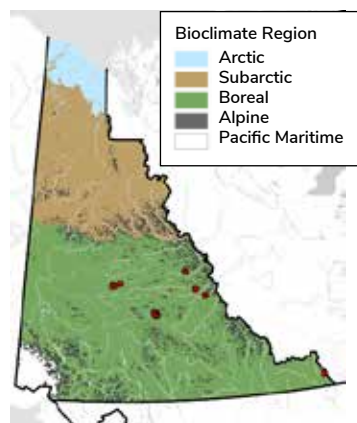
Dynamics: Stands on similar sites can include pine (FPSw01) or be primarily fir (F01) or white spruce (Sw28). Dominance after disturbance depends on local seed sources.

Comments

- Key characteristics: dry site; fir – white spruce stand; high to very high cover of lichens; lichen cover > moss cover
- Component of CNVC00430 Fir – White Spruce / Shrub Birch / Crowberry / Reindeer Lichens

FSw01 Environment table

Zone	BOH, BOS
Elevation (m)	1110 – 1290 – 1560
Aspect	neutral, warm to neutral aspect
Slope (%)	0 – 10 – 55
Soil moisture regime	subxeric, submesic
Soil drainage	rapid to well (moderately well)
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	0 – 4 – 20
Soil class	Brunisols (Eutric or Dystric)

**FSw01 Vegetation summary (%)**

Trees	0 – 5 – 15	Shrubs	20 – 45 – 90	Ground shrubs	0.1 – 14 – 35
Graminoids and Forbs	0 – 3 – 30	Bryophytes	1 – 22 – 55	Lichens	25 – 46 – 75

Layer	Scientific name	FSw01	Common name
		n = 21	
Trees	<i>Picea glauca</i>	■ ■	white spruce
Shrubs	<i>Abies lasiocarpa</i>	■ ■ ■ ■	fir
	<i>Picea glauca</i>	■ ■	white spruce
	<i>Betula glandulosa</i>	■ ■ ■ ■	shrub birch
	<i>Rhododendron groenlandicum</i>	■ ■ ■ ■	common Labrador tea
	<i>Salix</i> spp.	■ ■ ■	willows
	<i>Vaccinium uliginosum</i>	■ ■	blueberry
Ground shrubs	<i>Empetrum nigrum</i>	■ ■ ■ ■	crowberry
	<i>Vaccinium vitis-idaea</i>	■ ■	lowbush cranberry
Bryophytes	<i>Hylcomium</i> / <i>Pleurozium</i>	■ ■ ■ ■	feathermosses
Lichens	<i>Cladina</i> spp.	■ ■ ■ ■ ■	reindeer lichens
	<i>Cladonia</i> spp.	■ ■ ■	clad lichens
	<i>Peltigera</i> spp.	■	pelt lichens
	<i>Stereocaulon</i> spp.	■ ■ ■	foam lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ ■ 1 – 3	■ ■ ■ 3 – 10	■ ■ ■ ■ 10 – 25	■ ■ ■ ■ ■ >25

FPSw01 Fir – Pine – White spruce / Shrub birch / Crowberry / Lichen

FPSw01 is a woodland with a combination of fir, pine and white spruce with high lichen ground cover that occurs in the BOH.

Vegetation: FPSw01 stands have a tree canopy of fir (*Abies lasiocarpa*), pine (*Pinus contorta*) and white spruce (*Picea glauca*). The shrub layer is well developed, primarily with tree regeneration and shrub birch (*Betula glandulosa*). Willows (*Salix* spp.), blueberry (*Vaccinium uliginosum*) and common Labrador tea (*Rhododendron groenlandicum*) are usually present. Crowberry (*Empetrum nigrum*) and lowbush cranberry (*Vaccinium vitis-idaea*) characterize the ground shrub layer. Occasionally, the moss cover is greater than the lichen cover, but if so, it is due to a high cover of haircap mosses (*Polytrichum* spp.), a moss that occurs with higher cover on dry sites. A diversity of lichens usually dominates the forest floor. The most common and abundant lichens are reindeer lichens (*Cladonia* spp.), clad lichens (*Cladonia* spp.) and foam lichens (*Stereocaulon* spp.).

Environment: This association occurs at mid to high elevations, primarily on level sites or gentle slopes of various aspects. Soils are mostly well drained. Parent materials are morainal, colluvial or glaciofluvial. Soils are classified as Brunisols (Dystric) or Podzols (Humo-Ferric). The forest floor has some cover of woody debris.

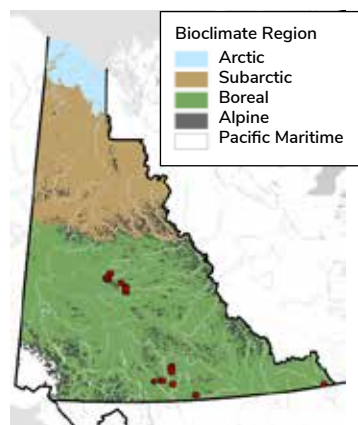
Dynamics: Stands on similar sites can include fir – white spruce (FSw01), fir (F01) or white spruce (Sw28). Dominance after disturbance depends on local seed sources.

**Comments**

- Key characteristics: dry site; combined fir – pine – white spruce stand; high to very high cover of lichens; lichen cover > feathermoss cover
- Component of CNVC00428 Fir – Pine – White Spruce / Shrub Birch / Crowberry / Reindeer Lichens

FPSw01 Environment table

Zone	BOH
Elevation (m)	1050 – 1175 – 1370
Aspect	neutral, variable
Slope (%)	0 – 11 – 55
Soil moisture regime	subxeric, submesic
Soil drainage	well (rapid, moderately well)
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	1 – 7 – 15
Soil class	Brunisols (Dystric), Humo-Ferric Podzol

**FPSw01 Vegetation summary (%)**

Trees	0 – 35 – 99	Shrubs	20 – 65 – 99	Ground shrubs	5 – 20 – 40
Graminoids and Forbs	0 – 7 – 30	Bryophytes	1 – 27 – 75	Lichens	25 – 47 – 90

Layer	Scientific name	FPSw01	Common name
		n = 19	
Trees	<i>Abies lasiocarpa</i>	■■■■■	fir
	<i>Picea glauca</i>	■■■	white spruce
	<i>Pinus contorta</i>	■■■■■	lodgepole pine
Shrubs	<i>Abies lasiocarpa</i>	■■■■■	fir
	<i>Betula glandulosa</i>	■■■■■	shrub birch
	<i>Rhododendron groenlandicum</i>	■■■	common Labrador tea
	<i>Salix</i> spp.	■■■	willows
	<i>Vaccinium uliginosum</i>	■■■	blueberry
Ground shrubs	<i>Empetrum nigrum</i>	■■■■■	crowberry
	<i>Vaccinium vitis-idaea</i>	■■■	lowbush cranberry
Graminoids	Poaceae	■■	grass family
Bryophytes	<i>Hylocomium / Pleurozium</i>	■■■■■	feathermosses
	<i>Polytrichum</i> spp.	■■■■■	haircap mosses
Lichens	<i>Flavocetraria</i> spp.	■■	snow lichens
	<i>Cladina</i> spp.	■■■■■	reindeer lichens
	<i>Cladonia</i> spp.	■■■	clad lichens
	<i>Peltigera</i> spp.	■■	pelt lichens
	<i>Stereocaulon</i> spp.	■■■	foam lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

FPSw11 Fir – Pine – White spruce / Juniper / Kinnikinnick

FPSw11 is a woodland or forest with a combination of fir, pine and white spruce and with common juniper, Altai fescue and kinnikinnick, that occurs in the BOH and BOS.

Vegetation: FPSw11 stands have a tree canopy of fir (*Abies lasiocarpa*), pine (*Pinus contorta*) and white spruce (*Picea glauca*). The shrub layer is very well developed, with tree regeneration, willows (*Salix* spp.), common juniper (*Juniperus communis*), shrub birch (*Betula glandulosa*), and often, prickly rose (*Rosa acicularis*). The ground shrub layer is also well developed, with kinnikinnick (*Arctostaphylos uva-ursi*) and crowberry (*Empetrum nigrum*). The graminoid layer has Altai fescue (*Festuca altaica*) and the forb layer has fireweed (*Chamaenerion angustifolium*) and mountain sagewort (*Artemisia norvegica*), among others. Mosses and lichens vary in cover and diversity.

Environment: This association occurs at mid to high elevations, primarily on warm-aspect to neutral-aspect slopes (gentle to moderately steep). Soils are mostly well drained. Based on very limited data, parent materials are colluvial and soils are classified as Brunisols (Dystric, Eutric, Melanic) or Regosols. The forest floor has some cover of rocks and woody debris.

Dynamics: Stands on similar moderate to high elevation sites can be dominated by fir (F21), white spruce – water birch (SwW04), balsam poplar (B01) or mixed-wood (AFP10). Dominance after disturbance depends on local seed sources.

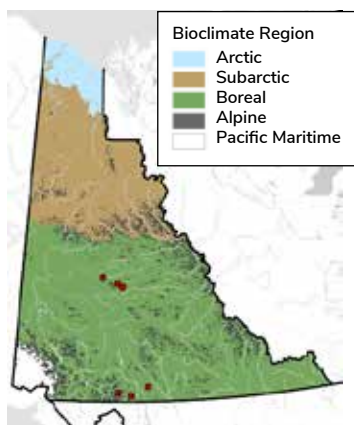
Comments

- Key characteristics: dry site; combination of fir – pine – white spruce; common juniper, Altai fescue and kinnikinnick present
- Component of CNVC00429 Fir – White Spruce – Pine / Common Juniper – Willows / Kinnikinnick



FPSw11 Environment table

Zone	BOH, BOS
Elevation (m)	1095 – 1290 – 1430
Aspect	warm, neutral
Slope (%)	0 – 36 – 65
Soil moisture regime	subxeric, submesic
Soil drainage	rapid to well (moderately well)
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	6 – 10 – 20
Soil class	Brunisols (Dystric, Eutric, Melanic)

**FPSw11 Vegetation summary (%)**

Trees	0 – 25 – 45	Shrubs	15 – 60 – 99	Ground shrubs	6 – 21 – 45
Graminoids and Forbs	1 – 31 – 90	Bryophytes	0 – 15 – 35	Lichens	0 – 17 – 40

Layer	Scientific name	FPSw11	Common name
		n = 9	
Trees	<i>Abies lasiocarpa</i>	■■■■■	fir
	<i>Picea glauca</i>	■■■	white spruce
	<i>Pinus contorta</i>	■■■	lodgepole pine
Shrubs	<i>Abies lasiocarpa</i>	■■■	fir
	<i>Picea glauca</i>	■■■	white spruce
	<i>Betula glandulosa</i>	■■■	shrub birch
	<i>Juniperus communis</i>	■■■	common juniper
	<i>Rosa acicularis</i>	■■■	prickly rose
	<i>Salix</i> spp.	■■■■■	willows
Ground shrubs	<i>Arctostaphylos uva-ursi</i>	■■■■■	kinnikinnick
	<i>Empetrum nigrum</i>	■■■	crowberry
	<i>Vaccinium vitis-idaea</i>	■■■	lowbush cranberry
Graminoids	<i>Festuca altaica</i>	■■■	Altai fescue
Forbs	<i>Artemisia norvegica</i>	■■■	mountain sagewort
	<i>Chamaenerion angustifolium</i>	■■■	fireweed
	<i>Lupinus arcticus</i>	■■■	arctic lupine
Bryophytes	<i>Hylocomium / Pleurozium</i>	■■■■■	feathermosses
Lichens	<i>Flavocetraria</i> spp.	■■■	snow lichens
	<i>Cladina</i> spp.	■■■	reindeer lichens
	<i>Cladonia</i> spp.	■■■	clad lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

FSw20 Fir – White spruce / Shrub birch / Crowberry / Feathermoss

FSw20 is a woodland with a combination of fir and white spruce and with high cover of shrub birch and feathermoss that occurs in the BOH and BOS.

Vegetation: FSw20 stands have a tree canopy of fir (*Abies lasiocarpa*) and white spruce (*Picea glauca*), often with most of the tree cover in the shrub layer. Shrub birch (*Betula glandulosa*) dominates the shrub layer, usually with some willow (*Salix* spp.) and common Labrador tea (*Rhododendron groenlandicum*). Crowberry (*Empetrum nigrum*) is prominent in the lightly developed to moderately developed ground shrub layer. Feathermosses (*Hylocomium splendens*, *Pleurozium schreberi*) dominate the moss cover. Lichen cover is low to moderately high and comprised primarily of reindeer lichens (*Cladonia* spp.).

Environment: This association occurs at moderate to high elevations on moderately well drained to well-drained level sites or warm-aspect or neutral-aspect, mostly middle, slopes. The limited data indicates that parent materials are morainal or colluvial, with Brunisol (Eutric, Dystric) soil development. The forest floor has some cover of woody debris.

Dynamics: On sites with similar understorey vegetation, other tree species could occur, such as white spruce (Sw30), pine (P31) or a combination of species (FPSw20). Tree species composition after disturbance depends on local seed sources.

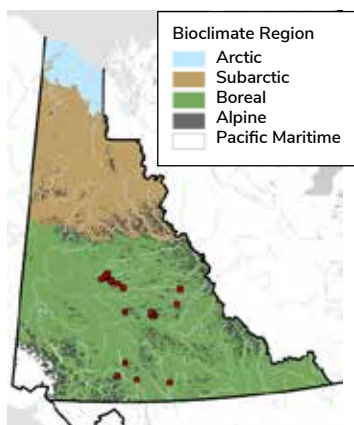
Comments

- Key characteristics: mesic site; combined fir – white spruce stand; shrub birch >10% cover; high feathermoss cover
- Component of CNVC00433 Fir (White Spruce) / Shrub Birch / Crowberry / Step Moss



FSw20 Environment table

Zone	BOH (BOS)
Elevation (m)	1035 – 1230 – 1440
Aspect	neutral, warm to neutral
Slope (%)	0 – 13 – 55
Soil moisture regime	mesic (submesic)
Soil drainage	moderately well (well)
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	1 – 4 – 10
Soil class	Brunisols (Eutric, Dystric)

**FSw20 Vegetation summary (%)**

Trees	2 – 14 – 45	Shrubs	25 – 50 – 99	Ground shrubs	1 – 15 – 40
Graminoids and Forbs	0 – 5 – 14	Bryophytes	10 – 60 – 85	Lichens	0.3 – 18 – 40

Layer	Scientific name	FSw20	Common name
		n = 35	
Trees	<i>Abies lasiocarpa</i>	■■■	fir
	<i>Picea glauca</i>	■■■	white spruce
Shrubs	<i>Abies lasiocarpa</i>	■■■■	fir
	<i>Betula glandulosa</i>	■■■■	shrub birch
	<i>Rhododendron groenlandicum</i>	■■■	common Labrador tea
	<i>Salix</i> spp.	■■■	willows
	<i>Vaccinium uliginosum</i>	■■	blueberry
Ground shrubs	<i>Empetrum nigrum</i>	■■■■	crowberry
	<i>Vaccinium vitis-idaea</i>	■■	lowbush cranberry
Bryophytes	<i>Hylocomium</i> / <i>Pleurozium</i>	■■■■■	feathermosses
Lichens	<i>Cladina</i> spp.	■■■	reindeer lichens
	<i>Cladonia</i> spp.	■■	clad lichens
	<i>Peltigera</i> spp.	■■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

FPSw20 Fir – Pine – White spruce / Shrub birch / Crowberry / Feathermoss

FPSw20 is a woodland or forest with a combination of fir, pine and white spruce, and with high cover of shrub birch and feathermoss, that occurs in the BOH and BOS.

Vegetation: FPSw20 stands have a tree canopy of fir (*Abies lasiocarpa*), pine (*Pinus contorta*) and white spruce (*Picea glauca*), often with considerable tree cover in the shrub layer. Shrub birch (*Betula glandulosa*) dominates the shrub layer, usually with some willow (*Salix* spp.) and common Labrador tea (*Rhododendron groenlandicum*). Crowberry (*Empetrum nigrum*) and lowbush cranberry (*Vaccinium vitis-idaea*) are prominent in the lightly developed to moderately well developed ground shrub layer. Feathermosses (*Hylocomium splendens*, *Pleurozium schreberi*) dominate the moss cover. Lichen cover is low to moderately high and comprised primarily of reindeer lichens (*Cladina* spp.).

Environment: This association occurs at moderate to high elevations on moderately well drained to well-drained level sites or warm-aspect or neutral-aspect, middle to upper slopes. The limited data indicates that parent materials are mostly morainal or glaciofluvial, with Brunisol (Eutric, Dystric) soil development. The forest floor has some cover of woody debris.

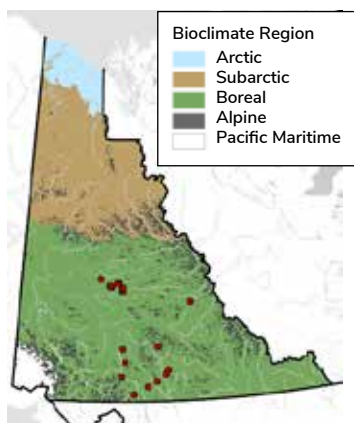
Dynamics: On sites with similar understorey vegetation, other tree species could occur, such as white spruce (Sw30), pine (P31) or a combination of species (FSw20). Tree species composition after disturbance depends on local seed sources.

**Comments**

- Key characteristics: mesic site; combination of fir – pine – white spruce; shrub birch >10% cover; high feathermoss cover (or greater than lichen cover)
- Component of CNVC00432 Fir (White Spruce – Pine) / Shrub Birch / Crowberry / Step Moss

FPSw20 Environment table

Zone	BOH, BOS
Elevation (m)	1030 – 1185 – 1430
Aspect	neutral, warm to neutral
Slope (%)	0 – 17 – 40
Soil moisture regime	mesic (submesic)
Soil drainage	well to moderately well
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	1 – 4 – 10
Soil class	Brunisols (Eutric, Dystric)

**FPSw20 Vegetation summary (%)**

Trees	3 – 32 – 85	Shrubs	10 – 60 – 99	Ground shrubs	3 – 22 – 70
Graminoids and Forbs	0 – 10 – 35	Bryophytes	5 – 60 – 95	Lichens	0.5 – 23 – 60

Layer	Scientific name	FPSw20	Common name
		n = 27	
Trees	<i>Abies lasiocarpa</i>	■■■■■	fir
	<i>Picea glauca</i>	■■■	white spruce
	<i>Pinus contorta</i>	■■■	lodgepole pine
Shrubs	<i>Abies lasiocarpa</i>	■■■■■	fir
	<i>Picea glauca</i>	■ ■	white spruce
	<i>Pinus contorta</i>	■ ■	lodgepole pine
	<i>Betula glandulosa</i>	■■■■■	shrub birch
	<i>Rhododendron groenlandicum</i>	■ ■ ■ ■	common Labrador tea
	<i>Salix</i> spp.	■■■	willows
	<i>Vaccinium uliginosum</i>	■ ■	blueberry
Ground shrubs	<i>Empetrum nigrum</i>	■■■■■	crowberry
	<i>Vaccinium vitis-idaea</i>	■■■	lowbush cranberry
Graminoids	<i>Festuca altaica</i>	■ ■	Altai fescue
Forbs	<i>Cornus canadensis</i>	■ ■	bunchberry
Bryophytes	<i>Hylocomium</i> / <i>Pleurozium</i>	■■■■■	feathermosses
	<i>Polytrichum juniperinum</i>	■ ■ ■	juniper haircap moss
Lichens	<i>Cladina</i> spp.	■■■	reindeer lichens
	<i>Cladonia</i> spp.	■■■	clad lichens
	<i>Peltigera</i> spp.	■ ■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ ■ 1 – 3	■ ■ ■ 3 – 10	■ ■ ■ ■ 10 – 25	■ ■ ■ ■ ■ >25

FP21 Fir – Pine / Tall blueberry / Feathermoss

FP21 is a woodland or forest with a combination fir and pine, and with tall blueberry, bunchberry and high feathermoss cover, that occurs in the BOH.

Vegetation: FP21 stands have a tree canopy of fir (*Abies lasiocarpa*) and pine (*Pinus contorta*), with fir regeneration. White spruce (*Picea glauca*) is sometimes present with low cover. Tall blueberry (*Vaccinium membranaceum*) is characteristic and green alder (*Alnus alnobetula*) is usually present with low to moderate cover. Bunchberry (*Cornus canadensis*) is a prominent forb; lowbush cranberry (*Vaccinium vitis-idaea*) is usually present. Feathermosses (*Hylocomium splendens*, *Pleurozium schreberi*, *Ptilium crista-castrensis*) dominate the forest floor. Lichen cover is low.

No photo
available

Environment: This association occurs at moderate elevations on well-drained, mostly middle to upper, gently sloping sites on cool or neutral aspects. Parent materials are mostly morainal, occasionally glaciofluvial. Very limited soil data shows soils are Brunisols. The forest floor has some cover of woody debris.

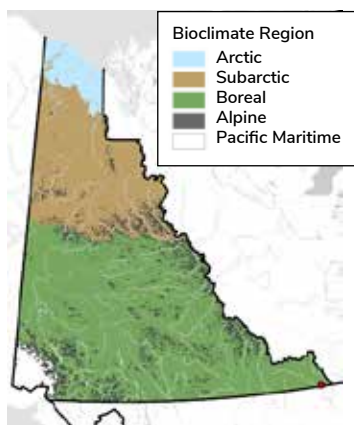
Dynamics: On sites with similar understorey vegetation, other tree species could occur, such as white spruce – fir (FSw21). Tree species composition after disturbance depends on local seed sources.

Comments

- Key characteristics: dry to mesic site; combination of fir and pine; tall blueberry; high feathermoss cover
- Component of CNVC00106 Fir – White Spruce / Tall Blueberry / Step Moss

FP21 Environment table

Zone	BOH
Elevation (m)	990 – 1135 – 1420
Aspect	cool to neutral (neutral)
Slope (%)	0 – 10 – 25
Soil moisture regime	subxeric to mesic
Soil drainage	well
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	5 – 10 – 20
Soil class	Brunisols (Eutric)

**FP21 Vegetation summary (%)**

Trees	15 – 35 – 60	Shrubs	20 – 35 – 70	Ground shrubs	1 – 6 – 20
Graminoids and Forbs	0.2 – 19 – 40	Bryophytes	35 – 70 – 85	Lichens	1 – 10 – 25

Layer	Scientific name	FP21	Common name
		n = 6	
Trees	<i>Abies lasiocarpa</i>	■■■■■	fir
	<i>Pinus contorta</i>	■■■■■	lodgepole pine
Shrubs	<i>Abies lasiocarpa</i>	■■■■■	fir
	<i>Alnus alnobetula</i>	■■■	green alder
	<i>Betula glandulosa</i>	■ ■	shrub birch
	<i>Vaccinium membranaceum</i>	■■■	tall blueberry
Ground shrubs	<i>Empetrum nigrum</i>	■ ■ ■	crowberry
	<i>Vaccinium caespitosum</i>	■	dwarf blueberry
	<i>Vaccinium vitis-idaea</i>	■	lowbush cranberry
Forbs	<i>Cornus canadensis</i>	■■■	bunchberry
	<i>Spinulum annotinum</i>	■ ■ ■	stiff club-moss
	<i>Mertensia paniculata</i>	■	tall bluebells
Bryophytes	<i>Dicranum</i> spp.	■ ■ ■	heron's-bill mosses
	<i>Hylocomium splendens</i>	■■■■■	step moss
	<i>Pleurozium schreberi</i>	■■■■■	red-stemmed feathermoss
	<i>Polytrichum juniperinum</i>	■ ■	juniper haircap moss
	<i>Ptilium crista-castrensis</i>	■■■	knight's plume
Lichens	<i>Cladina</i> spp.	■ ■ ■	reindeer lichens
	<i>Cladonia</i> spp.	■ ■	clad lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

FSw21 **Fir – White spruce / Tall blueberry / Feathermoss**

FSw21 is a forest with a combination of fir and white spruce, and with tall blueberry, bunchberry and high feathermoss cover, that occurs in the BOH.

Vegetation: FSw21 stands have a tree canopy of fir (*Abies lasiocarpa*) and white spruce (*Picea glauca*), with mostly fir regeneration. Tall blueberry (*Vaccinium membranaceum*) is characteristic. The ground shrub layer includes twinflower (*Linnaea borealis*). Bunchberry (*Cornus canadensis*) is a prominent forb; stiff club-moss (*Spinulum annotinum*) is also usually present. Feathermosses (*Hylocomium splendens*, *Pleurozium schreberi*, *Ptilium crista-castrensis*) dominate the forest floor. Lichen cover is low.

No photo
available

Environment: This association occurs at moderate elevations on moderately well drained to well-drained gentle to moderate slopes. Parent materials are mostly morainal, or shallow to bedrock. No soil data are available, but soils are likely Brunisols. The forest floor has some cover of woody debris.

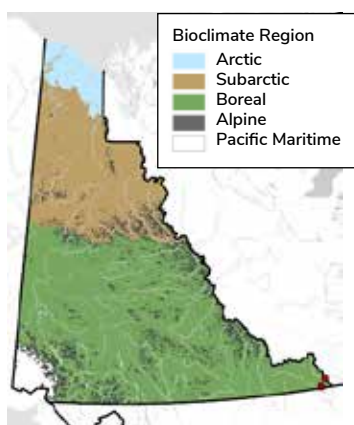
Dynamics: On sites with similar understorey vegetation, other tree species could occur, such as fir and pine (FP21). Tree species composition after disturbance depends on local seed sources.

Comments

- Key characteristics: dry to mesic site; fir – white spruce stand; tall blueberry; high feathermoss cover
- Component of CNVC00106 Fir – White Spruce / Tall Blueberry / Step Moss

FSw21 Environment table

Zone	BOH
Elevation (m)	950 – 1160 – 1390
Aspect	variable
Slope (%)	5 – 20 – 27
Soil moisture regime	subxeric to mesic
Soil drainage	well to moderately well
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	1 – 4 – 10
Soil class	(Brunisols)

**FSw21 Vegetation summary (%)**

Trees	30 – 53 – 60	Shrubs	20 – 50 – 90	Ground shrubs	1 – 6 – 15
Graminoids and Forbs	20 – 30 – 45	Bryophytes	60 – 85 – 98	Lichens	0 – 2 – 10

Layer	Scientific name	FSw21	Common name
		n = 5	
Trees	<i>Abies lasiocarpa</i>	■■■■■	fir
	<i>Picea glauca</i>	■■■■■	white spruce
Shrubs	<i>Abies lasiocarpa</i>	■■■■■	fir
	<i>Betula glandulosa</i>	■■■	shrub birch
	<i>Vaccinium membranaceum</i>	■■■	tall blueberry
Ground shrubs	<i>Linnaea borealis</i>	■■	twinline
	<i>Orthilia secunda</i>	■	one-sided wintergreen
	<i>Pyrola asarifolia</i>	■■	pink wintergreen
Forbs	<i>Aconitum delphinifolium</i>	■	monkshood
	<i>Artemisia norvegica</i>	■	mountain sagewort
	<i>Chamaenerion angustifolium</i>	■■	fireweed
	<i>Cornus canadensis</i>	■■■■■	bunchberry
	<i>Spinulum annotinum</i>	■■	stiff club-moss
	<i>Petasites frigidus</i>	■■	arctic sweet coltsfoot
Bryophytes	<i>Hylocomium splendens</i>	■■■■■	step moss
	<i>Pleurozium schreberi</i>	■■■■■	red-stemmed feathermoss
	<i>Ptilium crista-castrensis</i>	■■■■■	knight's plume

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

FSw22 **Fir – White spruce / Crowberry / Feathermoss**

FSw22 is a woodland or forest with a combination of fir and white spruce and with high feathermoss cover that occurs in the BOH and BOS.

Vegetation: FSw22 stands have a tree canopy of fir (*Abies lasiocarpa*) and white spruce (*Picea glauca*). The cover of trees in the forest regeneration can exceed the tree canopy. The shrub cover is mostly lightly developed to moderately developed, with common Labrador tea (*Rhododendron groenlandicum*), willow (*Salix* spp.) and some shrub birch (*Betula glandulosa*). Crowberry (*Empetrum nigrum*) is prominent in the ground shrub layer, usually with lowbush cranberry (*Vaccinium vitis-idaea*). Feathermosses (*Hylocomium splendens*, *Pleurozium schreberi*) dominate the moss cover. Lichen cover is mostly low to moderate (sometimes high), but is less than the moss cover and is comprised primarily of reindeer lichens (*Cladina* spp.).



Environment: This association occurs at moderate to high elevations on moderately well drained to well-drained level sites or warm or neutral-aspect, mostly middle slopes. Parent materials vary, including morainal, colluvial and fluvial. Soils are mostly classified as Brunisols (Dystric, Eutric). The forest floor has some cover of woody debris.

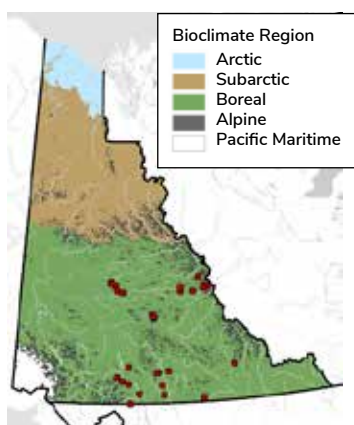
Dynamics: On sites with similar understorey vegetation, other tree species could dominate, such as fir (F22). Tree species composition after disturbance depends on local seed sources.

Comments

- Key characteristics: mesic site; fir – white spruce stand; shrub birch <10% cover; high feathermoss cover
- Component of CNVC00442 Fir – White Spruce / Crowberry / Step Moss

FSw22 Environment table

Zone	BOH, BOS
Elevation (m)	760 – 1230 – 1435
Aspect	neutral, warm to neutral
Slope (%)	0 – 16 – 75
Soil moisture regime	mesic (submesic)
Soil drainage	well to moderately well
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	1 – 4 – 10
Soil class	Brunisols (Dystric, Eutric)

**FSw22 Vegetation summary (%)**

Trees	1 – 27 – 90	Shrubs	1 – 26 – 80	Ground shrubs	1 – 14 – 40
Graminoids and Forbs	0 – 5 – 35	Bryophytes	10 – 63 – 99	Lichens	0 – 11 – 40

Layer	Scientific name	FSw22	Common name
		n = 50	
Trees	<i>Abies lasiocarpa</i>	■■■■■	fir
	<i>Picea glauca</i>	■■■	white spruce
Shrubs	<i>Abies lasiocarpa</i>	■■■	fir
	<i>Betula glandulosa</i>	■ ■	shrub birch
	<i>Rhododendron groenlandicum</i>	■■■	common Labrador tea
	<i>Salix</i> spp.	■■■	willows
	<i>Vaccinium uliginosum</i>	■ ■	blueberry
Ground shrubs	<i>Empetrum nigrum</i>	■■■	crowberry
	<i>Vaccinium vitis-idaea</i>	■■	lowbush cranberry
Bryophytes	<i>Hylocomium splendens</i>	■■■■■	step moss
	<i>Pleurozium schreberi</i>	■ ■ ■ ■	red-stemmed feathermoss
Lichens	<i>Cladina</i> spp.	■■■	reindeer lichens
	<i>Cladonia</i> spp.	■ ■	clad lichens
	<i>Peltigera</i> spp.	■ ■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

FSw23 **Fir – White spruce / Crowberry – Arctic mountain-heather / Step moss**

FSw23 is a woodland with a combination of fir and white spruce, and with arctic mountain-heather and high feathermoss cover, that occurs in the BOH and BOS.

Vegetation: FSw23 stands have a tree canopy of fir (*Abies lasiocarpa*) and white spruce (*Picea glauca*), although most of the fir is in the shrub layer. Other than tree regeneration, the shrub cover is moderately developed, with common Labrador tea (*Rhododendron groenlandicum*), willow (*Salix* spp.) and shrub birch (*Betula glandulosa*). Arctic mountain-heather (*Cassiope tetragona*) and crowberry (*Empetrum nigrum*) characterize the well-developed ground shrub layer. Feathermosses (*Hylocomium splendens*, *Pleurozium schreberi*) dominate the moss cover. Lichen cover varies, but is mostly moderate and comprised primarily of reindeer lichens (*Cladonia* spp.).

No photo
available

Environment: This association occurs at moderate to high elevations on moderately well drained to well-drained level sites or cool-aspect to neutral-aspect gentle slopes. No data on parent materials or Soil classification are available.

Dynamics: On sites with similar understorey vegetation, other tree species could dominate, such as fir (F20). Tree species composition after disturbance depends on local seed sources.

Comments

- Key characteristics: mesic site; fir – white spruce stand; arctic mountain-heather; high feathermoss cover
- CNVC association not yet determined

FSw23 Environment table

Zone	BOH, BOS
Elevation (m)	1140 – 1260 – 1400
Aspect	neutral, cool to neutral
Slope (%)	0 – 11 – 30
Soil moisture regime	mesic
Soil drainage	well to moderately well
Permafrost presence/depth (cm)	no data
Unvegetated cover (%)	1 – 4 – 10
Soil class	no data

**FSw23** Vegetation summary (%)

Trees	1 – 3 – 10	Shrubs	13 – 27 – 75	Ground shrubs	7 – 26 – 45
Graminoids and Forbs	0 – 1 – 5	Bryophytes	13 – 39 – 70	Lichens	2 – 14 – 40

Layer	Scientific name	FSw23	Common name
		n = 35	
Trees	<i>Picea glauca</i>	■ ■	white spruce
Shrubs	<i>Abies lasiocarpa</i>	■ ■ ■	fir
	<i>Betula glandulosa</i>	■ ■ ■	shrub birch
	<i>Rhododendron groenlandicum</i>	■ ■ ■	common Labrador tea
	<i>Salix</i> spp.	■ ■ ■	willows
	<i>Vaccinium uliginosum</i>	■ ■	blueberry
Ground shrubs	<i>Arctous rubra</i>	■	red bearberry
	<i>Cassiope tetragona</i>	■ ■ ■	arctic mountain-heather
	<i>Empetrum nigrum</i>	■ ■ ■ ■	crowberry
Bryophytes	<i>Hylocomium splendens</i>	■ ■ ■ ■	step moss
	<i>Pleurozium schreberi</i>	■ ■ ■ ■	red-stemmed feathermoss
Lichens	<i>Cladina</i> spp.	■ ■ ■ ■	reindeer lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ ■ 1 – 3	■ ■ ■ 3 – 10	■ ■ ■ ■ 10 – 25	■ ■ ■ ■ ■ >25

Fsw25 Fir – White spruce / Shrub birch – Tall blueberry / Feathermoss

Fsw25 is a woodland with a combination of fir and white spruce or fir and pine, and with shrub birch, tall blueberry, bunchberry and feathermosses, that occurs in the BOH.

Vegetation: Fsw25 stands have a tree canopy of fir (*Abies lasiocarpa*) and white spruce (*Picea glauca*) or fir and pine (*Pinus contorta*). Much of the tree cover can occur in the shrub layer. Shrub birch (*Betula glandulosa*) and tall blueberry (*Vaccinium membranaceum*) are characteristic shrubs. Twinflower (*Linnaea borealis*) is a common ground shrub. The forb layer is moderately diverse, with bunchberry (*Cornus canadensis*), fireweed (*Chamaenerion angustifolium*), mountain sagewort (*Artemisia norvegica*) and clasping twistedstalk (*Streptopus amplexifolius*), among others. Feathermosses (*Hylocomium splendens*, *Pleurozium schreberi*, *Ptilium crista-castrensis*) vary considerably in cover, but dominate over the lichen cover.

No photo
available

Environment: This association occurs at moderate elevations on moderately well drained to well-drained gentle to moderate slopes. No soil data are available on parent materials or soil classification; however, based on the forb diversity soils are likely slightly moister or more nutrient rich than other tall blueberry associations described here.

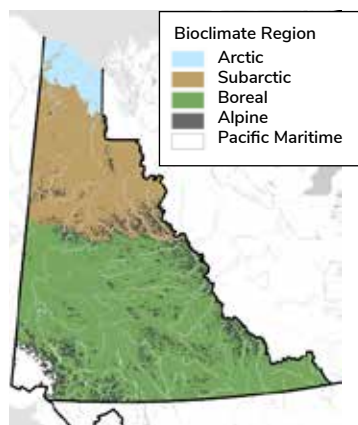
Dynamics: Tree species composition after disturbance depends on local seed sources.

Comments

- Key characteristics: mesic site; fir – white spruce, or fir – pine stand; shrub birch ≥10%; tall blueberry; feathermoss > lichen cover
- CNVC association not yet determined

FSw25 Environment table

Zone	BOH
Elevation (m)	no data
Aspect	no data
Slope (%)	no data
Soil moisture regime	mesic
Soil drainage	well to moderately well
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	no data
Soil class	no data

**FSw25 Vegetation summary (%)**

Trees	5 – 10 – 30	Shrubs	65 – 90 – 99	Ground shrubs	2 – 7 – 15
Graminoids and Forbs	10 – 35 – 50	Bryophytes	5 – 25 – 60	Lichens	1 – 2 – 4

Layer	Scientific name	FSw25	Common name
		n = 3	
Trees	<i>Picea glauca</i>	■ ■ ■	white spruce
	<i>Pinus contorta</i>	□ □	lodgepole pine
Shrubs	<i>Abies lasiocarpa</i>	■ ■ ■	fir
	<i>Betula glandulosa</i>	■ ■ ■ ■ ■	shrub birch
	<i>Betula occidentalis</i>	■ ■	water birch
	<i>Salix</i> spp.	■ ■ ■ ■ ■	willows
	<i>Vaccinium membranaceum</i>	■ ■ ■ ■	tall blueberry
Ground shrubs	<i>Linnaea borealis</i>	■	twinline
	<i>Pyrola asarifolia</i>	■	pink wintergreen
	<i>Vaccinium caespitosum</i>	■ ■ ■	dwarf blueberry
Graminoids	<i>Calamagrostis</i> spp.	■ ■	reedgrasses
Forbs	<i>Anemonastrum sibiricum</i>	■ ■	narcissus anemone
	<i>Artemisia norvegica</i>	■ ■	mountain sagewort
	<i>Chamaenerion angustifolium</i>	■ ■ ■	fireweed
	<i>Cornus canadensis</i>	■ ■ ■	bunchberry
	<i>Lathyrus ochroleucus</i>	■ ■	wild pea
	<i>Mertensia paniculata</i>	■ ■	tall bluebells
	<i>Streptopus amplexifolius</i>	■	clasping twistedstalk
Bryophytes	<i>Brachythecium</i> spp.	■ ■	ragged mosses
	<i>Dicranum</i> spp.	■ ■	heron's-bill mosses
	<i>Hylocomium</i> / <i>Pleurozium</i>	■ ■ ■ ■	feathermosses
	<i>Polytrichum juniperinum</i>	■ ■	juniper haircap moss
Lichens	<i>Cladonia</i> spp.	■ ■	clad lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ ■ 1 – 3	■ ■ ■ 3 – 10	■ ■ ■ ■ 10 – 25	■ ■ ■ ■ ■ >25

FSw32 Fir – White spruce / Willow / Sweet coltsfoot / Step moss

FSw32 is a woodland or forest with a combination of fir and white spruce, and with sweet coltsfoot and high willow and feathermoss cover, that occurs in the BOH and BOS.

Vegetation: FSw32 stands have a tree canopy of fir (*Abies lasiocarpa*) and white spruce (*Picea glauca*). Willows (*Salix* spp.) dominate the shrub layer. Crowberry (*Empetrum nigrum*) and lowbush cranberry (*Vaccinium vitis-idaea*) are common ground shrubs. Sweet coltsfoot (*Petasites frigidus*) characterizes the forb layer; horsetails (*Equisetum* spp.) are often present. Step moss (*Hylocomium splendens*) dominates the bryophyte layer. Lichen cover is low to moderate and is comprised primarily of reindeer lichens (*Cladonia* spp.).

Environment: This association occurs at moderate to high elevations on imperfectly drained middle to lower slopes. Parent materials are mostly morainal. Soils are classified as Brunisols (Dystric) or Static Cryosols. The forest floor has some cover of woody debris.

Dynamics: On sites with similar understorey vegetation, other tree species could dominate, such as fir (F32). Tree species composition after disturbance depends on local seed sources.

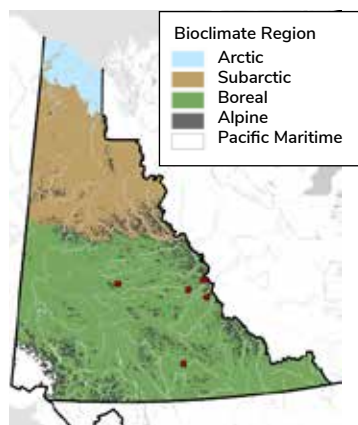
Comments

- Key characteristics: mesic site; fir – white spruce stand; willows ≥20% cover; sweet coltsfoot; high feathermoss cover
- Component of CNVC00449 Fir – White Spruce / Willow / Sweet Coltsfoot / Step Moss



FSw32 Environment table

Zone	BOH, BOS
Elevation (m)	975 – 1195 – 1525
Aspect	variable
Slope (%)	17 – 31 – 40
Soil moisture regime	subhygric
Soil drainage	imperfect
Permafrost presence/depth (cm)	frequent
Unvegetated cover (%)	1 – 5 – 10
Soil class	Brunisols, Cryolsols (Static)

**FSw32 Vegetation summary (%)**

Trees	11 – 35 – 80	Shrubs	35 – 55 – 90	Ground shrubs	1 – 15 – 35
Graminoids and Forbs	0.3 – 7 – 15	Bryophytes	75 – 82 – 90	Lichens	0.3 – 10 – 20

Layer	Scientific name	FSw32	Common name
		n = 5	
Trees	<i>Abies lasiocarpa</i>	■■■■■	fir
	<i>Picea glauca</i>	■■■■■	white spruce
Shrubs	<i>Salix</i> spp.	■■■■■	willows
	<i>Vaccinium uliginosum</i>	■■■	blueberry
Ground shrubs	<i>Empetrum nigrum</i>	■■■	crowberry
	<i>Vaccinium vitis-idaea</i>	■■	lowbush cranberry
Forbs	<i>Petasites frigidus</i>	■■	arctic sweet coltsfoot
	<i>Equisetum</i> spp.	■■	horsetails
Bryophytes	<i>Hylocomium splendens</i>	■■■■■	step moss
Lichens	<i>Cladina</i> spp.	■■■	reindeer lichens
	<i>Cladonia</i> spp.	■	clad lichens
	<i>Nephroma arcticum</i>	■■	arctic kidney lichen
	<i>Peltigera</i> spp.	■■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

FSw33 Fir – White spruce / Alder / Step moss

FSw33 is a woodland or forest with a combination of fir and white spruce with high alder and feathermoss cover that occurs in the BOL and BOH.

Vegetation: FSw33 stands have a tree canopy of fir (*Abies lasiocarpa*) and white spruce (*Picea glauca*), sometimes with minor cover of pine (*Pinus contorta*) or Alaska birch (*Betula neoalaskana*). Alders (*Alnus alnobetula*, *A. incana*) dominate the shrub layer, often with some willow (*Salix* spp.). The understorey is somewhat variable, including the forbs tall bluebells (*Mertensia paniculata*) and bunchberry (*Cornus canadensis*), and the ground shrubs crowberry (*Empetrum nigrum*), twinflower (*Linnaea borealis*) and lowbush cranberry (*Vaccinium vitis-idaea*). Horsetails (*Equisetum* spp.) and sweet coltsfoot (*Petasites frigidus*) can also occur. Feathermosses (*Hylocomium splendens*, *Pleurozium schreberi*, *Ptilium crista-castrensis*) dominate the moss cover. Lichen cover is low.

No photo
available

Environment: This association occurs at low to moderate elevations on mesic to moist sites on various slopes and aspects. Parent materials are mostly morainal. Soil data are limited but both Brunisols (Eutric) and Cryosols have been observed. The forest floor has a moderate cover of woody debris.

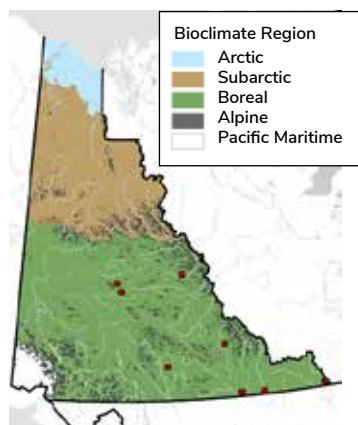
Dynamics: On sites with similar understorey vegetation, many other tree species could dominate, such as pine (P23, P24), black spruce (Sb24), white spruce (Sw34) or mixed-wood species (such as PSb23, PSbW22, SwW28, SbSwW34). Tree species composition after disturbance depends on local seed sources.

Comments

- Key characteristics: mesic to moist site; fir – white spruce stand; alders $\geq 15\%$ cover; high feathermoss cover
- Component of CNVC00444 Fir – White Spruce / Alder / Step Moss

FSw33 Environment table

Zone	BOL, BOH
Elevation (m)	590 – 985 – 1340
Aspect	variable
Slope (%)	8 – 26 – 60
Soil moisture regime	mesic to subhygric
Soil drainage	moderately well (well, imperfect)
Permafrost presence/depth (cm)	possible
Unvegetated cover (%)	1 – 11 – 20
Soil class	Brunisols (Eutric), Organic Cryosols

**FSw33 Vegetation summary (%)**

Trees	10 – 38 – 75	Shrubs	20 – 60 – 99	Ground shrubs	0 – 13 – 25
Graminoids and Forbs	1 – 16 – 45	Bryophytes	30 – 60 – 99	Lichens	0 – 6 – 10

Layer	Scientific name	FSw33	Common name
		n = 11	
Trees	<i>Abies lasiocarpa</i>	■■■■■	fir
	<i>Picea glauca</i>	■■■■■	white spruce
Shrubs	<i>Abies lasiocarpa</i>	■■■	fir
	<i>Alnus alnobetula / incana</i>	■■■■■	green / river alder
	<i>Rosa acicularis</i>	■■■	prickly rose
	<i>Salix</i> spp.	■■■	willows
Ground shrubs	<i>Empetrum nigrum</i>	■■	crowberry
	<i>Linnaea borealis</i>	■■	twinlineflower
	<i>Vaccinium vitis-idaea</i>	■■	lowbush cranberry
Graminoids	Poaceae	■■■	grass family
Forbs	<i>Cornus canadensis</i>	■■■	bunchberry
	<i>Mertensia paniculata</i>	■	tall bluebells
Bryophytes	<i>Hylocomium / Pleurozium</i>	■■■■■	feathermosses
Lichens	<i>Cladina</i> spp.	■■	reindeer lichens
	<i>Peltigera</i> spp.	■■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

FSw35 Fir – White spruce / Shrub birch – Labrador tea / Step moss – Peat moss

FSw35 is a woodland or forest with a combination of fir and white spruce, and with high feathermoss cover and some peat moss (or brown mosses), that occurs in the BOH and BOS.

Vegetation: FSw35 stands have a tree canopy of fir (*Abies lasiocarpa*) and white spruce (*Picea glauca*), often with significant cover of fir in the shrub layer. Willows (*Salix* spp.), shrub birch (*Betula glandulosa*) and common Labrador tea (*Rhododendron groenlandicum*) are prominent shrubs. Crowberry (*Empetrum nigrum*) and lowbush cranberry (*Vaccinium vitis-idaea*) are common ground shrubs. Species indicative of moister conditions, such as sweet coltsfoot (*Petasites frigidus*), horsetails (*Equisetum* spp.) and cloudberry (*Rubus chamaemorus*) are present, but not consistently. Feathermosses (*Hylocomium splendens*, *Pleurozium schreberi*) dominate the moss cover. Variable (usually low to moderately high) cover of peat moss (*Sphagnum* spp.) usually occurs or sometimes, some brown mosses (*Aulacomnium palustre*, *Tomentypnum nitens*). Lichen cover varies; it can be of high cover, but is less than the moss cover.

Environment: This association occurs at moderate to high elevations on moderately well drained to imperfectly drained middle to lower slopes and epressions. Based on limited data, parent materials are mostly morainal and soils are classified as Brunisols (Dystric), Folisols, Regosols or Turbic Cryosols. The forest floor has some cover of woody debris. Some sites may fit into the swamp ecosite S18 (FSw – Peat Moss – Feathermoss Swamp).

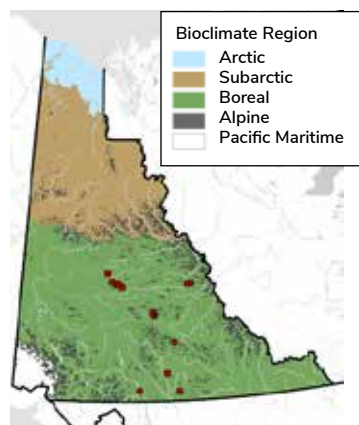
Dynamics: On sites with similar understorey vegetation, other tree species could dominate, such as fir (F33). Tree species composition after disturbance depends on local seed sources.

**Comments**

- Key characteristics: mesic to moist site; fir – white spruce stand; high feathermoss cover; some peat mosses or brown mosses
- Component of CNVC00456 Fir – White Spruce / Shrub Birch / Cloudberry / Peat Moss – Arctic Kidney Lichen

FSw35 Environment table

Zone	BOH, BOS
Elevation (m)	960 – 1225 – 1460
Aspect	variable
Slope (%)	0 – 9 – 23
Soil moisture regime	mesic to subhygric (hygric)
Soil drainage	moderately well to imperfect
Permafrost presence/depth (cm)	occasional
Unvegetated cover (%)	1 – 3 – 5
Soil class	Brunisols (Cryosols, Regosols, Folisols)

**FSw35 Vegetation summary (%)**

Trees	4 – 22 – 60	Shrubs	12 – 55 – 95	Ground shrubs	2 – 15 – 40
Graminoids and Forbs	0 – 14 – 30	Bryophytes	40 – 73 – 99	Lichens	0 – 20 – 50

Layer	Scientific name	FSw35	Common name
		n = 14	
Trees	<i>Abies lasiocarpa</i>	■■■■■	fir
	<i>Picea glauca</i>	■■■■■	white spruce
Shrubs	<i>Abies lasiocarpa</i>	■■■■■	fir
	<i>Betula glandulosa</i>	■ ■ ■ ■	shrub birch
	<i>Rhododendron groenlandicum</i>	■■■	common Labrador tea
	<i>Salix</i> spp.	■■■■■	willows
	<i>Vaccinium uliginosum</i>	■ ■	blueberry
Ground shrubs	<i>Empetrum nigrum</i>	■■■	crowberry
	<i>Vaccinium vitis-idaea</i>	■■	lowbush cranberry
Graminoids	Poaceae	■ ■	grass family
Bryophytes	<i>Hylocomium</i> / <i>Pleurozium</i>	■■■■■	feathermosses
	<i>Sphagnum</i> spp.	■■■■■	peat mosses
Lichens	<i>Cladina</i> spp.	■ ■ ■	reindeer lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

FSw36 Fir – White spruce / Currant / Horsetail – Tall bluebells / Step moss

FSw36 is a woodland or forest with a combination of fir and white spruce and with swamp red currant, horsetails and high feathermoss cover that occurs in the BOL and BOH.

Vegetation: FSw36 stands have a tree canopy of fir (*Abies lasiocarpa*) and white spruce (*Picea glauca*). Tree regeneration is mostly fir, but can include white spruce or black spruce (*P. mariana*). Swamp red currant (*Ribes triste*) and prickly rose (*Rosa acicularis*) characterize the shrub layer. Crowberry (*Empetrum nigrum*) and lowbush cranberry (*Vaccinium vitis-idaea*) are common ground shrubs. Horsetails, usually wood horsetail (*Equisetum sylvaticum*), bunchberry (*Cornus canadensis*) and twinflower are prominent in the understorey. Step moss (*Hylocomium splendens*) dominates the moss cover, with some red-stemmed feathermoss (*Pleurozium schreberi*). Freckle pelt lichen (*Peltigera aphthosa*) also occurs.

Environment: This association occurs at moderate elevations on imperfectly drained lower to middle slopes. Information on parent materials is limited. Soil classification is varied and includes Brunisols (Eutric), Static Cryosols and Humisols. The forest floor has some cover of woody debris.

Dynamics: On sites with similar understorey vegetation, other tree species could dominate, such as fir (F30). Tree species composition after disturbance depends on local seed sources.

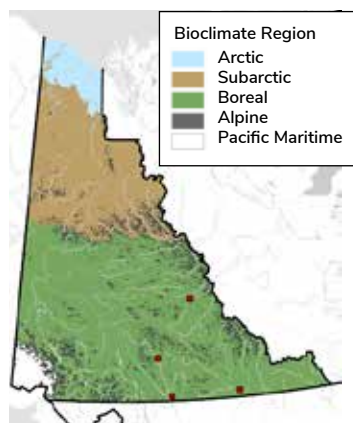
Comments

- Key characteristics: mesic site; fir – white spruce stand; swamp red currant and bunchberry present; horsetails $\geq 5\%$; high feathermoss cover
- Component of CNVC00448 Fir – White Spruce / Horsetails – Tall Bluebells / Step Moss



FSw36 Environment table

Zone	BOL, BOH
Elevation (m)	810 – 890 – 950
Aspect	variable
Slope (%)	0 – 11 – 20
Soil moisture regime	subhygric
Soil drainage	imperfect
Permafrost presence/depth (cm)	occasional
Unvegetated cover (%)	1 – 5 – 7
Soil class	Brunisols, Cryolsols (Static), Humisol

**FSw36 Vegetation summary (%)**

Trees	11 – 35 – 50	Shrubs	18 – 25 – 35	Ground shrubs	0.2 – 9 – 25
Graminoids and Forbs	17 – 40 – 75	Bryophytes	75 – 82 – 90	Lichens	0.1 – 1 – 2

Layer	Scientific name	FSw36	Common name
		n = 4	
Trees	<i>Abies lasiocarpa</i>	■ ■ ■ ■	fir
	<i>Picea glauca</i>	■ ■ ■ ■	white spruce
Shrubs	<i>Abies lasiocarpa</i>	■ ■ ■	fir
	<i>Rhododendron groenlandicum</i>	■ ■	common Labrador tea
	<i>Ribes triste</i>	■ ■	swamp red currant
	<i>Rosa acicularis</i>	■ ■ ■	prickly rose
	<i>Salix</i> spp.	■ ■ ■	willows
Ground shrubs	<i>Empetrum nigrum</i>	■ ■	crowberry
	<i>Linnaea borealis</i>	■ ■ ■	twinlineflower
	<i>Orthilia secunda</i>	■ ■	one-sided wintergreen
	<i>Vaccinium vitis-idaea</i>	■ ■ ■	lowbush cranberry
Forbs	<i>Cornus canadensis</i>	■ ■ ■	bunchberry
	<i>Equisetum sylvaticum</i>	■ ■ ■ ■	wood horsetail
	<i>Spinulum annotinum</i>	■	stiff club-moss
	<i>Mertensia paniculata</i>	■ ■	tall bluebells
	<i>Mitella nuda</i>	■	naked mitrewort
Bryophytes	<i>Hylocomium splendens</i>	■ ■ ■ ■ ■	step moss
	<i>Pleurozium schreberi</i>	■ ■ ■ ■	red-stemmed feathermoss
Lichens	<i>Peltigera aphthosa</i>	■ ■	freckle pelt lichen

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ ■ 1 – 3	■ ■ ■ 3 – 10	■ ■ ■ ■ 10 – 25	■ ■ ■ ■ ■ >25

FSw37 **Fir – White spruce / Crowberry – Arctic mountain-heather / Horsetail**

FSw37 is a woodland or forest with a combination of fir and white spruce and with arctic mountain-heather, horsetails and high feathermoss cover that occurs in the BOH.

Vegetation: FSw37 stands have a tree canopy of fir (*Abies lasiocarpa*) and white spruce (*Picea glauca*), although the fir is in the shrub layer. Other than trees, the shrub cover is moderately developed, with willow (*Salix* spp.), blueberry (*Vaccinium uliginosum*), common Labrador tea (*Rhododendron groenlandicum*) and shrub birch (*Betula glandulosa*). Crowberry (*Empetrum nigrum*) and arctic mountain-heather (*Cassiope tetragona*) characterize the moderately developed to well-developed ground shrub layer. Horsetails (*Equisetum* spp.) are present. Feathermosses (*Hylocomium splendens*, *Pleurozium schreberi*) dominate the moss cover. Lichen cover is low and is comprised primarily of reindeer lichens (*Cladina* spp.).

No photo
available

Environment: This association occurs at moderate to high elevations on moderately well drained to imperfectly drained cool-aspect to neutral-aspect slopes. No data on parent materials or soil classification are available.

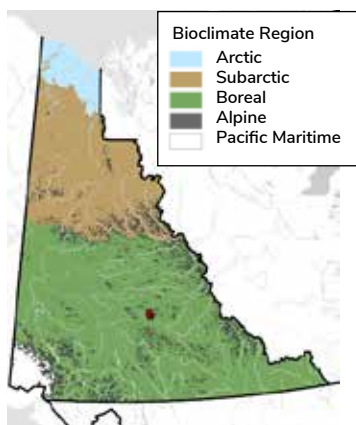
Dynamics: Tree species composition after disturbance depends on local seed sources.

Comments

- Key characteristics: mesic to moist site; fir – white spruce stand; horsetails; arctic mountain-heather usually present; high feathermoss cover
- CNVC association not yet determined

FSw37 Environment table

Zone	BOH
Elevation (m)	1220 – 1285 – 1350
Aspect	cool to neutral
Slope (%)	7 – 25 – 100
Soil moisture regime	mesic to subhygric
Soil drainage	moderately well to imperfect
Permafrost presence/depth (cm)	no data
Unvegetated cover (%)	1 – 3 – 5
Soil class	no data

**FSw37** Vegetation summary (%)

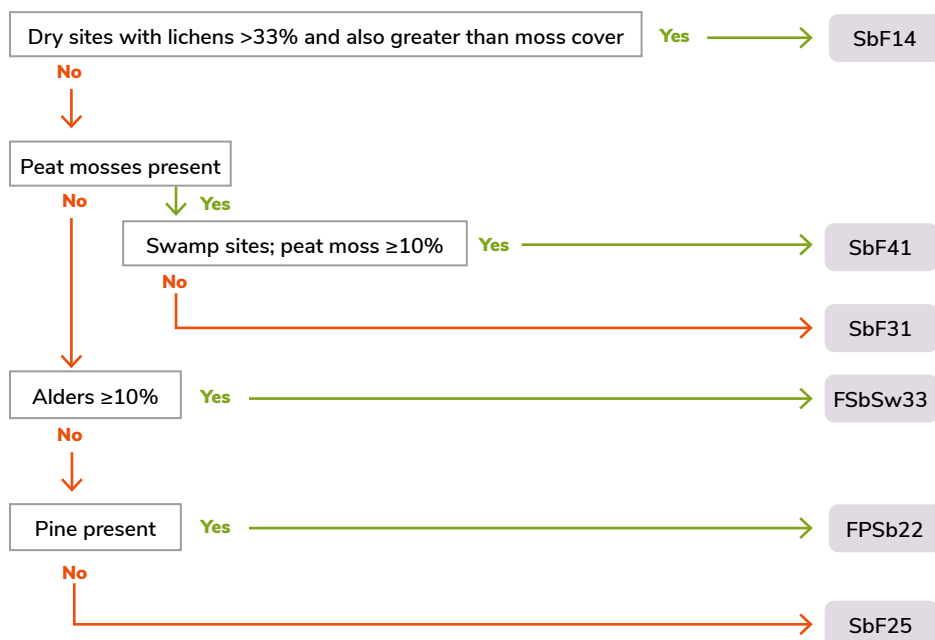
Trees	1 – 3 – 6	Shrubs	10 – 30 – 50	Ground shrubs	6 – 20 – 40
Graminoids and Forbs	1 – 8 – 15	Bryophytes	25 – 44 – 60	Lichens	0 – 5 – 10

Layer	Scientific name	FSw37	Common name
		n = 6	
Trees	<i>Picea glauca</i>	■ ■	white spruce
Shrubs	<i>Abies lasiocarpa</i>	■ ■ ■ ■	fir
	<i>Picea glauca</i>	■ ■	white spruce
	<i>Betula glandulosa</i>	■ ■ ■	shrub birch
	<i>Rhododendron groenlandicum</i>	■ ■ ■	common Labrador tea
	<i>Salix</i> spp.	■ ■ ■	willows
	<i>Vaccinium uliginosum</i>	■ ■	blueberry
Ground shrubs	<i>Arctous rubra</i>	■ ■	red bearberry
	<i>Cassiope tetragona</i>	■ ■ ■	arctic mountain-heather
	<i>Empetrum nigrum</i>	■ ■ ■	crowberry
	<i>Salix reticulata</i>	■ ■	net-veined willow
Forbs	<i>Equisetum</i> spp.	■ ■ ■	horsetails
Bryophytes	<i>Hylocomium splendens</i>	■ ■ ■ ■ ■	step moss
	<i>Pleurozium schreberi</i>	■ ■ ■ ■	red-stemmed feathermoss
Lichens	<i>Cladina</i> spp.	■ ■ ■	reindeer lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ ■ 1 – 3	■ ■ ■ 3 – 10	■ ■ ■ ■ 10 – 25	■ ■ ■ ■ ■ >25

Fir – black spruce, fir – black spruce – white spruce, and fir – black spruce – pine associations

Fir (F) and black spruce (Sb); or fir, black spruce and white spruce (Sw); or fir, black spruce and pine (P) co-dominate, with none >85% of canopy composition.

Flowchart Fir – black spruce; fir – black spruce – white spruce; and fir – black spruce – pine associations**Summary of features: Fir – black spruce, fir – black spruce – white spruce, and fir – black spruce – pine associations**

	SbF14	FPSb22	SbF25	FSbSw33	SbF31	SbF41
Zone	BOH	BOL	BOH (BOL)	BOH, BOL	BOH, BOL	BOH
Geography	central, east-central	south-central	central, east-central, south-central	south-central	central, south-central	central, east-central
Important site features	dry	mesic	mesic	moist	moist	wetland swamps
Drainage	rapid to well	moderately well	moderately well	imperfect	moderately well to imperfect	imperfect to poor
Tree canopy	fir – black spruce (white spruce)	fir – pine – black spruce (white spruce)	fir – black spruce – (white spruce)	fir – black spruce – white spruce	fir – black spruce – (white spruce)	fir – black spruce – (white spruce)
Key understorey species	lichens	feathermoss	feathermoss	alders, willow, feathermoss	feathermoss (cloudberry, peat moss)	feathermoss, cloudberry, peat moss

Fir – black spruce, fir – black spruce – white spruce, and fir – black spruce – pine associations

Vegetation tables for fir – black spruce, fir – black spruce – white spruce, and fir – black spruce – pine associations

Layer	Scientific name	SbF14	FPSb22	SbF25	FSbSw33	SbF31	SbF41	Common name
	n =	10	3	14	2	6	36	
Trees	<i>Picea mariana</i>	■■■	■■■	■■■■	■■■■■	■■■■	■■■■	black spruce
	<i>Abies lasiocarpa</i>	■■■■	■■■	■■■■	■■■■	■■■■■	■■■	fir
	<i>Picea glauca</i>		□□	■■■	■■■■	■■■	□□	white spruce
	<i>Pinus contorta</i>		■■■■					lodgepole pine
Shrubs	<i>Abies lasiocarpa</i>	■■■	■■■■	■■■■		■■■■	■■■■	fir
	<i>Picea mariana</i>	■■■	■	□□		■■■	■■■	black spruce
	<i>Alnus alnobetula</i>		■■		■■■			green alder
	<i>Alnus incana</i>				■■■■			river alder
	<i>Betula glandulosa</i>	■■■	□	■■■	■■■■	■■■	■■■■	shrub birch
	<i>Dasiphora fruticosa</i>				■■			shrubby cinquefoil
	<i>Rhododendron groenlandicum</i>	■■■	■	■■■■	■■■■	■■■■	■■■	common Labrador tea
	<i>Rosa acicularis</i>			□	■			prickly rose
	<i>Salix</i> spp.	□	■■	■■■	■■■■■	■■■■	■■■	willows
	<i>Shepherdia canadensis</i>		□		■			soapberry
	<i>Vaccinium uliginosum</i>	■■■	□	■■	■■■	■■	■■■	blueberry
Ground shrubs	<i>Arctous rubra</i>				■			red bearberry
	<i>Empetrum nigrum</i>	■■■	■■	■■■	■■■	■■■	■■■	crowberry
	<i>Rubus chamaemorus</i>					■■	■■■	cloudberry
	<i>Vaccinium caespitosum</i>		■		■			dwarf blueberry
	<i>Vaccinium vitis-idaea</i>	■■	■■	■■■	■■■	■■■	■■■	lowbush cranberry
Forbs	<i>Cornus canadensis</i>		■■■	■■	■■	■		bunchberry
	<i>Equisetum sylvaticum</i>						■■	wood horsetail
	<i>Geocaulon lividum</i>		■■		■	□		bastard toadflax
	<i>Mitella nuda</i>				■			naked mitrewort
	<i>Orthilia secunda</i>		■■		■			one-sided wintergreen
	<i>Petasites frigidus</i>				■		□	arctic sweet coltsfoot
Bryophytes	<i>Hylocomium / Pleurozium</i>	■■■■■	■■■■■	■■■■■	■■■■■	■■■■■	■■■■■	feathermosses
	<i>Polytrichum juniperinum</i>	■■	■	□□		■	■■■	juniper haircap moss
	<i>Sphagnum</i> spp.					■■	■■■■	peat mosses
Lichens	<i>Cetraria / Flavocetraria</i>	■■					□	Iceland / snow lichens
	<i>Cladina</i> spp.	■■■■■	■■	■■■■	■■	■■■	■■■■	reindeer lichens
	<i>Cladonia</i> spp.	■■	■	■■	■	■■■	■■	clad lichens
	<i>Nephroma arcticum</i>	■■■	■■	■■■		■■■	■■■	arctic kidney lichen
	<i>Peltigera</i> spp.	□	■■	■■	■	■■■	■	pelt lichens

Note: gold cells highlight key diagnostic species

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

Fact sheets: Fir – black spruce, fir – black spruce – white spruce, and fir – black spruce – pine associations

SbF14 Black spruce – Fir / Shrub birch / Lichen – Feathermoss

SbF14 is a woodland or forest with a combination of fir and black spruce and with high lichen ground cover that occurs in the BOH.

Vegetation: SbF14 stands have a tree canopy of fir (*Abies lasiocarpa*) and black spruce (*Picea mariana*), or sometimes, fir, black spruce and white spruce (*Picea glauca*). The shrub layer is well developed, with tree regeneration, common Labrador tea (*Rhododendron groenlandicum*), shrub birch (*Betula glandulosa*) and blueberry (*Vaccinium uliginosum*). Crowberry (*Empetrum nigrum*) and lowbush cranberry (*Vaccinium vitis-idaea*) are usually present in the ground shrub layer, with low to moderate cover. Red-stemmed feathermoss (*Pleurozium schreberi*) is the most common and abundant moss. Moss cover can be high, but the cover is less than that of the lichens. Lichens dominate the forest floor, primarily reindeer lichens (*Cladina* spp.).



Environment: This association occurs at moderate to high elevations on level sites or gentle slopes. Soils are rapidly drained to well drained. Parent materials are mostly fluvial, but can be morainal or colluvial. Soils are classified as Brunisols (Eutric, Dystric). The forest floor usually has some cover of woody debris.

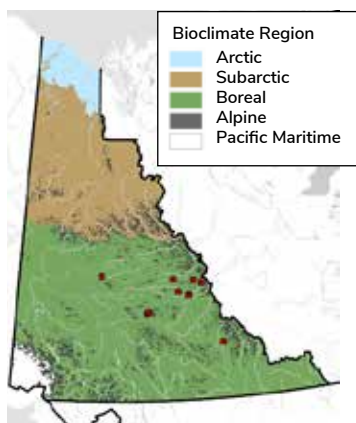
Dynamics: Stands on similar sites can be primarily fir (F01) or white spruce (Sw28) or mixed-wood species (FSw01, FPSw01). Dominance after disturbance depends on local seed sources.

Comments

- Key characteristics: dry site; fir – black spruce stand; high to very high cover of lichens; lichen cover > moss cover
- Component of CNVC00431 Fir – Black Spruce / Shrub Birch / Reindeer Lichens

SbF14 Environment table

Zone	BOH
Elevation (m)	930 – 1100 – 1290
Aspect	neutral, variable
Slope (%)	0 – 1 – 15
Soil moisture regime	xeric, subxeric
Soil drainage	rapid to well
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	0 – 3 – 10
Soil class	Brunisols (Eutric or Dystric)

**SbF14 Vegetation summary (%)**

Trees	0 – 20 – 55	Shrubs	12 – 32 – 85	Ground shrubs	0.1 – 8 – 30
Graminoids and Forbs	0 – 0.1 – 1	Bryophytes	7 – 35 – 75	Lichens	32 – 60 – 99

Layer	Scientific name	SbF14	Common name
		n = 10	
Trees	<i>Abies lasiocarpa</i>	■■■■■	fir
	<i>Picea mariana</i>	■■■	black spruce
Shrubs	<i>Abies lasiocarpa</i>	■■■	fir
	<i>Betula glandulosa</i>	■■■	shrub birch
	<i>Picea mariana</i>	■■■	black spruce
	<i>Rhododendron groenlandicum</i>	■■■	common Labrador tea
	<i>Vaccinium uliginosum</i>	■■■	blueberry
Ground shrubs	<i>Empetrum nigrum</i>	■■■	crowberry
	<i>Vaccinium vitis-idaea</i>	■■	lowbush cranberry
Bryophytes	<i>Pleurozium schreberi</i>	■■■■■	red-stemmed feathermoss
	<i>Polytrichum juniperinum</i>	■■	juniper haircap moss
Lichens	<i>Cetraria / Flavocetraria</i>	■■	Iceland / snow lichens
	<i>Cladina</i> spp.	■■■■■	reindeer lichens
	<i>Cladonia</i> spp.	■■	clad lichens
	<i>Nephroma arcticum</i>	■■■	arctic kidney lichen

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

FPSb22 Fir – Pine – Spruce / Feathermoss

FPSb22 is a woodland or forest with a combination of fir, pine and black spruce or sometimes fir, pine and white spruce, and with high feathermoss cover, that occurs in the BOL.

Vegetation: FPSb22 stands have a tree canopy of fir (*Abies lasiocarpa*), pine (*Pinus contorta*) and black spruce (*Picea mariana*) or sometimes, fir, pine and white spruce (*Picea glauca*). Other than tree regeneration, the shrub layer is lightly developed. Green alder (*Alnus alnobetula*) and common Labrador tea (*Rhododendron groenlandicum*) frequently occur, with low cover. Lowbush cranberry (*Vaccinium vitis-idaea*) and crowberry (*Empetrum nigrum*) are usually present in the ground shrub layer; forbs include bunchberry (*Cornus canadensis*) and bastard toadflax (*Geocaulon lividum*). Feathermosses (*Hylocomium splendens*, *Pleurozium schreberi*, *Ptilium crista-castrensis*) dominate the forest floor. Lichen cover is low.



Environment: This association occurs at low to moderate elevations on level or gently sloping sites. Soils are moderately well drained. Based on very limited soil data, parent materials are morainal. The forest floor usually has some cover of woody debris.

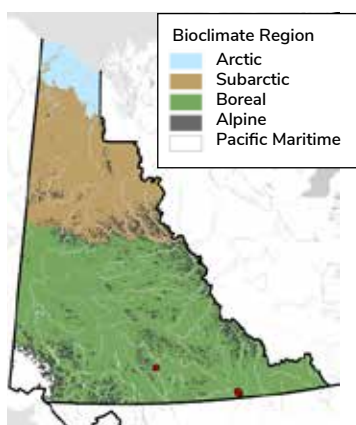
Dynamics: Stands on similar sites can be dominated by other tree species. Dominance after disturbance depends on local seed sources.

Comments

- Key characteristics: mesic site; fir, pine and black spruce or sometimes, fir, pine and white spruce stand; high to very high cover of feathermosses; moss cover > lichen cover
- CNVC association not yet determined

FPSb22 Environment table

Zone	BOL
Elevation (m)	840 – 860 – 885
Aspect	neutral, variable
Slope (%)	3 – 8 – 16
Soil moisture regime	submesic, mesic
Soil drainage	moderately well
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	0.5 – 3 – 5
Soil class	no data

**FPSb22 Vegetation summary (%)**

Trees	22 – 32 – 50	Shrubs	6 – 20 – 35	Ground shrubs	1 – 3 – 7
Graminoids and Forbs	1 – 12 – 25	Bryophytes	80 – 85 – 95	Lichens	3 – 5 – 10

Layer	Scientific name	FPSb22	Common name
		n = 3	
Trees	<i>Abies lasiocarpa</i>	■■■	fir
	<i>Picea mariana</i>	■■■	black spruce
	<i>Pinus contorta</i>	■■■■	pine
Shrubs	<i>Abies lasiocarpa</i>	■■■■	fir
	<i>Picea mariana</i>	■	black spruce
	<i>Alnus alnobetula</i>	■■	green alder
	<i>Rhododendron groenlandicum</i>	■	common Labrador tea
	<i>Salix</i> spp.	■■	willows
Ground shrubs	<i>Empetrum nigrum</i>	■■	crowberry
	<i>Vaccinium caespitosum</i>	■	dwarf blueberry
	<i>Vaccinium vitis-idaea</i>	■■	lowbush cranberry
Forbs	<i>Cornus canadensis</i>	■■■	bunchberry
	<i>Geocaulon lividum</i>	■■	bastard toadflax
	<i>Orthilia secunda</i>	■■	one-sided wintergreen
Bryophytes	<i>Dicranum</i> spp.	■■	heron's-bill mosses
	<i>Hylocomium splendens</i>	■■■■■	step moss
	<i>Pleurozium schreberi</i>	■■■■■	red-stemmed feathermoss
	<i>Ptilium crista-castrensis</i>	■■■	knight's plume
Lichens	<i>Cladina</i> spp.	■■	reindeer lichens
	<i>Nephroma arcticum</i>	■■	arctic kidney lichen
	<i>Peltigera</i> spp.	■■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

SbF25 Black spruce – Fir / Feathermoss

SbF25 is a woodland or forest with a combination of fir and black spruce, or fir, black spruce and white spruce, and with high feathermoss cover that occurs in the BOH and occasionally in the BOL.

Vegetation: SbF25 stands have a tree canopy of fir (*Abies lasiocarpa*) and black spruce (*Picea mariana*) or fir, black spruce and white spruce (*P. glauca*). The shrub layer is well developed, with tree regeneration, common Labrador tea (*Rhododendron groenlandicum*), shrub birch (*Betula glandulosa*) and blueberry (*Vaccinium uliginosum*). Crowberry (*Empetrum nigrum*) and lowbush cranberry (*Vaccinium vitis-idaea*) are usually present in the ground shrub layer, with low to moderate cover. Feathermosses (*Hylocomium splendens*, *Pleurozium schreberi*) dominate the forest floor. Lichens, especially reindeer lichens (*Cladonia* spp.) are common, and although lichen cover can be high, the cover is less than that of the mosses.



Environment: This association occurs at moderate to high elevations on level sites or gentle to steep slopes. Soils are moderately well drained. Parent materials are mostly morainal, but can be colluvial. Based on very limited soil data, soils are Brunisols (Dystric) or Gray Luvisols. The forest floor usually has some cover of woody debris.

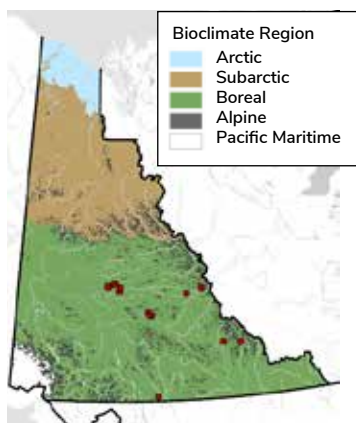
Dynamics: Stands on similar sites can be primarily pine (P31), fir (F22), white spruce (Sw30) or mixed-wood (FSw22, FSw20, FPSw20). Dominance after disturbance depends on local seed sources.

Comments

- Key characteristics: mesic site; fir – black spruce or fir – black spruce – white spruce stand; high to very high cover of feathermosses; moss cover >lichen cover
- Component of CNVC00443 Black Spruce – Fir / Labrador Tea / Step Moss – Reindeer Lichens

SbF25 Environment table

Zone	BOH (BOL)
Elevation (m)	825 – 1045 – 1315
Aspect	neutral, variable
Slope (%)	0 – 20 – 60
Soil moisture regime	submesic, mesic
Soil drainage	moderately well
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	0 – 4 – 10
Soil class	Brunisols (Dystric), Gray Luvisols

**SbF25 Vegetation summary (%)**

Trees	0 – 34 – 80	Shrubs	11 – 46 – 75	Ground shrubs	2 – 11 – 30
Graminoids and Forbs	0 – 4 – 15	Bryophytes	15 – 65 – 90	Lichens	2 – 27 – 55

Layer	Scientific name	SbF25	Common name
		n = 14	
Trees	<i>Abies lasiocarpa</i>	■■■■■	fir
	<i>Picea glauca</i>	■■■	white spruce
	<i>Picea mariana</i>	■■■■■	black spruce
Shrubs	<i>Abies lasiocarpa</i>	■■■■■	fir
	<i>Betula glandulosa</i>	■■■	shrub birch
	<i>Rhododendron groenlandicum</i>	■■■■■	common Labrador tea
	<i>Salix</i> spp.	■■■	willows
	<i>Vaccinium uliginosum</i>	■■	blueberry
Ground shrubs	<i>Empetrum nigrum</i>	■■■	crowberry
	<i>Vaccinium vitis-idaea</i>	■■■	lowbush cranberry
Forbs	<i>Cornus canadensis</i>	■■	bunchberry
Bryophytes	<i>Hylocomium / Pleurozium</i>	■■■■■	feathermosses
Lichens	<i>Cladina</i> spp.	■■■■■	reindeer lichens
	<i>Cladonia</i> spp.	■■	clad lichens
	<i>Nephroma arcticum</i>	■■■	arctic kidney lichen
	<i>Peltigera</i> spp.	■■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

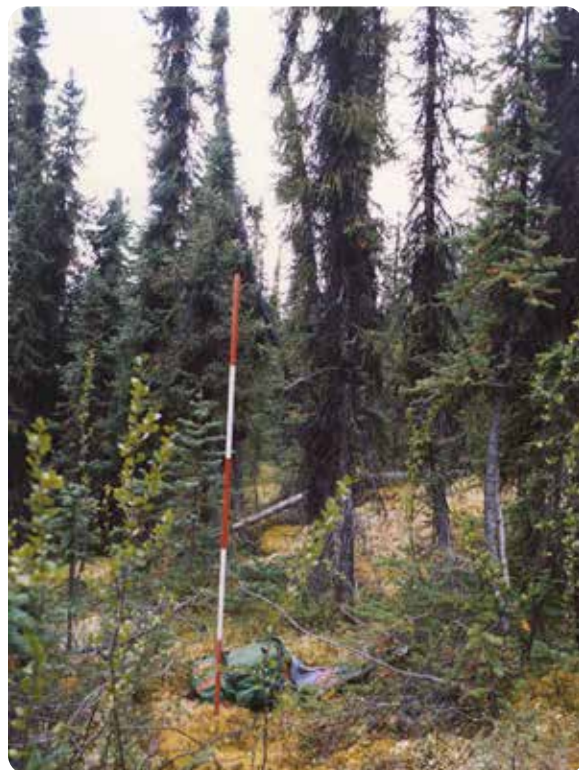
SbF31 Black spruce – Fir / Cloudberry / Feathermoss – Peat moss

SbF31 is a woodland or forest with a combination of fir and black spruce or fir, black spruce and white spruce, and with high feathermoss and low peat moss cover, that occurs in the BOH and BOL.

Vegetation: SbF31 stands have a tree canopy of fir (*Abies lasiocarpa*) and black spruce (*Picea mariana*) or fir, black spruce and white spruce (*P. glauca*). The shrub layer is well developed, with tree regeneration, common Labrador tea (*Rhododendron groenlandicum*), shrub birch (*Betula glandulosa*) and blueberry (*Vaccinium uliginosum*). Crowberry (*Empetrum nigrum*), lowbush cranberry (*Vaccinium vitis-idaea*) and often, cloudberry (*Rubus chamaemorus*) characterize the ground shrub layer. Feathermosses (*Hylocomium splendens*, *Pleurozium schreberi*) dominate the forest floor, with a minor presence of peat mosses (*Sphagnum* spp.). Lichens, including reindeer lichens (*Cladonia* spp.) and arctic kidney lichen (*Nephroma arcticum*), are present.

Environment: This association occurs at low to moderate elevations on lower slopes with some moisture input (seepage) and sometimes, the impact of cold air drainage. Soils are moderately well drained to imperfectly drained. Parent materials are lacustrine (or unknown). Based on very limited soil data, soils are Static Cryosols or Regosols. The forest floor usually has some cover of woody debris.

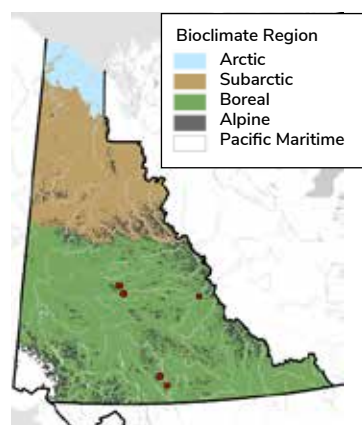
Dynamics: Stands on similar sites can be dominated by other tree species. Dominance after disturbance depends on local seed sources.

**Comments**

- Key characteristics: moist site; fir – black spruce or fir – black spruce – white spruce stand; low peat moss cover ($\leq 5\%$); high feathermosses cover
- CNVC association not yet determined

SbF31 Environment table

Zone	BOH, BOL
Elevation (m)	775 – 985 – 1130
Aspect	variable
Slope (%)	10 – 25 – 50
Soil moisture regime	subhygric
Soil drainage	moderately well to imperfect
Permafrost presence/depth (cm)	possible
Unvegetated cover (%)	4 – 5 – 10
Soil class	Cryosols (Static), Regosols (limited data)

**SbF31 Vegetation summary (%)**

Trees	18 – 57 – 99	Shrubs	11 – 61 – 99	Ground shrubs	6 – 11 – 25
Graminoids and Forbs	0 – 3 – 9	Bryophytes	68 – 83 – 95	Lichens	10 – 27 – 35

Layer	Scientific name	SbF31 n = 6	Common name
Trees	<i>Abies lasiocarpa</i>	■■■■■	fir
	<i>Picea glauca</i>	■■■	white spruce
	<i>Picea mariana</i>	■■■■	black spruce
Shrubs	<i>Abies lasiocarpa</i>	■■■■	fir
	<i>Betula glandulosa</i>	■■■	shrub birch
	<i>Picea mariana</i>	■■■	black spruce
	<i>Rhododendron groenlandicum</i>	■■■■	common Labrador tea
	<i>Salix</i> spp.	■■■■	willows
	<i>Vaccinium uliginosum</i>	■■	blueberry
Ground shrubs	<i>Empetrum nigrum</i>	■■■	crowberry
	<i>Rubus chamaemorus</i>	■■	cloudberry
	<i>Vaccinium vitis-idaea</i>	■■■	lowbush cranberry
Forbs	<i>Cornus canadensis</i>	■	bunchberry
Bryophytes	<i>Hylocomium</i> / <i>Pleurozium</i>	■■■■■	feathermosses
	<i>Sphagnum</i> spp.	■■	peat mosses
Lichens	<i>Cladina</i> spp.	■■■	reindeer lichens
	<i>Cladonia</i> spp.	■■■	clad lichens
	<i>Nephroma arcticum</i>	■■■	arctic kidney lichen
	<i>Peltigera</i> spp.	■■■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

FSbSw33 Fir – Black spruce – White spruce / Alder – Willow / Feathermoss

FSbSw33 is a forest with a combination of fir, black spruce and white spruce and with high willow cover and moderately high to high alder cover that occurs in the BOH and BOL.

Vegetation: SbF31 stands have a tree canopy of fir (*Abies lasiocarpa*), black spruce (*Picea mariana*) and white spruce (*P. glauca*). The shrub layer is very well developed, with alders (*Alnus alnobetula*, *A. incana*), willows (*Salix* spp.), common Labrador tea (*Rhododendron groenlandicum*) and shrub birch (*Betula glandulosa*).

Bunchberry (*Cornus canadensis*), crowberry (*Empetrum nigrum*) and lowbush cranberry (*Vaccinium vitis-idaea*) dominate the ground shrub layer, with some naked mitrewort (*Mitella nuda*) and arctic sweet coltsfoot (*Petasites frigidus*) in the forb layer. Feathermosses (*Hylocomium splendens*, *Pleurozium schreberi*) are of moderately high to high cover.

No photo
available

Environment: This association occurs at moderate elevations on subhygric sites. Soils are imperfectly drained. Parent materials are fluvial or morainal. Soils are classified as Humic Gleysols.

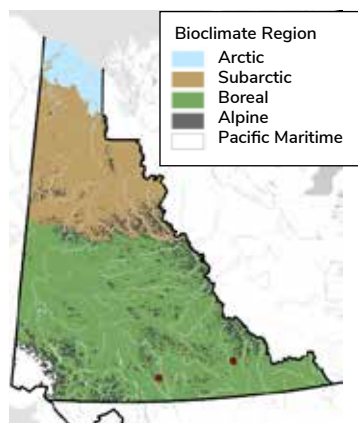
Dynamics: Stands on similar sites can be dominated by other tree species; for example, Sb24 or FSw33. Dominance after disturbance depends on local seed sources.

Comments

- Key characteristics: moist site; fir – black spruce – white spruce stand; alders $\geq 10\%$; high willow cover; feathermosses
- CNVC association not yet determined

FSbSw33 Environment table

Zone	BOH, BOL
Elevation (m)	1035 – 1050 – 1065
Aspect	neutral
Slope (%)	3 – 4 – 5
Soil moisture regime	subhygric
Soil drainage	imperfect
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	no data
Soil class	Gleysols (Humic)

**FSbSw33 Vegetation summary (%)**

Trees	70 – 73 – 75	Shrubs	67 – 83 – 99	Ground shrubs	6 – 9 – 11
Graminoids and Forbs	0.8 – 4 – 6	Bryophytes	27 – 47 – 67	Lichens	0.1 – 3 – 5

Layer	Scientific name	FSbSw33	Common name
		n = 2	
Trees	<i>Abies lasiocarpa</i>	■■■■■	fir
	<i>Picea glauca</i>	■■■■■	white spruce
	<i>Picea mariana</i>	■■■■■	black spruce
Shrubs	<i>Alnus alnobetula / incana</i>	■■■■■	green / river alder
	<i>Betula glandulosa</i>	■■■■■	shrub birch
	<i>Rhododendron groenlandicum</i>	■■■■■	common Labrador tea
	<i>Rosa acicularis</i>	■	prickly rose
	<i>Salix</i> spp.	■■■■■	willows
	<i>Vaccinium uliginosum</i>	■■■	blueberry
Ground shrubs	<i>Empetrum nigrum</i>	■■■	crowberry
	<i>Vaccinium vitis-idaea</i>	■■■	lowbush cranberry
Forbs	<i>Cornus canadensis</i>	■■	bunchberry
	<i>Mitella nuda</i>	■	naked mitrewort
	<i>Petasites frigidus</i>	■	arctic sweet coltsfoot
Bryophytes	<i>Hylocomium splendens</i>	■■■■■	step moss
	<i>Pleurozium schreberi</i>	■■■	red-stemmed feathermoss
Lichens	<i>Peltigera</i> spp.	■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

SbF41 Black spruce – Fir / Labrador tea / Feathermoss – Peat moss

SbF41 is a swamp forest with a combination of fir and black spruce or fir, black spruce and white spruce, and with common Labrador tea, a high cover of feather moss

rmosses and a moderate to high cover of peat mosses, that occurs on wet sites in the BOH. This association characterizes the

SbF – Peat Moss – Feathermoss Swamp ecosite (S17).

Vegetation: SbF41 stands have a tree canopy of fir (*Abies lasiocarpa*) and black spruce (*Picea mariana*) or fir, black spruce and white spruce (*P. glauca*). The shrub layer is well developed, with tree regeneration, common Labrador tea (*Rhododendron groenlandicum*), shrub birch (*Betula glandulosa*) and blueberry (*Vaccinium uliginosum*). Crowberry (*Empetrum nigrum*), lowbush cranberry (*Vaccinium vitis-idaea*) and cloudberry (*Rubus chamaemorus*) characterize the ground shrub layer. Feathermosses (*Hylocomium splendens*, *Pleurozium schreberi*) dominate the forest floor, with variable (moderately high to very high) cover of peat mosses (*Sphagnum* spp.). Lichens, including reindeer lichens (*Cladina* spp.) and arctic kidney lichen (*Nephroma arcticum*), are present.



Environment: This association occurs at moderate elevations on level sites or gentle lower slopes. Soils are imperfectly to poorly drained, with an organic capping over various parent materials. Soils are mostly classified as Cryosols (mostly Static) or sometimes, Gleysols, although permafrost may occur at depth. The forest floor usually has some cover of woody debris.

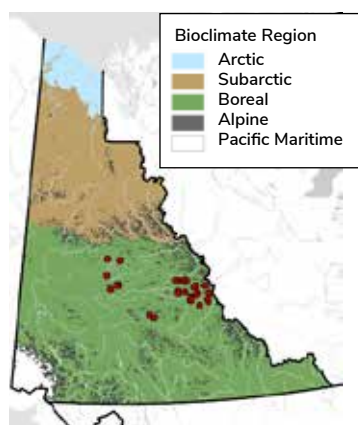
Dynamics: Stands on similar sites can be dominated by black spruce (Sb34). Dominance after disturbance depends on local seed sources.

Comments

- Key characteristics: swamp site; fir – black spruce or fir – black spruce – white spruce stand; moderate to high peat moss cover ($\leq 10\%$); high feathermosses cover
- Component of CNVC00445 Black Spruce – Fir / Cloudberry / Red-stemmed Feathermoss – Peat Moss

SbF41 Environment table

Zone	BOH
Elevation (m)	800 – 1120 – 1295
Aspect	neutral, variable
Slope (%)	0 – 11 – 48
Soil moisture regime	hygric, subhydic
Soil drainage	imperfect to poor
Permafrost presence/depth (cm)	common
Unvegetated cover (%)	1 – 5 – 15
Soil class	Cryosols (Static), Gleysols

**SbF41 Vegetation summary (%)**

Trees	1 – 22 – 55	Shrubs	10 – 50 – 99	Ground shrubs	0.3 – 18 – 50
Graminoids and Forbs	0 – 5 – 25	Bryophytes	40 – 83 – 99	Lichens	2 – 23 – 55

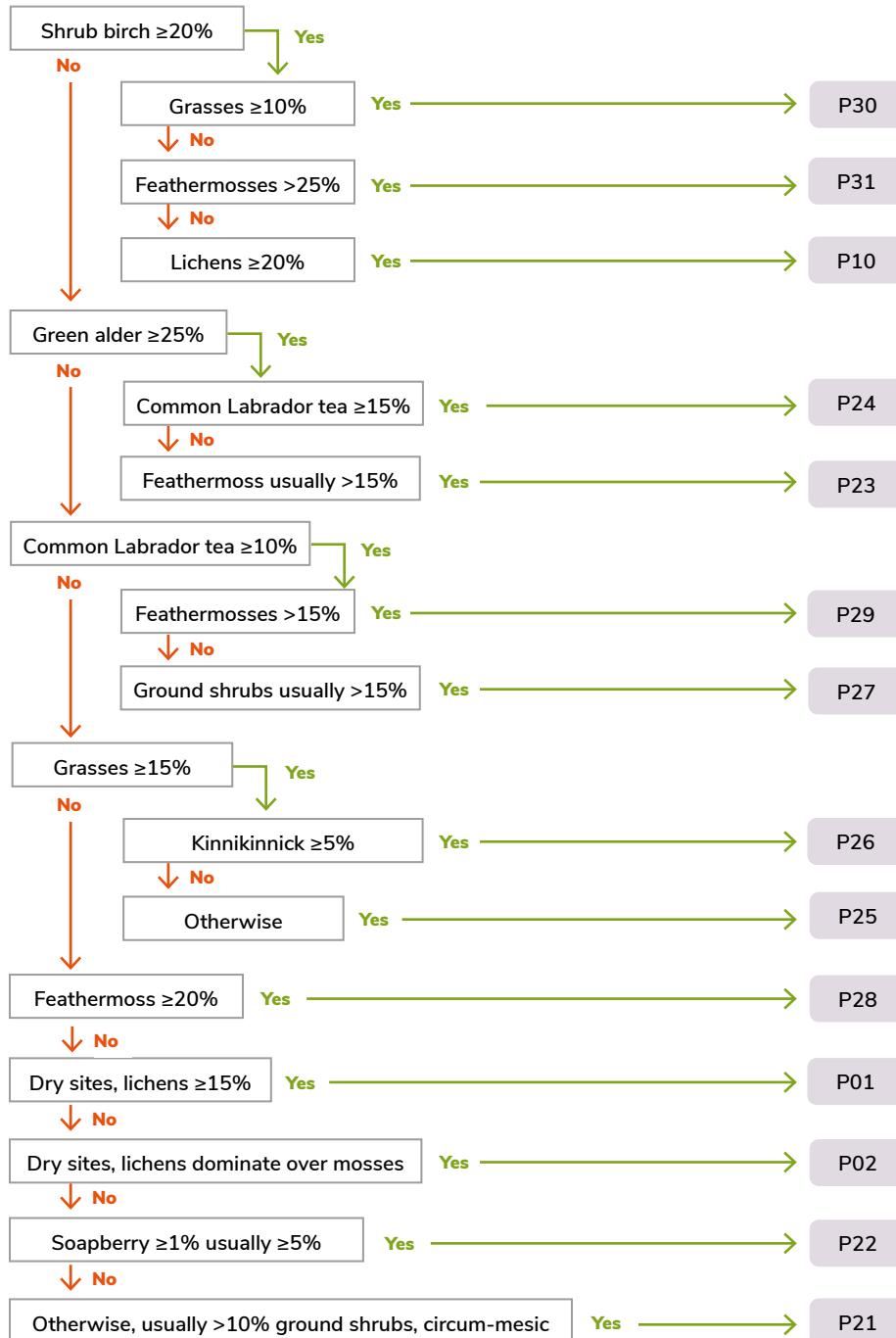
Layer	Scientific name	SbF41	Common name
		n = 36	
Trees	<i>Abies lasiocarpa</i>	■■■■	fir
	<i>Picea mariana</i>	■■■■■	black spruce
Shrubs	<i>Abies lasiocarpa</i>	■■■■■	fir
	<i>Picea mariana</i>	■■■	black spruce
	<i>Betula glandulosa</i>	■■■■■	shrub birch
	<i>Rhododendron groenlandicum</i>	■■■	common Labrador tea
	<i>Salix</i> spp.	■■■	willows
	<i>Vaccinium uliginosum</i>	■■■	blueberry
Ground shrubs	<i>Empetrum nigrum</i>	■■■	crowberry
	<i>Rubus chamaemorus</i>	■■■	cloudberry
	<i>Vaccinium vitis-idaea</i>	■■■	lowbush cranberry
Forbs	<i>Equisetum sylvaticum</i>	■■	wood horsetail
Bryophytes	<i>Hylocomium</i> / <i>Pleurozium</i>	■■■■■	feathermosses
	<i>Polytrichum juniperinum</i>	■■■	juniper haircap moss
	<i>Sphagnum</i> spp.	■■■■■	peat mosses
Lichens	<i>Cladina</i> spp.	■■■■■	reindeer lichens
	<i>Cladonia</i> spp.	■■	clad lichens
	<i>Nephroma arcticum</i>	■■■	arctic kidney lichen

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

Pine-dominated associations

Pine strongly dominates over other canopy species (>85% of canopy composition).

Flowchart Pine-dominated associations



Summary of features: Pine-dominated associations

	P01	P02	P10	P21	P22	P23	P24
Zone	BOL	BOL; mostly subzone BOLsl	BOH	BOL	BOL	BOL	BOL
Geography	south	south	south and central	south and central	southwest	south	south and central
Important site features	dry; level (variable)	dry; level (variable)	dry; level (variable)	circum-mesic; flat or sloping	circum-mesic; gently sloping	circum-mesic; flat or gently sloping	circum-mesic; gently sloping
Drainage	very rapid to rapid (well)	rapid, well	well (rapid)	well to moderately well	well to moderately well	well to moderately well	well
Tree canopy	pine	pine	pine	pine	pine	pine	pine
Key understorey species	kinnikinnick, lowbush cranberry, <i>Cladonia</i> or <i>Cladonia</i> lichens	kinnikinnick twinflower, lowbush cranberry; low cover of lichens	shrub birch, lichens, haircap moss	twinflower, lowbush cranberry	soapberry	green alder, feathermosses	green alder, common Labrador tea, feathermosses

	P25	P26	P27	P28	P29	P30	P31
Zone	BOL	BOL	BOL	BOL	BOL	BOH (BOL)	BOH, BOL
Geography	south and central	south	south-central	south	south	southeast	south
Important site features	level to warm slopes	level to warm slopes	circum-mesic; cool aspects	gentle slopes, neutral to cool aspects	gentle slopes, neutral to cool aspects	flats or gentle slopes; cold at lower elevations	flats or gentle slopes; cold at lower elevations
Drainage	well	rapid, well	well to moderately well	well to moderately well	well to moderately well	well	well to imperfect
Tree canopy	pine	pine	pine	pine	pine	pine	pine
Key understorey species	purple reedgrass	grasses, kinnikinnick, lowbush cranberry	common Labrador tea, lowbush cranberry	lowbush cranberry, feathermoss	common Labrador tea, feathermoss	shrub birch, grasses, haircap moss	shrub birch, feathermoss

Vegetation table of pine-dominated associations

Layer	Scientific name	P01	P02	P21	P22	P26	P25	P28	Common name
	n = :	36	18	17	14	14	14	10	
Trees	<i>Pinus contorta</i>	■■■■■	■■■■■	■■■■■	■■■■■	■■■■■	■■■■■	■■■■■	lodgepole pine
	<i>Picea glauca</i>	■	■■	■■	■■	■■	■■	■	white spruce
	<i>Abies lasiocarpa</i>								subalpine fir
Shrubs	<i>Rosa acicularis</i>	□	■	■■	■■	■	■■	□□	prickly rose
	<i>Salix</i> spp.	■	■■	■	□□	■■	■■	■■	willows
	<i>Shepherdia canadensis</i>	□□	■■	□□	■■■■	□	■■	■■	soapberry
	<i>Rhododendron groenlandicum</i>			□□				■■	common Labrador tea
	<i>Alnus alnobetula</i>								green alder
	<i>Betula glandulosa</i>								shrub birch
	<i>Vaccinium uliginosum</i>								blueberry
Ground shrubs	<i>Arctostaphylos uva-ursi</i>	■■■■	■■■■	■■■	■■	■■■■		■■	kinnikinnick
	<i>Linnaea borealis</i>	■■	■■■	■■■	■■■	■■■	□□	■■	twinline
	<i>Vaccinium vitis-idaea</i>	■■■	■■	■■■■	□□	■■■■		■■■■	lowbush cranberry
	<i>Empetrum nigrum</i>	□						■■■■	black crowberry
Graminoids	Poaceae	■■	■■	■■■	■■	■■■■■	■■■■■	■■	grass family
Forbs	<i>Solidago glutinosa</i>						■		sticky goldenrod
	<i>Anticlea elegans</i>		□	□	□	□		□	mountain death camas
	<i>Chamaenerion angustifolium</i>	□	■	□	■■	■	■	■■	fireweed
	<i>Cornus canadensis</i>			□		□		□□	bunchberry
	<i>Geocaulon lividum</i>	□	□	□				■	bastard toadflax
	<i>Lupinus arcticus</i>	□	□			■		■	arctic lupine
	<i>Spinulum annotinum</i>								stiff clubmoss
Bryophytes	<i>Hylocomium / Pleurozium</i>	□□□	□	■■	■■■	□□□	■■	■■■■■	cetraria lichens
	<i>Dicranum</i> spp.		□		□		□		reindeer lichens
	<i>Polytrichum</i> spp.	■■	■	□	□	□	□	■	clad lichens
Lichens	<i>Cetraria / Flavocetraria</i> spp.	■■	■	□	■	□□	■	□□	arctic kidney lichen
	<i>Cladina</i> spp.	■■■■■	■■	■■■	■■	■■■	■■	■■■■	common freckle pelt lichen
	<i>Cladonia</i> spp.	■■■	■■■	■■	■■■	□□	■	■	pelt lichens
	<i>Nephroma arcticum</i>								foam lichens
	<i>Peltigera aphthosa</i>	□□	■■	□□□	■■	■■■	□	□□	feathermosses
	<i>Peltigera</i> spp.	■■		□□	■■		■	■■■	heron's-bill mosses
	<i>Stereocaulon</i> spp.	■■	□	■	□	■■	□		haircap mosses

Table continues on facing page

Vegetation table of pine-dominated associations, continued

Scientific name	P27	P29	P24	P23	P10	P30	P31	Common name
n =	3	15	4	13	6	9	3	
<i>Pinus contorta</i>	■■■■■	■■■■■	■■■■■	■■■■■	■■■■■	■■■■■	■■■■■	lodgepole pine
<i>Picea glauca</i>	■ ■	■■■	■	□□	□	■	■■■	white spruce
<i>Abies lasiocarpa</i>					■	□	■	subalpine fir
<i>Rosa acicularis</i>	■	□	□	□			□	prickly rose
<i>Salix</i> spp.	■ ■	■ ■	□	□□	■■■	■■■	■ ■ ■	willows
<i>Shepherdia canadensis</i>	■ ■ ■	□						soapberry
<i>Rhododendron groenlandicum</i>	■■■■■	■■■■■	■■■■■	□	■ ■		■ ■ ■	common Labrador tea
<i>Alnus alnobetula</i>			■■■■■	■■■■■				green alder
<i>Betula glandulosa</i>					■■■■■	■■■■■	■■■■■	shrub birch
<i>Vaccinium uliginosum</i>	□				■ ■ ■	■	■ ■ ■	blueberry
<i>Arctostaphylos uva-ursi</i>	■ ■ ■	□□	□	□		□□	□	kinnikinnick
<i>Linnaea borealis</i>	■■■	■■	■	■ ■			■ ■ ■	twinflower
<i>Vaccinium vitis-idaea</i>	■■■■■	■■■■■	■■■■■	■■■	■■■	■■	■ ■ ■	lowbush cranberry
<i>Empetrum nigrum</i>	■■■	■ ■ ■			■■■■■	■ ■ ■	□□□□	black crowberry
Poaceae	■	■ ■	■ ■		■■■	■■■■■	■	grass family
<i>Solidago glutinosa</i>								sticky goldenrod
<i>Anticlea elegans</i>	□							mountain death camas
<i>Chamaenerion angustifolium</i>	■	■	□□			□		fireweed
<i>Cornus canadensis</i>	□	■ ■		□	■ ■		■■	bunchberry
<i>Geocaulon lividum</i>		□		□				bastard toadflax
<i>Lupinus arcticus</i>	□	□			■ ■	□	■	arctic lupine
<i>Spinulum annotinum</i>							■	stiff clubmoss
<i>Hylocomium</i> / <i>Pleurozium</i>	■ ■ ■		□		□	□□	□	cetraria lichens
<i>Dicranum</i> spp.	■■■	■■■	■	■ ■	■ ■ ■ ■	■■■■■	■■■■■	reindeer lichens
<i>Polytrichum</i> spp.	■ ■	■ ■	■■	■	■ ■ ■	■■	■ ■	clad lichens
<i>Cetraria</i> / <i>Flavocetraria</i> spp.						□□	■	arctic kidney lichen
<i>Cladina</i> spp.	■ ■ ■	■■■	■	■■	□□	■	■ ■	common freckle pelt lichen
<i>Cladonia</i> spp.	■ ■	□□					■ ■	pelt lichens
<i>Nephroma arcticum</i>	■				■ ■	■ ■	□	foam lichens
<i>Peltigera aphthosa</i>	■	■■■■■	■■■■■	■■■■■	□□□	□□□	■■■■■	feathermosses
<i>Peltigera</i> spp.	■		■	□	■ ■	□	□	heron's-bill mosses
<i>Stereocaulon</i> spp.			□□		■ ■ ■ ■	■■■	□	haircap mosses

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

Fact sheets: Pine-dominated associations

P01 Pine / Kinnikinnick / Lichen

P01 is a lodgepole pine – lichen woodland or forest that occurs frequently on dry sites in the southern Yukon in the BOL. There are two subassociations: clad lichen (P01c) and reindeer lichen (P01r).

Vegetation: The P01 association has an open to closed tree canopy of lodgepole pine (*Pinus contorta*), often with a minor white spruce (*Picea glauca*) component. Pine and white spruce are also in the shrub layer. Kinnikinnick (*Arctostaphylos uva-ursi*) and lowbush cranberry (*Vaccinium vitis-idaea*) are usually present in the ground shrub layer. Lichens dominate the forest floor, mostly *Cladina* with *Cladonia*, *Stereocaulon* or *Cetraria*. Mosses are of low cover and include haircap mosses (*Polytrichum* sp.) and feathermosses (*Pleurozium schreberi*, *Hylocomium splendens*).

Environment: This association occurs on rapidly and very rapidly drained and sometimes well-drained sites at lower elevations, mostly on glaciofluvial materials (sometimes eolian). Sites are often flat, although sometimes sloping; sloped sites are on neutral or warm aspects.

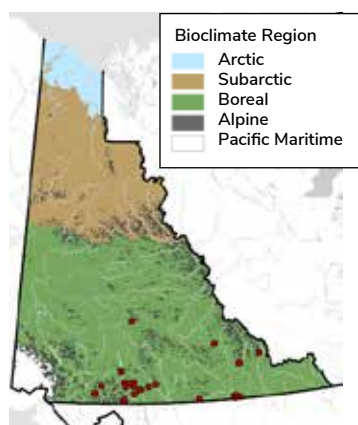
Dynamics: P01 includes both mature stands and young regenerated stands, as the floristics are the same in both cases. Lodgepole pine is the dominant tree in both the tree and shrub layers, which indicates the stands are not succeeding to white spruce very quickly but will remain in pine, due to the dry site conditions and the pine regeneration after a fire. The stands are often open, but can also be quite dense.

**Comments**

- Key characteristics: lodgepole pine overstorey; little to no white spruce; lichens dominate forest floor, usually *Cladina*; kinnikinnick present
- Component of CNVC00118 *Pinus contorta* / *Vaccinium vitis-idaea* – *Arctostaphylos uva-ursi* / *Cladina* spp.

P01 Environment table

Zone	BOL
Elevation (m)	640 – 780 – 1200
Aspect	flat; if sloped, warm or neutral
Slope (%)	0 – 7 – 57
Soil moisture regime	xeric, subxeric
Soil drainage	very rapid, rapid (well)
Permafrost presence/depth (cm)	not observed
Unvegetated cover (%)	1 – 18 – 30
Soil class	Dystric and Eutric Brunisols



Please note that the points shown on the map include the subassociations.

P01 Vegetation summary (%)

Trees	10 – 38 – 100	Shrubs	1 – 15 – 49	Ground shrubs	1 – 18 – 55
Graminoids and Forbs	0 – 5 – 26	Bryophytes	0 – 6 – 35	Lichens	15 – 50 – 100

Layer	Scientific name	P01c n = 8	P01r n = 28	Common name
Trees	<i>Pinus contorta</i>	■■■■■	■■■■■	lodgepole pine
	<i>Picea glauca</i>	■	□	white spruce
Shrubs	<i>Picea glauca</i>	■	■	white spruce
	<i>Pinus contorta</i>	■■	■■	lodgepole pine
	<i>Rosa acicularis</i>	■■	□	prickly rose
Ground shrubs	<i>Arctostaphylos uva-ursi</i>	■■■	■■■■	kinnikinnick
	<i>Linnaea borealis</i>	■■	□□	twinlineflower
	<i>Vaccinium vitis-idaea</i>	■	■■■	lowbush cranberry
Graminoids	Poaceae	■■	■■	grass family
Forbs	<i>Chamaenerion angustifolium</i>		■	fireweed
Bryophytes	<i>Polytrichum juniperinum</i>	■■■	□	juniper haircap moss
Lichens	<i>Cetraria/Flavocetraria</i>	■■	■■	cetraria lichens
	<i>Cladina</i> spp.	■■■	■■■■■	reindeer lichens
	<i>Cladonia</i> spp.	■■■■	■■■	clad lichens
	<i>Peltigera</i> spp.	■■■■	■■■	pelt lichens
	<i>Stereocaulon</i> spp.	■	■■	foam lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

P02 Pine / Kinnikinnick

P02 is a lodgepole pine – lichen woodland or forest that occurs frequently on dry sites in the southern Yukon in the BOL, mostly in the subzone BOLsl. There are two subassociations: sparse (P02s) and typic (P02t).

Vegetation: The P02 association has an open to closed tree canopy of lodgepole pine (*Pinus contorta*), often with a minor white spruce (*Picea glauca*) component. Scattered aspen (*Populus tremuloides*) may occur. Pine and white spruce can occur in the shrub layer. Ground shrubs, one or more of kinnikinnick (*Arctostaphylos uva-ursi*), twinflower (*Linnaea borealis*) or lowbush cranberry (*Vaccinium vitis-idaea*), are present. Mosses and lichens are mostly of low cover, including haircap mosses (*Polytrichum*) and *Cladonia*, *Cladina* or *Cetraria* lichens.

Environment: This association occurs on rapidly drained and well-drained sites at lower elevations, mostly on glaciofluvial materials (sometimes eolian). Sites are often flat, although sometimes sloping; sloped sites are on various aspects.

Dynamics: P02 includes both mature stands and young, regenerated stands, as the floristics are the same in both cases. Lodgepole pine is the dominant tree in both the tree and shrub layers, which indicates the stands are not succeeding to white spruce very quickly, but will remain in pine, due to the dry site conditions and the pine regeneration after a fire. The stands are mostly of closed canopy.

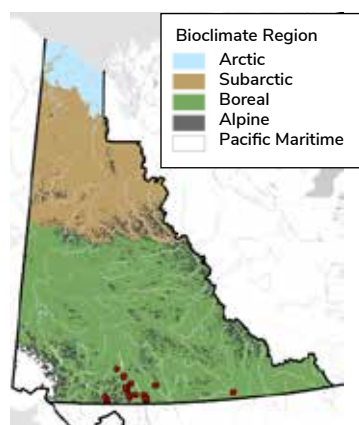
Comments

- Key characteristics: lodgepole pine overstorey; little to no white spruce; lichens dominate forest floor, usually *Cladina*; kinnikinnick present
- Component of CNVC00118 *Pinus contorta* / *Vaccinium vitis-idaea* – *Arctostaphylos uva-ursi* / *Cladina* spp.



P02 Environment table

Zone	BOL; mostly subzone BOLsl
Elevation (m)	671 – 743 – 853
Aspect	flat or variable
Slope (%)	0 – 7 – 17
Soil moisture regime	submesic
Soil drainage	rapid, well
Permafrost presence/depth (cm)	not observed
Unvegetated cover (%)	1 – 12 – 20
Soil class	Dystric and Eutric Brunisols



Please note that the points shown on the map include the subassociations.

P02 Vegetation summary (%)

Trees	1 – 52 – 90	Shrubs	0 – 28 – 70	Ground shrubs	0.2 – 23 – 60
Graminoids and Forbs	0 – 5 – 18	Bryophytes	0 – 3 – 11	Lichens	0.2 – 10 – 30

Layer	Scientific name	P02s n = 4	P02t n = 14	Common name
Trees	<i>Picea glauca</i>	□□	■ ■	white spruce
	<i>Pinus contorta</i>	■ ■ ■ ■ ■	■ ■ ■ ■ ■	lodgepole pine
Shrubs	<i>Rosa acicularis</i>	□	■	prickly rose
	<i>Salix</i> sp.	■ ■ ■	□	willow
	<i>Shepherdia canadensis</i>	■ ■	■ ■	soapberry
Ground shrubs	<i>Arctostaphylos uva-ursi</i>	■	■ ■ ■ ■	kinnikinnick
	<i>Linnaea borealis</i>	■	■ ■ ■	twinflower
	<i>Vaccinium vitis-idaea</i>	■	□ □ □	lingonberry
Graminoids	Poaceae	■	■ ■	grass family
Forbs	<i>Chamaenerion angustifolium</i>	■	■ ■	fireweed
	<i>Anemone patens</i>		■	prairie crocus
	<i>Geocaulon lividum</i>	■	□	false toad-flax
	<i>Lupinus arcticus</i>	□	■ ■	arctic lupine
	<i>Pyrola asarifolia</i>	■		pink wintergreen
	<i>Anticlea elegans</i>		■	mountain death-camas
Bryophytes	<i>Polytrichum</i> spp.	■	■ ■	haircap mosses
Lichens	<i>Cetraria/Flavocetraria</i>	■	■	cetraria lichens
	<i>Cladina mitis</i>	□	■ ■	reindeer
	<i>Cladonia</i> spp.	■	■ ■ ■	clad lichens
	<i>Peltigera aphthosa</i>	□	■ ■	freckle pelt

Frequency (%)	□ 25 – 50	■ 50 – 70	■ ■ 70 – 100		
Mean cover (%)	■ <1	■ ■ 1 – 3	■ ■ ■ 3 – 10	■ ■ ■ ■ 10 – 25	■ ■ ■ ■ ■ >25

P10 Pine / Shrub Birch/ Lichen

P10 is a lodgepole pine – shrub birch – lichen woodland or forest that occurs frequently on dry sites in the BOH in the southern and central Yukon.

Vegetation: The P10 association has an open to closed tree canopy of lodgepole pine (*Pinus contorta*), often with a minor subalpine fir (*Abies lasiocarpa*) or white spruce (*Picea glauca*) component. Conifer regeneration is sparse. Shrub birch (*Betula glandulosa*) characterizes the shrub layer. Other shrubs include willows (*Salix* spp.) and bog blueberry (*Vaccinium uliginosum*). Crowberry (*Empetrum nigrum*) and lowbush cranberry (*Vaccinium vitis-idaea*) are often abundant in the ground shrub layer. Haircap mosses (*Polytrichum*) are usually present and of low cover, but can be abundant. Lichens dominate the forest floor and include green reindeer lichen (*Cladina mitis*), *Cladonia*, *Stereocaulon* and/or unknown lichens.

Environment: This association occurs on well-drained (sometimes rapidly drained) sites at higher elevations, mostly on glaciofluvial materials, but also on morainal veneers. Sites are usually gently sloping and on warm slopes, but can be flat.

Dynamics: Lodgepole pine dominates the stands, with minor subalpine fir and some white or black spruce. Regeneration is almost nonexistent, so stands will remain dominated by pine due to the dry site conditions. Pine is likely to regenerate after fire.

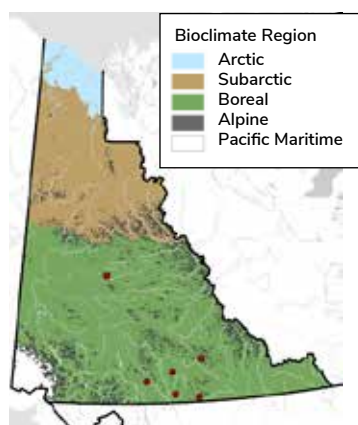
Comments

- Key characteristics: lodgepole pine overstorey; little to no white spruce; shrub birch $\geq 10\%$; lichens dominate forest floor; haircap mosses present
- Equivalent to CNVC00357 *Pinus contorta* / *Betula glandulosa* / *Empetrum nigrum* / *Cladina* spp.



P10 Environment Table

Zone	BOH
Elevation (m)	1035 – 1130 – 1235
Aspect	flat; warm slopes
Slope (%)	0 – 8 – 22
Soil moisture regime	subxeric
Soil drainage	well (rapid)
Permafrost presence/depth (cm)	not observed
Unvegetated cover (%)	20 (limited data)
Soil class	Dystric Brunisols

**P10 Vegetation summary (%)**

Trees	10 – 40 – 80	Shrubs	10 – 55 – 100	Ground shrubs	1 – 18 – 55
Graminoids and Forbs	1 – 15 – 30	Bryophytes	5 – 20 – 50	Lichens	20 – 60 – 95

Layer	Scientific name	P10	Common name
		n = 6	
Trees	<i>Pinus contorta</i>	■■■■■	lodgepole pine
	<i>Abies lasiocarpa</i>	■	subalpine fir
Shrubs	<i>Betula glandulosa</i>	■■■■■	shrub birch
	<i>Salix</i> spp.	■■■	willows
	<i>Rhododendron groenlandicum</i>	■■	common Labrador tea
	<i>Vaccinium uliginosum</i>	■■■	bog blueberry
Ground shrubs	<i>Empetrum nigrum</i>	■■■■	crowberry
	<i>Vaccinium vitis-idaea</i>	■■■	lowbush cranberry
Graminoids	Poaceae	■■■	grass family
Forbs	<i>Cornus canadensis</i>	■■	bunchberry
	<i>Lupinus arcticus</i>	■■	arctic lupine
Bryophytes	<i>Dicranum</i> spp.	■■	heron's-bill mosses
	<i>Polytrichum</i> spp.	■■■■	haircap mosses
Lichens	<i>Cladonia mitis</i>	■■■■	green reindeer lichen
	<i>Cladonia</i> spp.	■■■	clad lichens
	<i>Stereocaulon</i> spp.	■■	foam lichens
	<i>Lichen</i> spp.	□□□□	unknown lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

P21 Pine / Lowbush Cranberry – Twinflower

P21 is a lodgepole pine – ground shrub forest that occurs frequently on circum-mesic sites, primarily in the central and southern Yukon in the BOL.

Vegetation: This association has a moderately closed to closed tree canopy of lodgepole pine (*Pinus contorta*), often with a minor white spruce (*Picea glauca*) component. Pine and white spruce are also found in the shrub layer, along with some prickly rose (*Rosa acicularis*) and scattered willows (*Salix* spp.). Ground shrubs, mostly lowbush cranberry (*Vaccinium vitis-idaea*) and twinflower (*Linnaea borealis*), characterize the understorey, but vary from sparse to high cover. Grasses, when present, are mostly purple reedgrass (*Calamagrostis purpurascens*) or Altai fescue (*Festuca altaica*). Moss and lichen cover is generally low, possibly due to high cover of pine needles. Mosses include feathermosses (*Pleurozium schreberi*, *Hylocomium splendens*) and haircap moss (*Polytrichum* spp.). Lichens include *Cladina*, *Cladonia* or *Stereocaulon*.



Environment: P21 occurs mostly on moderately well drained and well-drained sites at lower elevations. Sites are often flat or very gently sloped, but are sometimes steeply sloped on neutral aspects.

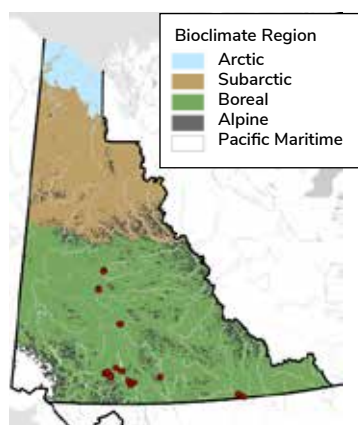
Dynamics: P21 stands are pine dominated and have limited regeneration. The stands appear stable and would likely regenerate to pine after wildfire, unless the pine was too young to have cones.

Comments

- BOLsl/01 and BOLyc/01 are two ecosites that partly comprise the range of this association
- Key characteristics: lodgepole pine overstorey; twinflower and lowbush cranberry usually present; moss and lichen cover low; *Cladina* cover <25%; grasses <15%
- Component of CNVC00120 *Pinus contorta* – *Picea mariana* / *Vaccinium vitis-idaea* / *Pleurozium schreberi*

P21 Environment table

Zone	BOL
Elevation (m)	530 – 735 – 1230
Aspect	flat, neutral
Slope (%)	0 – 11 – 75
Soil moisture regime	submesic, mesic
Soil drainage	well to moderately well
Permafrost presence/depth (cm)	not observed
Unvegetated cover (%)	3 – 10 – 15
Soil class	Eutric (Dystric) Brunisols

**P21 Vegetation summary (%)**

Trees	25 – 50 – 90	Shrubs	0.5 – 23 – 75	Ground shrubs	2 – 30 – 80
Graminoids and Forbs	0.5 – 7 – 32	Bryophytes	0 – 3 – 17	Lichens	0 – 15 – 45

Layer	Scientific name	P21	Common name
		n = 17	
Trees	<i>Picea glauca</i>	■ ■	white spruce
	<i>Pinus contorta</i>	■ ■ ■ ■ ■	lodgepole pine
Shrubs	<i>Rosa acicularis</i>	■ ■	prickly rose
	<i>Salix</i> spp.	■	willows
Ground shrubs	<i>Arctostaphylos uva-ursi</i>	■ ■ ■	kinnikinnick
	<i>Linnaea borealis</i>	■ ■ ■	twinflower
	<i>Vaccinium vitis-idaea</i>	■ ■ ■ ■	lowbush cranberry
Graminoids	Poaceae	■ ■ ■	grass family
Bryophytes	<i>Hylocomium</i> / <i>Pleurozium</i>	■ ■	feathermosses
Lichens	<i>Cladina</i> spp.	■ ■ ■	reindeer lichens
	<i>Cladonia</i> spp.	■ ■	clad lichens
	<i>Stereocaulon</i> spp.	■	foam lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ ■ 1 – 3	■ ■ ■ 3 – 10	■ ■ ■ ■ 10 – 25	■ ■ ■ ■ ■ >25

P22 Pine / Soapberry

P22 is a lodgepole pine – soapberry forest that occurs frequently on circum-mesic sites in the southwest Yukon in the BOL.

Vegetation: The tree canopy of P22 is dominated by lodgepole pine (*Pinus contorta*). White spruce (*Picea glauca*) is often present in minor amounts in the canopy or shrub layer. Soapberry (*Shepherdia canadensis*) characterizes the shrub layer which may also include some willow (*Salix* spp.) and/or some prickly rose (*Rosa acicularis*). Ground shrubs, mostly twinflower (*Linnaea borealis*) and kinnikinnick (*Arctostaphylos uva-ursi*), are of low to moderate cover; forbs are scattered. Mosses and lichens are of low cover. Moss cover of feathermosses (*Pleurozium schreberi*, *Hylocomium splendens*) can be moderately abundant. Lichens include reindeer lichen (*Cladonia*), clad lichen (*Cladonia*) and common freckle pelt lichen (*Peltigera aphthosa*).



Environment: P22 occurs on moderately well drained to well-drained circum-mesic sites at lower elevations. Sites are usually gently sloped and of variable aspect. Soils vary in texture and are usually classified as Orthic or Eluviated Eutric Brunisols.

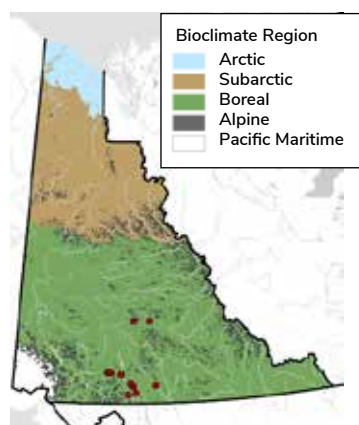
Dynamics: Stands are dominated by pine with minor white spruce in the canopy or shrub layer. Some stands have pine regeneration, but regeneration is sparse overall. Therefore, the stands will stay in pine for a long time.

Comments

- Key characteristics: pine overstorey; soapberry $\geq 1\%$ cover; moss and lichen cover low; grasses $< 15\%$; high needle litter
- Equivalent to CNVC00384 *Pinus contorta* / *Shepherdia canadensis*

P22 Environment table

Zone	BOL
Elevation (m)	655 – 741 – 813
Aspect	flat; if sloped, neutral
Slope (%)	1 – 10 – 25
Soil moisture regime	submesic, mesic
Soil drainage	well to moderately well
Permafrost presence/depth (cm)	not observed
Unvegetated cover (%)	5 – 10 – 25
Soil class	Eutric Brunisols (Grey Luvisols)

**P22 Vegetation summary (%)**

Trees	13 – 43 – 61	Shrubs	6 – 27 – 58	Ground shrubs	1 – 11 – 35
Graminoids and Forbs	1 – 8 – 15	Bryophytes	0 – 12 – 70	Lichens	1 – 12 – 39

Layer	Scientific name	P22	Common name
		n = 14	
Trees	<i>Pinus contorta</i>	■■■■■	lodgepole pine
	<i>Picea glauca</i>	■ ■	white spruce
Shrubs	<i>Picea glauca</i>	□ □	white spruce
	<i>Rosa acicularis</i>	■ ■	prickly rose
	<i>Salix</i> spp.	□ □	willows
	<i>Shepherdia canadensis</i>	■■■■	soapberry
Ground shrubs	<i>Arctostaphylos uva-ursi</i>	■ ■	kinnikinnick
	<i>Linnaea borealis</i>	■■■	twinline
Graminoids	Poaceae	■ ■	grass family
Forbs	<i>Chamaenerion angustifolium</i>	■ ■	fireweed
Bryophytes	<i>Hylocomium splendens</i>	■ ■ ■	stairstep moss
Lichens	<i>Cladonia mitis</i>	■ ■	green reindeer lichen
	<i>Cladonia</i> spp.	■ ■ ■	clad lichens
	<i>Peltigera aphthosa</i>	■■■	common freckle pelt lichen

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

P23 Pine / Alder / Feathermoss

P23 is a lodgepole pine – alder – feathermoss forest that occurs frequently on circum-mesic sites in the southern Yukon in the BOL.

Vegetation: This association has a moderately closed to closed tree canopy of lodgepole pine (*Pinus contorta*), often with a minor component of white spruce (*Picea glauca*) or black spruce (*P. mariana*). White or black spruce are regenerating. The shrub layer is characterized by moderately high to high cover of green alder (*Alnus alnobetula*). The understorey is mostly poorly developed. Feathermosses usually dominate the bryophyte layer, comprised of step moss (*Hylocomium splendens*) or red-stemmed feather-moss (*Pleurozium schreberi*). Sometimes the moss cover is low, likely due to high cover of needles and leaf litter. Lichens are usually of low cover.

Environment: P23 occurs at lower elevations, mostly in the subzones BOLyc and BOLlh, on moderately well drained to well-drained flats or gentle slopes of various aspects.

Dynamics: P23 stands are pine dominated, often with spruce regeneration. Although the spruce component of the stands will increase over time, in their present composition, stands would regenerate to pine after wildfire, unless the pine was too young to have seed cones.

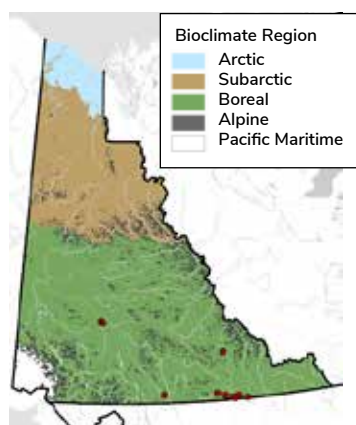
Comments

- BOLyc/01 is one ecosite that partly comprises the range of this association
- Key characteristics: lodgepole pine overstorey; green alder $\geq 25\%$, common Labrador tea $\leq 5\%$; moss cover usually $\geq 25\%$, but can be sparse
- Component of CNVC00120 *Pinus contorta* – *Picea mariana* / *Vaccinium vitis-idaea* / *Pleurozium schreberi*



P23 Environment table

Zone	BOL
Elevation (m)	640 – 775 – 915
Aspect	flat, variable
Slope (%)	0 – 5 – 20
Soil moisture regime	submesic
Soil drainage	well to moderately well
Permafrost presence/depth (cm)	not observed
Unvegetated cover (%)	1 – 11 – 30 (decaying wood, rocks)
Soil class	Eutric and Dystric Brunisols

**P23 Vegetation summary (%)**

Trees	25 – 50 – 70	Shrubs	35 – 60 – 85	Ground shrubs	0.5 – 6 – 35
Graminoids and Forbs	0 – 2 – 20	Bryophytes	1 – 40 – 90	Lichens	0.5 – 8 – 40

Layer	Scientific name	P23	Common name
		n = 13	
Trees	<i>Pinus contorta</i>	■■■■■	lodgepole pine
	<i>Picea glauca</i>	□□	white spruce
Shrubs	<i>Alnus alnobetula</i>	■■■■■	green alder
Ground shrubs	<i>Vaccinium vitis-idaea</i>	■■■	lowbush cranberry
	<i>Linnaea borealis</i>	■ ■	twinsflower
Bryophytes	<i>Hylocomium splendens</i>	■■■■	step moss
	<i>Pleurozium schreberi</i>	■ ■ ■ ■	red-stemmed feathermoss
Lichens	<i>Peltigera aphthosa</i>	■ ■	freckle pelt
	<i>Cladonia mitis</i>	■ ■	lesser green reindeer

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ ■ 1 – 3	■ ■ ■ 3 – 10	■ ■ ■ ■ 10 – 25	■ ■ ■ ■ ■ >25

P24 Pine / Alder – Labrador tea / Feathermoss

P24 is a lodgepole pine – alder – Labrador tea – feathermoss forest that occurs occasionally on circum-mesic sites in the south-central Yukon in the BOL.

Vegetation: This association has a moderately closed to closed tree canopy of lodgepole pine (*Pinus contorta*), often with a minor component of white spruce (*Picea glauca*) or black spruce (*P. mariana*). Pine and white or black spruce are regenerating. The shrub layer is characterized by moderately high cover of green alder (*Alnus alnobetula*) and common Labrador tea (*Rhododendron groenlandicum*). Lowbush cranberry (*Vaccinium vitis-idaea*) is the dominant understorey ground shrub. Feathermosses dominate the bryophyte layer, comprised of step moss (*Hylocomium splendens*), red-stemmed feathermoss (*Pleurozium schreberi*) and knight's plume (*Ptilium crista-castrensis*). Lichens are of low cover.



Environment: P24 occurs mostly at lower elevations on well-drained slopes of various aspects. One plot is in the lower elevation of the BOH.

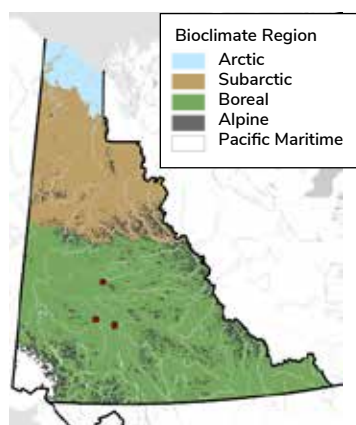
Dynamics: P24 stands are pine dominated, sometimes with both pine and spruce regeneration. Although the spruce component of the stands will increase over time, in their present composition, stands would regenerate to pine after wildfire, unless the pine was too young to have seed cones.

Comments

- BOLyc/30 is one ecosites that partly comprises the range of this association
- Key characteristics: lodgepole pine overstorey; green alder $\geq 25\%$, common Labrador tea $\geq 15\%$; moss cover $\geq 50\%$
- Component of CNVC00120 *Pinus contorta* – *Picea mariana* / *Vaccinium vitis-idaea* / *Pleurozium schreberi*

P24 Environment table

Zone	BOL
Elevation (m)	795 – 810 – 830
Aspect	variable
Slope (%)	3 – 14 – 30
Soil moisture regime	submesic
Soil drainage	well
Permafrost presence/depth (cm)	not observed
Unvegetated cover (%)	20 – decaying wood (limited data)
Soil class	Eutric Brunisols

**P24 Vegetation summary (%)**

Trees	10 – 35 – 50	Shrubs	55 – 70 – 90	Ground shrubs	7 – 25 – 35
Graminoids and Forbs	0 – 6 – 23	Bryophytes	50 – 55 – 60	Lichens	0.2 – 3 – 5

Layer	Scientific name	P24	Common name
		n = 4	
Trees	<i>Pinus contorta</i>	■■■■■	lodgepole pine
	<i>Picea glauca</i>	■	white spruce
Shrubs	<i>Alnus alnobetula</i>	■■■■■	green alder
	<i>Picea glauca</i>	■	white spruce
	<i>Rhododendron groenlandicum</i>	■■■■	common Labrador tea
Ground shrubs	<i>Linnaea borealis</i>	■	twinline
	<i>Vaccinium vitis-idaea</i>	■■■■	lowbush cranberry
Graminoids	Poaceae	■■	grass family
Bryophytes	<i>Hylocomium splendens</i>	■■■■■	step moss
	<i>Pleurozium schreberi</i>	■■■	red-stemmed feathermoss
	<i>Ptilium crista-castrensis</i>	■■■	knight's plume
Lichens	<i>Cladina mitis</i>	■	green reindeer lichen
	<i>Cladonia</i> spp.	■■	clad lichens
	<i>Peltigera aphthosa</i>	■	freckle pelt

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

P25 Pine / Purple reedgrass

P25 is a lodgepole pine forest, generally small in size and with a grassy understorey, that occurs frequently on well-drained submesic sites in the south-central Yukon in the BOL.

Vegetation: Mature forests of P25 have a tree canopy of lodgepole pine (*Pinus contorta*), usually with some white spruce (*Picea glauca*) and occasionally, black spruce (*P. mariana*). Spruce and pine are often regenerating. The shrub layer is poorly developed; Bebb's willow (*Salix bebbiana*), prickly rose (*Rosa acicularis*) and soapberry (*Shepherdia canadensis*) are the most consistent. Moderate to high cover of purple reedgrass (*Calamagrostis purpurascens*) characterizes the understorey. The forest floor is poorly developed. Step moss (*Hylocomium splendens*) is often present with low cover. Common lichens are *Cladina* or *Cetraria*.

Environment: P25 occurs on well-drained sites at lower elevations. Sites are usually level or nearly so, to gently sloped, mostly on warm aspects. Soils are usually classified as Eluviated Eutric Brunisols.

Dynamics: P25 stands often have a minor cover of white spruce occurring with pine and will regenerate to pine and spruce. Over time, white spruce will become a more significant component of these stands, if stands are not disturbed by wildfire or other factors.

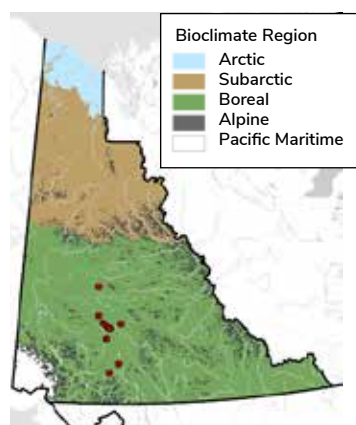
Comments

- BOLs/01 and BOLyc/11 are two ecosites that partially encompass the range of this association
- Key characteristics: lodgepole pine dominated overstorey; purple reedgrass $\geq 15\%$ cover; kinnikinnick very low cover or absent; distribution primarily in central portion of Yukon Plateau; key species to differentiate it from P26 are kinnikinnick and lowbush cranberry, which are lacking here
- Equivalent to CNVC00360 *Pinus contorta* / *Calamagrostis purpurascens*



P25 Environment table

Zone	BOL
Elevation (m)	570 – 665 – 826
Aspect	warm (neutral, cool)
Slope (%)	0 – 11 – 55
Soil moisture regime	Submesic (subxeric)
Soil drainage	well
Permafrost presence/depth (cm)	not observed
Unvegetated cover (%)	unknown
Soil class	Eutric (Orthic) Brunisols

**P25 Vegetation summary (%)**

Trees	26 – 44 – 60	Shrubs	0.1 – 9 – 30	Ground shrubs	0 – 4 – 20
Graminoids and Forbs	10 – 27 – 46	Bryophytes	0 – 2 – 10	Lichens	0.5 – 6 – 30

Layer	Scientific name	P25	Common name
		n = 14	
Trees	<i>Pinus contorta</i>	■■■■■	lodgepole pine
	<i>Picea glauca</i>	■ ■	white spruce
Shrubs	<i>Pinus contorta</i>	■ ■	lodgepole pine
	<i>Picea glauca</i>	□	white spruce
	<i>Rosa acicularis</i>	■ ■	prickly rose
	<i>Salix bebbiana</i>	■ ■	Bebb's willow
	<i>Shepherdia canadensis</i>	■ ■	soapberry
Graminoids	<i>Calamagrostis purpurascens</i>	■■■■■	purple reedgrass
Forbs	<i>Solidago spathulata</i> ssp. <i>glutinosa</i>	■	sticky goldenrod
	<i>Chamaenerion angustifolium</i>	■	fireweed
Bryophytes	<i>Hylocomium splendens</i>	■ ■	step moss
Lichens	<i>Cladina</i> spp.	■■	reindeer lichens
	<i>Cetraria/Flavocetraria</i> spp.	■■■	cetraria lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

P26 Pine / Grass – Kinnikinnick – Lowbush Cranberry

P26 is a lodgepole pine forest with a grassy understorey that occurs frequently on rapid- to well-drained, level to gently sloping sites in the southern Yukon in the BOL.

Vegetation: This association includes mature forest and stands that are developing after disturbance. Mature forests have a tree canopy of lodgepole pine (*Pinus contorta*), often with some white spruce (*Picea glauca*). Regeneration of pine or white spruce is poor. Overall, the shrub layer is poorly developed, scattered willows (*Salix* spp.) being the most consistent. Ground shrubs are of high cover, including kinnikinnick (*Arctostaphylos uva-ursi*), lowbush cranberry (*Vaccinium vitis-idaea*) and twinflower (*Linnaea borealis*). Grasses, mostly Altai fescue (*Festuca altaica*) and/or purple reedgrass (*Calamagrostis purpurascens*) characterize the understorey. Lichens dominate over mosses on the forest floor, but neither is abundant. The most dominant and consistent lichens are reindeer lichens (*Cladina* spp.).



Environment: This association occurs on rapidly drained and well-drained sites at lower elevations. Sites are mostly flat or gently sloped and commonly on glaciofluvial deposits; sloping sites are mostly on warm aspects. Soils are Eutric or Dystric Brunisols.

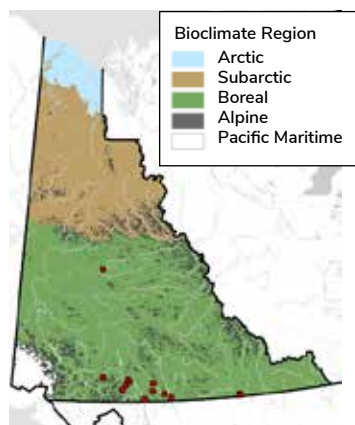
Dynamics: P26 includes both mature stands and young stands, as the floristics are the same in both cases. Regeneration is poor, which indicates the stands are not succeeding quickly to spruce, but will remain in pine for a long time. This is likely due to the site conditions and high grass cover.

Comments

- Key characteristics: pine dominated overstorey; grasses $\geq 15\%$ cover; ground shrubs $> 20\%$; key species to differentiate it from P25 are kinnikinnick and lowbush cranberry
- Equivalent to CNVC00361 *Pinus contorta* / Poaceae – *Arctostaphylos uva-ursi*

P26 Environment table

Zone	BOL
Elevation (m)	564 – 754 – 853
Aspect	flat or mostly warm
Slope (%)	0 – 4 – 10
Soil moisture regime	subxeric, submesic
Soil drainage	rapid, well
Permafrost presence/depth (cm)	not observed
Unvegetated cover (%)	10 – 15 – 26
Soil class	Dystric and Eutric Brunisols

**P26 Vegetation summary (%)**

Trees	2 – 53 – 90	Shrubs	0 – 10 – 36	Ground shrubs	8 – 46 – 100
Graminoids and Forbs	16 – 30 – 60	Bryophytes	0 – 5 – 30	Lichens	1 – 17 – 40

Layer	Scientific name	P26	Common name
		n = 14	
Trees	<i>Pinus contorta</i>	■■■■■	lodgepole pine
	<i>Picea glauca</i>	■■	white spruce
Shrubs	<i>Rosa acicularis</i>	■	prickly rose
	<i>Salix</i> spp.	■■	willow
Ground shrubs	<i>Arctostaphylos uva-ursi</i>	■■■■■	kinnikinnick
	<i>Linnaea borealis</i>	■■■	twinline
	<i>Vaccinium vitis-idaea</i>	■■■■■	lowbush cranberry
Graminoids	Poaceae	■■■■■	grass family
Forbs	<i>Chamaenerion angustifolium</i>	■	fireweed
	<i>Lupinus arcticus</i>	■	arctic lupine
Lichens	<i>Cladina mitis</i>	■■■	lesser green reindeer
	<i>Peltigera aphthosa</i>	■■■	freckle pelt
	<i>Stereocaulon</i> spp.	■■	foam lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

P27 Pine / Labrador tea / Lowbush cranberry

P27 is a lodgepole pine – Labrador tea – ground shrub forest that occurs frequently on circum-mesic sites, primarily in the south-central Yukon in the BOL.

Vegetation: This association has a moderately closed to closed tree canopy of lodgepole pine (*Pinus contorta*), often with a minor component of white spruce (*Picea glauca*). The shrub layer is characterized by common Labrador tea (*Rhododendron groenlandicum*), along with some prickly rose (*Rosa acicularis*) and scattered willows (*Salix* spp.). Ground shrubs, mostly lowbush cranberry (*Vaccinium vitis-idaea*) and crowberry (*Empetrum nigrum*), characterize the understorey. The moss cover is low, possibly due to high cover of pine needles, and is generally less than the lichen cover. The most abundant lichen is usually *Cladina*, but can include *Cetraria*.

Environment: P27 occurs at lower elevations. Data are limited, but from the ecosite characterization, it likely occurs on well-drained and moderately well drained sites, on gentle to steep slopes with cool to neutral aspects.

Dynamics: P27 stands are pine-dominated and have limited regeneration. The stands appear stable and would likely regenerate to pine after wildfire, unless the pine was too young to have seed cones.

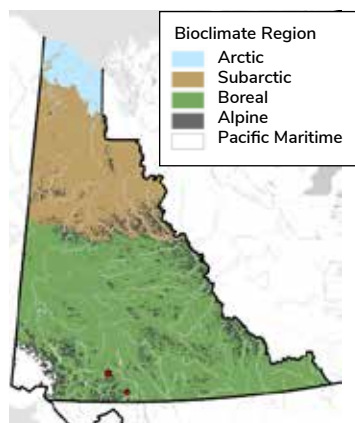
Comments

- BOLs/30 is an ecosite that comprises the range of this association
- Key characteristics: lodgepole pine overstorey; common Labrador tea $\geq 10\%$; ground shrubs $> 15\%$; moss cover very low
- Component of CNVC00120 *Pinus contorta* – *Picea mariana* / *Vaccinium vitis-idaea* / *Pleurozium schreberi*



P27 Environment table

Zone	BOL
Elevation (m)	685 – 780 – 870
Aspect	neutral
Slope (%)	3 (limited data)
Soil moisture regime	submesic, mesic
Soil drainage	well to moderately well
Permafrost presence/depth (cm)	not observed
Unvegetated cover (%)	3 – 10 – 15
Soil class	Dystic Brunisols

**P27 Vegetation summary (%)**

Trees	35 – 50 – 75	Shrubs	35 – 65 – 100	Ground shrubs	15 – 50 – 90
Graminoids and Forbs	2 – 2 – 2	Bryophytes	0 – 1.5 – 3	Lichens	10 – 20 – 25

Layer	Scientific name	P27	Common name
		n = 3	
Trees	<i>Pinus contorta</i>	■■■■■	lodgepole pine
	<i>Picea glauca</i>	■ ■	white spruce
Shrubs	<i>Rhododendron groenlandicum</i>	■■■■■	common Labrador tea
	<i>Shepherdia canadensis</i>	■ ■ ■	soapberry
	<i>Salix</i> spp.	■ ■	willow
	<i>Rosa acicularis</i>	■	prickly rose
Ground shrubs	<i>Vaccinium vitis-idaea</i>	■■■■■	lowbush cranberry
	<i>Linnaea borealis</i>	■■■	twinflower
	<i>Empetrum nigrum</i>	■■■	crowberry
	<i>Arctostaphylos uva-ursi</i>	■ ■ ■	kinnikinnick
Graminoids	Poaceae	■	grass family
Forbs	<i>Chamaenerion angustifolium</i>	■	fireweed
Bryophytes	<i>Dicranum</i> sp.	■	heron's-bill moss
	<i>Hylocomium splendens</i>	■	step moss
Lichens	<i>Cladina</i> spp.	■■■	reindeer lichens
	<i>Cladonia</i> spp.	■ ■	clad lichens
	<i>Peltigera aphthosa</i>	■ ■ ■	freckle pelt
	<i>Peltigera</i> spp.	■ ■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

P28 Pine / Lowbush Cranberry / Step moss

P28 is a lodgepole pine – feathermoss forest that occurs frequently on circum-mesic sites in the southern Yukon in the BOL.

Vegetation: This association has a moderately closed to closed tree canopy of lodgepole pine (*Pinus contorta*), often with a minor component of white spruce (*Picea glauca*), although black spruce (*P. mariana*) can also occur. The understorey is generally dominated by ground shrubs, mostly lowbush cranberry (*Vaccinium vitis-idaea*), but cover varies. Step moss (*Hylocomium splendens*) and red-stemmed feathermoss (*Pleurozium schreberi*) dominate the characteristic bryophyte layer; occasionally, heron's-bill moss (*Dicranum* spp.) is of high cover. Lichens are noticeable and are mostly *Cladina*.

Environment: P28 occurs at lower elevations. Site data are limited, but it appears to occur on well-drained and moderately well drained sites with gentle slopes on neutral to cool aspects.

Dynamics: P28 stands are pine dominated with some spruce regeneration (mostly white). The spruce component of the stands will increase over time. In their present composition, stands would regenerate to pine after wildfire, unless the pine was too young to have seed cones.

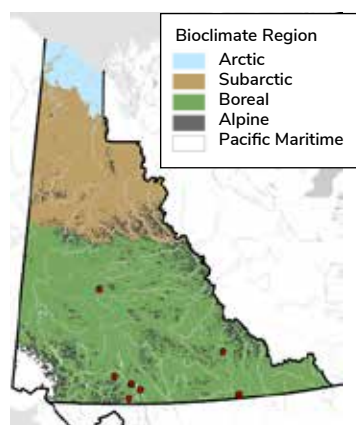
Comments

- BOLs/01 is an ecosite that partly comprises the range of this association
- Key characteristics: lodgepole pine overstorey; common Labrador tea <10%; feathermoss ≥20% and less than lichen cover
- Component of CNVC00120 *Pinus contorta* – *Picea mariana* / *Vaccinium vitis-idaea* / *Pleurozium schreberi*



P28 Environment table

Zone	BOL
Elevation (m)	690 – 770 – 945
Aspect	variable (limited data)
Slope (%)	0 – 4 – 15
Soil moisture regime	submesic, mesic
Soil drainage	well to moderately well
Permafrost presence/depth (cm)	not observed
Unvegetated cover (%)	1 – 5 – 10
Soil class	Eutric Brunisols (limited data)

**P28 Vegetation summary (%)**

Trees	25 – 45 – 70	Shrubs	2 – 30 – 60	Ground shrubs	2 – 30 – 55
Graminoids and Forbs	1 – 7 – 20	Bryophytes	20 – 40 – 70	Lichens	3 – 15 – 30

Layer	Scientific name	P28 n = 10	Common name
Trees	<i>Pinus contorta</i>	■■■■■	lodgepole pine
	<i>Picea glauca</i>	■	white spruce
Shrubs	<i>Rhododendron groenlandicum</i>	■■	common Labrador tea
	<i>Salix</i> spp.	■■	willows
	<i>Shepherdia canadensis</i>	■■	soapberry
	<i>Picea glauca</i>	■■	white spruce
Ground shrubs	<i>Vaccinium vitis-idaea</i>	■■■■■	lowbush cranberry
	<i>Arctostaphylos uva-ursi</i>	■■	kinnikinnick
	<i>Linnaea borealis</i>	■■	twinflower
	<i>Empetrum nigrum</i>	■■■■	crowberry
Forbs	<i>Chamaenerion angustifolium</i>	■■	fireweed
	<i>Geocaulon lividum</i>	■	false toad-flax
	<i>Lupinus arcticus</i>	■	arctic lupine
Bryophytes	<i>Hylocomium</i> / <i>Pleurozium</i>	■■■■■	feathermosses
	<i>Polytrichum juniperinum</i>	■	juniper haircap moss
Lichens	<i>Cladina</i> spp.	■■■■■	reindeer lichens
	<i>Cladonia</i> spp.	■	clad lichens
	<i>Peltigera</i> spp.	■■■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

P29 Pine / Labrador tea / Feathermoss

P29 is a lodgepole pine – Labrador tea – feathermoss forest that occurs frequently on circum-mesic sites in the southern Yukon in the BOL.

Vegetation: This association has a moderately closed to closed tree canopy of lodgepole pine (*Pinus contorta*), often with a minor component of white spruce (*Picea glauca*). The shrub layer is characterized by common Labrador tea (*Rhododendron groenlandicum*), along with some prickly rose (*Rosa acicularis*) and scattered willows (*Salix* spp.). Ground shrubs, mostly lowbush cranberry (*Vaccinium vitis-idaea*) and crowberry (*Empetrum nigrum*), characterize the understorey. The moss cover is low, possibly due to high cover of pine needles, and is generally less than the lichen cover. The most abundant lichen is usually *Cladina*, but can include *Cetraria*.

Environment: P29 occurs at lower elevations. Data are limited, but from the ecosite characterization, it likely occurs on moderately well drained and well-drained sites, on gentle to steep slopes with cool to neutral aspects.



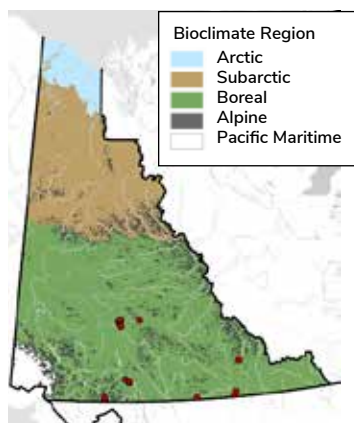
Dynamics: P29 stands are pine dominated and have limited regeneration. The stands appear stable and would likely regenerate to pine after wildfire, unless the pine was too young to have seed cones.

Comments

- BOLsl/30 and BOLyc/30 are two ecosites that comprise the range of this association
- Key characteristics: lodgepole pine overstorey; common Labrador tea $\geq 10\%$; moss cover $\geq 15\%$
- Component of CNVC00120 *Pinus contorta* – *Picea mariana* / *Vaccinium vitis-idaea* / *Pleurozium schreberi*

P29 Environment table

Zone	BOL
Elevation (m)	615 – 740 – 940
Aspect	flat, neutral to cool
Slope (%)	0 – 3 – 20
Soil moisture regime	submesic (mesic)
Soil drainage	well to moderately well
Permafrost presence/depth (cm)	not observed
Unvegetated cover (%)	2 – 5 – 11
Soil class	Eutric (Dystric) Brunisols

**P29 Vegetation summary (%)**

Trees	25 – 50 – 90	Shrubs	20 – 50 – 100	Ground shrubs	5 – 35 – 70
Graminoids and Forbs	0.1 – 5 – 13	Bryophytes	15 – 50 – 95	Lichens	1 – 15 – 30

Layer	Scientific name	P29	Common name
		n = 15	
Trees	<i>Pinus contorta</i>	■■■■■	lodgepole pine
	<i>Picea glauca</i>	■■■	white spruce
Shrubs	<i>Rhododendron groenlandicum</i>	■■■■■	common Labrador tea
	<i>Salix</i> spp.	■ ■	willows
Ground shrubs	<i>Vaccinium vitis-idaea</i>	■■■■■	lowbush cranberry
	<i>Empetrum nigrum</i>	■ ■ ■	crowberry
	<i>Linnaea borealis</i>	■■	twinline
Forbs	<i>Chamaenerion angustifolium</i>	■	fireweed
	<i>Cornus canadensis</i>	■ ■	bunchberry
Bryophytes	<i>Hylocomium splendens</i>	■■■■■	step moss
	<i>Pleurozium schreberi</i>	■ ■ ■ ■	red-stemmed feathermoss
Lichens	<i>Cladina mitis</i>	■■■	green reindeer lichen
	<i>Peltigera aphthosa</i>	■■■	freckle pelt

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

P30 Pine / Shrub birch / Altai fescue

P30 is a lodgepole pine – shrub birch – Altai fescue woodland or forest that occurs frequently on circum-mesic sites in the south-central Yukon in the BOH and occasionally in the south-central Yukon in the BOL.

Vegetation: The P30 association has an open to closed tree canopy of lodgepole pine (*Pinus contorta*), often with a minor component of subalpine fir (*Abies lasiocarpa*) or white spruce (*Picea glauca*). Conifer regeneration is sparse. Shrub birch (*Betula glandulosa*) characterizes the shrub layer. Other shrubs include willows (*Salix* spp.) and bog blueberry (*Vaccinium uliginosum*). Ground shrubs crowberry (*Empetrum nigrum*) and lowbush cranberry (*Vaccinium vitis-idaea*) are often present. Grasses, in particular Altai fescue (*Festuca altaica*), characterize the graminoid layer. Haircap mosses (*Polytrichum*) are usually present, as are lichens, mostly green reindeer lichen (*Cladina mitis*).

Environment: This association occurs on well-drained sites at higher elevations, and in some lower elevation sites influenced by cold air. Parent materials are mostly glaciofluvial, with some occurrences on morainal till. Sites are usually gently sloping and on warm slopes, but can also be flat (such as in cold basins).

Dynamics: Lodgepole pine dominates the stands, with minor subalpine fir and some white or black spruce. Regeneration is almost nonexistent, so stands will remain pine-dominated for some time. Pine is likely to regenerate after fire unless a spruce seed source is nearby.

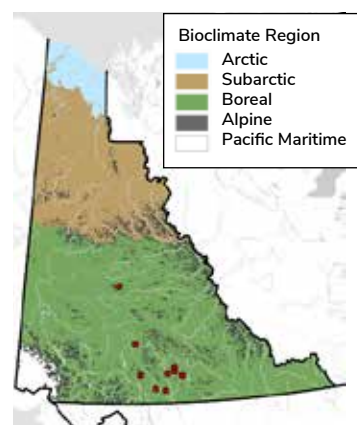
Comments

- Key characteristics: lodgepole pine overstorey; shrub birch $\geq 20\%$; grasses $\geq 10\%$, mostly Altai fescue; *Cladina* most consistent of lichens; haircap mosses present
- Equivalent to CNVC00359 *Pinus contorta* / *Betula glandulosa* / *Festuca altaica*



P30 Environment table

Zone	BOH (BOL)
Elevation (m)	760 – 1000 – 1220
Aspect	flat; warm slopes
Slope (%)	0 – 4 – 10
Soil moisture regime	mesic (submesic)
Soil drainage	well
Permafrost presence/depth (cm)	not observed
Unvegetated cover (%)	11 (limited data; decomposed wood, mineral soil)
Soil class	Dystric Brunisols, Grey Luvisol, Podzol

**P30 Vegetation summary (%)**

Trees	13 – 40 – 80	Shrubs	20 – 55 – 80	Ground shrubs	1 – 10 – 30
Graminoids and Forbs	10 – 30 – 60	Bryophytes	1 – 16 – 60	Lichens	1 – 20 – 45

Layer	Scientific name	P30	Common name
		n = 9	
Trees	<i>Pinus contorta</i>	■■■■■	lodgepole pine
	<i>Picea glauca</i>	■	white spruce
	<i>Abies lasiocarpa</i>	□	subalpine fir
Shrubs	<i>Betula glandulosa</i>	■■■■■	shrub birch
	<i>Salix</i> spp.	■■■	willows
	<i>Vaccinium uliginosum</i>	■■	bog blueberry
Ground shrubs	<i>Empetrum nigrum</i>	■■■	crowberry
	<i>Vaccinium vitis-idaea</i>	■■	lowbush cranberry
Graminoids	Poaceae	■■■■■	grass family
Bryophytes	<i>Polytrichum</i> spp.	■■■	haircap mosses
Lichens	<i>Cladina mitis</i>	■■■■■	green reindeer lichen
	<i>Cladonia</i> spp.	■■	clad lichens
	<i>Peltigera aphthosa</i>	■	freckle pelt
	<i>Stereocaulon</i> spp.	■■	foam lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

P31 Pine / Shrub birch / Feathermoss

P31 is a lodgepole pine – shrub birch – feathermoss woodland that occurs frequently on mesic to moist sites in the southern Yukon in the BOL and BOH.

Vegetation: The P31 association has an open to moderately closed tree canopy of lodgepole pine (*Pinus contorta*), often with a minor component of subalpine fir (*Abies lasiocarpa*) or white spruce (*Picea glauca*). Conifer regeneration is spruce or pine. Shrub birch (*Betula glandulosa*) characterizes the shrub layer. Other shrubs include common Labrador tea (*Rhododendron groenlandicum*), willows (*Salix* spp.) and bog blueberry (*Vaccinium uliginosum*). Ground shrubs crowberry (*Empetrum nigrum*) and lowbush cranberry (*Vaccinium vitis-idaea*) are of low to moderate cover. Feathermosses, including step moss (*Hylocomium splendens*), red-stemmed feathermoss (*Pleurozium schreberi*) and Oregon beaked moss (*Kindbergia oregana*), characterize the ground cover. Lichens, mostly *Cladonia*, are usually present.

Environment: This association occurs on well-drained to imperfectly drained sites, usually at higher elevations. Sites are flat or very gently sloping. Data are limited, and it is likely that sites are influenced by cold air, especially at low elevations.

Dynamics: Lodgepole pine dominates the stands, with minor subalpine fir and some white spruce. Regeneration is light, so stands will remain pine-dominated, and pine is likely to regenerate after fire.

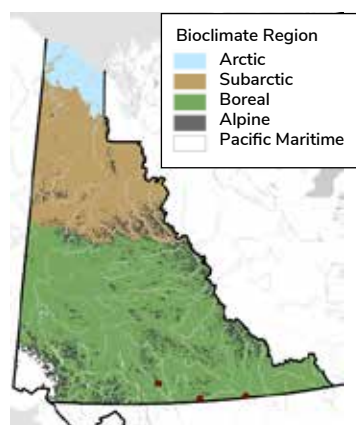
Comments

- Key characteristics: lodgepole pine overstorey; shrub birch $\geq 15\%$; grasses $< 10\%$, feathermosses $\geq 25\%$
- Equivalent to CNVC00358 *Pinus contorta* / *Betula glandulosa* / *Pleurozium schreberi*



P31 Environment table

Zone	BOL, BOH
Elevation (m)	690 – 895 – 1035
Aspect	flat
Slope (%)	0 – 2 – 5
Soil moisture regime	mesic, subhygric
Soil drainage	well, imperfect
Permafrost presence/depth (cm)	not observed
Unvegetated cover (%)	1 (limited data; decomposed wood)
Soil class	Gleyed Dystric Brunisol (limited data)

**P31 Vegetation summary (%)**

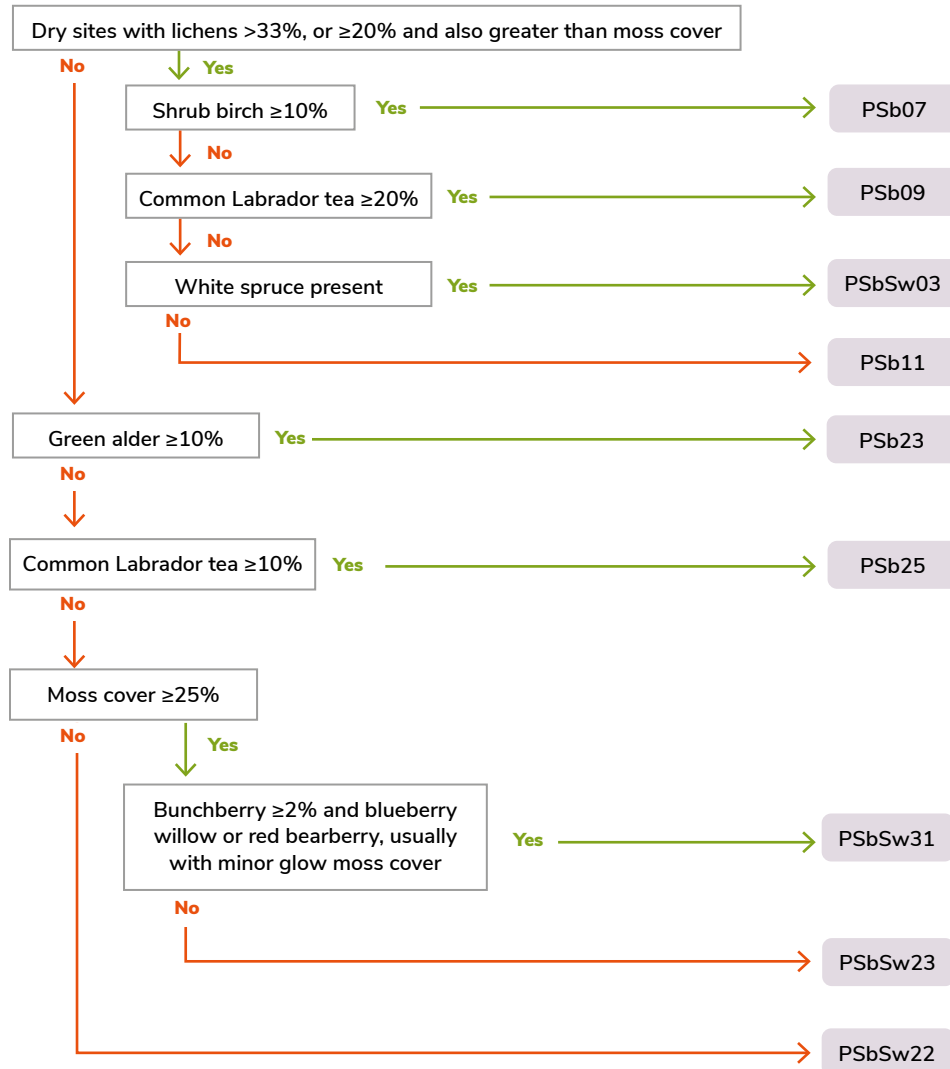
Trees	11 – 25 – 40	Shrubs	45 – 55 – 80	Ground shrubs	3 – 20 – 55
Graminoids and Forbs	2 – 3 – 5	Bryophytes	25 – 50 – 70	Lichens	4 – 15 – 25

Layer	Scientific name	P31	Common name
		n = 3	
Trees	<i>Pinus contorta</i>	■■■■■	lodgepole pine
	<i>Abies lasiocarpa</i>	■	subalpine fir
	<i>Picea glauca</i>	■■■	white spruce
Shrubs	<i>Betula glandulosa</i>	■■■■■	shrub birch
	<i>Rhododendron groenlandicum</i>	■■■	common Labrador tea
	<i>Salix</i> spp.	■■■	willows
	<i>Vaccinium uliginosum</i>	■■■	bog blueberry
	<i>Pinus contorta</i>	■	lodgepole pine
	<i>Picea glauca</i>	■	white spruce
Ground shrubs	<i>Empetrum nigrum</i>	■■■■■	crowberry
	<i>Vaccinium vitis-idaea</i>	■■■	lowbush cranberry
	<i>Linnaea borealis</i>	■■■	twinline
Forbs	<i>Cornus canadensis</i>	■■■	bunchberry
	<i>Lupinus arcticus</i>	■	arctic lupine
	<i>Spinulum annotinum</i>	■	stiff club-moss
Bryophytes	<i>Hylocomium</i> / <i>Pleurozium</i>	■■■■■	feathermosses
Lichens	<i>Cladonia</i> spp.	■■■■■	reindeer lichens
	<i>Cladonia</i> spp.	■■■	clad lichens
	<i>Peltigera aphthosa</i>	■■■	freckle pelt

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

Pine – black spruce – (white spruce) associations

Pine (P) and black spruce (Sb) co-dominate, often with white spruce (Sw), with none >85% of canopy composition.

Flowchart Pine – black spruce – (white spruce) associations

Summary of features: Pine – black spruce (white spruce) associations**Dry sites**

	PSb07	PSb09	PSb11	PSbSw03
Zone	BOL	BOL	BOL	BOL (BOH)
Geography	southeast	southeast (south-central)	south (central)	central and south
Important site features	very xeric to xeric sites, colluvial or glaciofluvial	very xeric to subxeric sites, level or warm aspect, glaciofluvial or morainal	xeric to submesic, various parent materials	subxeric to submesic, often glaciofluvial (eolian) or very shallow to rock
Drainage	very rapid to rapid	rapid to well	rapid to well	rapid to well
Tree canopy	pine – black spruce	pine – black spruce (white spruce), (aspen)	pine – black spruce (aspen)	pine – black spruce – white spruce (aspen)
Key understorey species	shrub birch, reindeer lichens	common Labrador tea, reindeer lichens	reindeer lichens	reindeer lichens

Mesic to moist sites

	PSb23	PSb25	PSbSw22	PSbSw23	PSbSw31
Zone	BOL	BOL (BOH)	BOL (BOH)	BOL, BOH	BOL
Geography	central and south	central and south	central (south)	central and south	central and south
Important site features	submesic to mesic, various materials	submesic to mesic; various materials	submesic; various materials	submesic to mesic; various materials	mesic to subhygric; morainal (glaciofluvial)
Drainage	well to moderately well	well to moderately well	well	well to moderately well	moderately well to imperfect
Tree canopy	pine – black spruce – white spruce (Alaska birch)	pine – black spruce – white spruce	pine – black spruce – white spruce (aspen)	pine – black spruce – white spruce (aspen)	pine – black spruce – white spruce
Key understorey species	green alder, feathermoss	common Labrador tea, feathermoss	sparse	ground shrubs, feathermoss	bunchberry, blueberry willow, feathermoss

Vegetation tables for pine – black spruce (white spruce) associations

Dry sites

Layer	Scientific name	PSb07	PSb09	PSb11	PSbSw03	Common name
	n =	2	6	17	21	
Trees	<i>Picea glauca</i>				■■■■	white spruce
	<i>Picea mariana</i>	■■■	■■■■	■■■■■	■■■	black spruce
	<i>Pinus contorta</i>	■■■■	■■■■■	■■■■	■■■■■	lodgepole pine
Shrubs	<i>Picea mariana</i>	■	■■■	■■■		black spruce
	<i>Pinus contorta</i>	■■■	■■■■			lodgepole pine
	<i>Betula glandulosa</i>	■■■■■	□			shrub birch
	<i>Rhododendron groenlandicum</i>	■■■■	■■■■■	■■■	■■■	common Labrador tea
	<i>Rosa acicularis</i>	■	□		■	prickly rose
	<i>Salix</i> spp.	■■	■■	□	■	willows
	<i>Vaccinium uliginosum</i>	■■■	■■	□□	□□	blueberry
	<i>Empetrum nigrum</i>	■■	■■■	■■	□□	crowberry
	<i>Linnaea borealis</i>			□	■■	twinline
Ground shrubs	<i>Vaccinium vitis-idaea</i>	■■■	■■■■	■■■■	■■■■	lowbush cranberry
Graminoids	Poaceae	■			■■	grass family
Forbs	<i>Cornus canadensis</i>	■	■■	■■	■	bunchberry
	<i>Geocaulon lividum</i>		■	□	■■	bastard toadflax
Bryophytes	<i>Hylocomium splendens</i>		■■■	■■■	■■	step moss
	<i>Pleurozium schreberi</i>	■■■■■	■■	■■■■	■■■	red-stemmed feathermoss
	<i>Polytrichum juniperinum</i>	■■	□		□	juniper haircap moss
Lichens	<i>Cladina</i> spp.	■■■■■	■■■■■	■■■■■	■■■■■	reindeer lichens
	<i>Cladonia</i> spp.	■■	■■■■	■■■	■■■	clad lichens
	<i>Nephroma arcticum</i>	■■	■■	■■	□□	arctic kidney lichen
	<i>Peltigera</i> spp.	■■	■■■■	■■■■	■■■	pelt lichens

Note: gold cells highlight key diagnostic species

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

Mesic to moist sites

Layer	Scientific name	PSb23	PSb25	PSbSw22	PSbSw23	PSbSw31	Common name
	n =	40	15	20	47	4	
Trees	<i>Picea glauca</i>	□□□	■ ■ ■	■ ■ ■ ■	■ ■ ■	■ ■ ■ ■	white spruce
	<i>Picea mariana</i>	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	black spruce
	<i>Pinus contorta</i>	■ ■ ■ ■	■ ■ ■ ■ ■	■ ■ ■ ■ ■	■ ■ ■ ■ ■	■ ■	lodgepole pine
Shrubs	<i>Picea glauca</i>		□ □	■ ■		■ ■	white spruce
	<i>Picea mariana</i>	■ ■	□ □ □	■ ■ ■	■ ■ ■	■ ■	black spruce
	<i>Alnus alnobetula</i>	■ ■ ■ ■ ■			□		green alder
	<i>Rhododendron groenlandicum</i>	■ ■	■ ■ ■ ■ ■	□ □	■ ■	■ ■ ■	common Labrador tea
	<i>Rosa acicularis</i>	■	■	□	□	■ ■	prickly rose
	<i>Salix myrtillifolia</i>					■	blueberry willow
	<i>Salix</i> spp.	□	■ ■ ■	■	■ ■	■ ■ ■	willows
	<i>Shepherdia canadensis</i>		□ □			■ ■ ■	soapberry
	<i>Vaccinium uliginosum</i>		□ □			■	blueberry
Ground shrubs	<i>Arctous rubra</i>					■	red bearberry
	<i>Empetrum nigrum</i>		■ ■ ■	□	□ □	■ ■	crowberry
	<i>Linnaea borealis</i>	□	□	■ ■	■ ■	■ ■	twinflower
	<i>Vaccinium vitis-idaea</i>	■ ■ ■	■ ■ ■ ■ ■	■ ■ ■	■ ■ ■	■ ■	lowbush cranberry
Graminoids	Poaceae		□	■ ■	□ □	■	grass family
Forbs	<i>Cornus canadensis</i>	■ ■	■ ■ ■		□ □	■ ■ ■ ■	bunchberry
	<i>Geocaulon lividum</i>	■ ■	■ ■ ■	□ □	□ □	■ ■	bastard toadflax
	<i>Lupinus arcticus</i>					■	arctic lupine
	<i>Mertensia paniculata</i>					■	tall bluebells
Bryophytes	<i>Aulacomnium palustre</i>					■	glow moss
	<i>Hylocomium splendens</i>	■ ■ ■ ■ ■	■ ■ ■ ■ ■	■ ■ ■	■ ■ ■ ■ ■	■ ■ ■ ■ ■	step moss
	<i>Pleurozium schreberi</i>	■ ■ ■ ■	□ □ □		■ ■ ■ ■	■ ■ ■ ■	red-stemmed feathermoss
Lichens	<i>Cetraria / Flavocetraria</i> spp.		□	■	□		Iceland lichens
	<i>Cladina</i> spp.	■ ■	■ ■ ■	■	■ ■ ■	■ ■	reindeer lichens
	<i>Cladonia</i> spp.	■	■ ■	■ ■	■	□	clad lichens
	<i>Peltigera aphthosa</i>	■ ■	■ ■ ■	■ ■ ■	■ ■ ■	■ ■	freckle pelt lichen

Note: gold cells highlight key diagnostic species

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ ■ 1 – 3	■ ■ ■ 3 – 10	■ ■ ■ ■ 10 – 25	■ ■ ■ ■ ■ >25

Fact sheets: Pine – black spruce (white spruce) associations

PSb07 Pine – Black spruce / Shrub birch / Lichen

PSb07 is a woodland or forest with a combination of pine and black spruce and with shrub birch and high lichen ground cover that occurs in the BOL.

Vegetation: Stands of PSb07 have a tree canopy of pine (*Pinus contorta*) and black spruce (*Picea mariana*). The shrub layer is well developed, with shrub birch (*Betula glandulosa*), common Labrador tea (*Rhododendron groenlandicum*) and blueberry (*Vaccinium uliginosum*). The ground shrub layer is poorly developed, with low cover of crowberry (*Empetrum nigrum*) and lowbush cranberry (*Vaccinium vitis-idaea*). Red-stemmed feathermoss (*Pleurozium schreberi*) also occurs, usually with moderately high cover. Lichens strongly dominate the forest floor, mostly reindeer lichens (mostly *Cladina stellaris*).

No photo
available

Environment: This association occurs at low to moderate elevations on level or gently sloping sites. Soils are rapidly drained to very rapidly drained, developing on colluvial or glaciofluvial parent materials. Soils are classified as Brunisols. The forest floor usually has a low cover of woody debris.

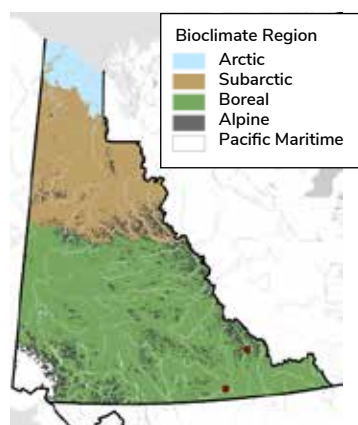
Dynamics: Stands vary in density (open to closed), with a combination of pine and black spruce, much of which can be in the shrub layer. Stands with similar vegetation can be strongly dominated by pine (P10) or black spruce (Sb10) or even other species such as fir, but these shrub birch associations occur at higher elevations than PSb07. Dominance after disturbance depends on local seed sources.

Comments

- Key characteristics: pine and black spruce stand; dry upland site; shrub birch; lichens $\geq 33\%$ cover or $\geq 20\%$ and greater than moss cover
- Component of CNVC00357 Lodgepole Pine – White Spruce / Kinnikinnick / Reindeer Lichen

PSb07 Environment table

Zone	BOL
Elevation (m)	650 – 775 – 900
Aspect	neutral, neutral (limited data)
Slope (%)	2 – 11 – 20
Soil moisture regime	very xeric to xeric
Soil drainage	very rapid to rapid
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	0.5 – 2 – 3
Soil class	Brunisols

**PSb07 Vegetation summary (%)**

Trees	10 – 18 – 25	Shrubs	55 – 60 – 65	Ground shrubs	2 – 4 – 6
Graminoids and Forbs	1 – 1 – 1	Bryophytes	20 – 30 – 35	Lichens	55 – 65 – 80

Layer	Scientific name	PSb07	Common name
		n = 2	
Trees	<i>Picea mariana</i>	■■■■	black spruce
	<i>Pinus contorta</i>	■■■■■	lodgepole pine
Shrubs	<i>Picea mariana</i>	■	black spruce
	<i>Pinus contorta</i>	■■■	lodgepole pine
	<i>Betula glandulosa</i>	■■■■■	shrub birch
	<i>Rhododendron groenlandicum</i>	■■■■■	common Labrador tea
	<i>Rosa acicularis</i>	■	prickly rose
	<i>Salix glauca</i>	■■	grey-leaved willow
	<i>Vaccinium uliginosum</i>	■■■	blueberry
Ground shrubs	<i>Empetrum nigrum</i>	■■	crowberry
	<i>Vaccinium vitis-idaea</i>	■■■	lowbush cranberry
Graminoids	<i>Festuca altaica</i>	■	Altai fescue
Forbs	<i>Cornus canadensis</i>	■	bunchberry
Bryophytes	<i>Pleurozium schreberi</i>	■■■■■	red-stemmed feathermoss
	<i>Polytrichum juniperinum</i>	■■	juniper haircap moss
Lichens	<i>Cladina</i> spp.	■■■■■	reindeer lichens
	<i>Nephroma arcticum</i>	■■	arctic kidney lichen
	<i>Peltigera</i> spp.	■■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

PSb09 Pine – Black spruce / Labrador tea / Lowbush cranberry / Lichen

PSb09 is a woodland or forest with a combination of pine and black spruce, and with common Labrador tea, lowbush cranberry and high lichen ground cover, that occurs in the BOL.

Vegetation: Stands of PSb09 have a tree canopy of pine (*Pinus contorta*) and black spruce (*Picea mariana*), sometimes with white spruce (*P. glauca*) or aspen (*Populus tremuloides*). The shrub layer is well developed, with tree regeneration, common Labrador tea (*Rhododendron groenlandicum*), willows (*Salix* spp.) and blueberry (*Vaccinium uliginosum*). The ground shrub layer is moderately well developed, with lowbush cranberry (*Vaccinium vitis-idaea*) and crowberry (*Empetrum nigrum*). Moss cover is moderate and is mostly feathermosses (*Hylocomium splendens*, *Pleurozium schreberi*). Lichens strongly dominate the forest floor. Reindeer lichens (*Cladonia* spp.) usually dominate, but clad lichens (*Cladonia* spp.) or pelt lichens (*Peltigera* spp.) can be of high cover.

No photo
available

Environment: This association occurs at low to moderate elevations, mostly on level sites, but can be on gently sloping, warm-aspect crest sites. Soils are rapidly drained to well drained, developing on glaciofluvial or morainal parent materials. Soils are classified as Dystric Brunisols. The forest floor usually has a low cover of woody debris.

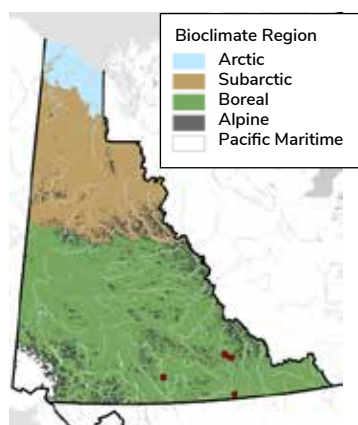
Dynamics: Stands vary in density (open to closed), with a combination of pine and black spruce. Stands on similar sites could be strongly dominated by black spruce (Sb10) or possibly other species. Dominance after disturbance depends on local seed sources.

Comments

- Key characteristics: pine and black spruce stand; dry upland site; common Labrador tea $\geq 20\%$; lichens $\geq 33\%$ cover or $\geq 20\%$ and greater than moss cover
- CNVC association not yet determined

PSb09 Environment table

Zone	BOL
Elevation (m)	670 – 821 – 930
Aspect	neutral, warm
Slope (%)	0 – 3 – 8
Soil moisture regime	very xeric to subxeric
Soil drainage	rapid to well
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	0.5 – 3 – 6
Soil class	Brunisols (Dystric) (limited data)

**PSb09 Vegetation summary (%)**

Trees	0 – 40 – 90	Shrubs	30 – 53 – 98	Ground shrubs	10 – 16 – 20
Graminoids and Forbs	0 – 6 – 15	Bryophytes	0 – 13 – 22	Lichens	40 – 72 – 99

Layer	Scientific name	PSb09	Common name
		n = 6	
Trees	<i>Picea mariana</i>	■ ■ ■ ■	black spruce
	<i>Pinus contorta</i>	■ ■ ■ ■ ■	lodgepole pine
Shrubs	<i>Picea mariana</i>	■ ■ ■	black spruce
	<i>Pinus contorta</i>	■ ■ ■ ■	lodgepole pine
	<i>Rhododendron groenlandicum</i>	■ ■ ■ ■ ■	common Labrador tea
	<i>Salix</i> spp.	■ ■	willows
	<i>Vaccinium uliginosum</i>	■ ■	blueberry
Ground shrubs	<i>Empetrum nigrum</i>	■ ■ ■	crowberry
	<i>Vaccinium vitis-idaea</i>	■ ■ ■ ■	lowbush cranberry
Forbs	<i>Cornus canadensis</i>	■ ■	bunchberry
	<i>Geocaulon lividum</i>	■	bastard toadflax
Bryophytes	<i>Hylocomium splendens</i>	■ ■ ■	step moss
	<i>Pleurozium schreberi</i>	■ ■	red-stemmed feathermoss
Lichens	<i>Cladina</i> spp.	■ ■ ■ ■ ■	reindeer lichens
	<i>Cladonia</i> spp.	■ ■ ■ ■	clad lichens
	<i>Nephroma arcticum</i>	■ ■	arctic kidney lichen
	<i>Peltigera</i> spp.	■ ■ ■ ■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ ■ 1 – 3	■ ■ ■ 3 – 10	■ ■ ■ ■ 10 – 25	■ ■ ■ ■ ■ >25

PSb11 Pine – Black spruce / Lowbush cranberry – Kinnikinnick / Lichen

PSb11 is a woodland or forest with a combination of pine and black spruce and with high lichen ground cover that occurs in the BOL.

Vegetation: Stands of PSb11 have a tree canopy of pine (*Pinus contorta*) and black spruce (*Picea mariana*), sometimes with some aspen (*Populus tremuloides*). The shrub layer is moderately developed, with tree regeneration (mostly black spruce) and some common Labrador tea (*Rhododendron groenlandicum*). The ground shrub layer is moderately developed to well developed, with lowbush cranberry (*Vaccinium vitis-idaea*), kinnikinnick (*Arctostaphylos uva-ursi*) and crowberry (*Empetrum nigrum*). Forbs include bunchberry (*Cornus canadensis*). Moss cover, mostly feathermosses (*Hylocomium splendens*, *Pleurozium schreberi*), varies considerably and can be high, but is less than the lichen cover. Lichens strongly dominate the forest floor. Reindeer lichens (*Cladina* spp.) usually dominate, accompanied by pelt lichens (*Peltigera* spp.) and clad lichens (*Cladonia* spp.).



Environment: This association occurs at low to moderate elevations, mostly on level sites, but can be on gentle slopes. Soils are rapidly drained to well drained, developing mostly on glaciofluvial parent materials, but also on morainal, lacustrine or fluvial. Soils are classified as Dystric Brunisols. The forest floor usually has a low to moderate cover of woody debris.

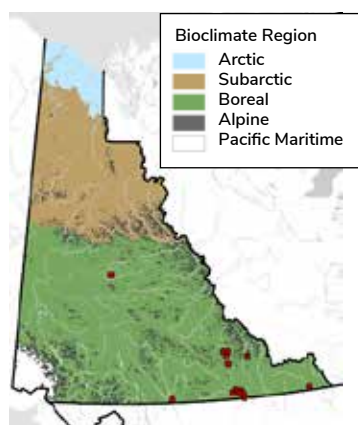
Dynamics: Stands vary in density (open to closed), with a combination of pine and black spruce. Stands on similar sites could be strongly dominated by pine (P01), white spruce (Sw01) or various mixed-wood species (PSw01, PSbSw03, AP04). Dominance after disturbance depends on local seed sources.

Comments

- Key characteristics: pine and black spruce stand; dry to mesic upland site; lichens $\geq 33\%$ cover or $\geq 20\%$ and greater than moss cover
- Component of CNVC00356 Black Spruce – Lodgepole Pine / Lowbush Cranberry – Kinnikinnick / Reindeer Lichen

PSb11 Environment table

Zone	BOL
Elevation (m)	450 – 760 – 930
Aspect	neutral, variable
Slope (%)	0 – 3 – 18
Soil moisture regime	xeric to submesic
Soil drainage	rapid to well
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	1 – 3 – 15
Soil class	Brunisols (Dystric) (limited data)

**PSb11 Vegetation summary (%)**

Trees	15 – 46 – 99	Shrubs	1 – 15 – 45	Ground shrubs	2 – 16 – 40
Graminoids and Forbs	0 – 5 – 15	Bryophytes	0 – 21 – 45	Lichens	25 – 70 – 99

Layer	Scientific name	PSb11	Common name
		n = 17	
Trees	<i>Picea mariana</i>	■■■■■	black spruce
	<i>Pinus contorta</i>	■■■■	lodgepole pine
Shrubs	<i>Picea mariana</i>	■■■	black spruce
	<i>Rhododendron groenlandicum</i>	■■■	common Labrador tea
Ground shrubs	<i>Arctostaphylos uva-ursi</i>	■■	kinnikinnick
	<i>Empetrum nigrum</i>	■■	crowberry
	<i>Vaccinium vitis-idaea</i>	■■■■	lowbush cranberry
Forbs	<i>Cornus canadensis</i>	■■	bunchberry
Bryophytes	<i>Hylocomium splendens</i>	■■■	step moss
	<i>Pleurozium schreberi</i>	■■■■	red-stemmed feathermoss
Lichens	<i>Cladina</i> spp.	■■■■■	reindeer lichens
	<i>Cladonia</i> spp.	■■■	clad lichens
	<i>Nephroma arcticum</i>	■■	arctic kidney lichen
	<i>Peltigera</i> spp.	■■■■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

PSb23 Pine – Black spruce / Alder / Feathermoss

PSb23 is a woodland or forest with a combination of pine and black spruce, often with some white spruce and with high green alder and feathermoss cover, that occurs in the BOL.

Vegetation: Stands of PSb23 have a tree canopy of pine (*Pinus contorta*) and black spruce (*Picea mariana*), often with white spruce (*P. glauca*) and some Alaska birch (*Betula neoalaskana*). The shrub layer is well developed, with tree regeneration (mostly black spruce), moderate to high cover of green alder (*Alnus alnobetula*) and some common Labrador tea (*Rhododendron groenlandicum*). The ground shrub layer is mostly lightly developed, with lowbush cranberry (*Vaccinium vitis-idaea*). Forbs include bunchberry (*Cornus canadensis*) and bastard toadflax (*Geocaulon lividum*). Feathermosses (*Hylocomium splendens*, *Pleurozium schreberi*, *Ptilium crista-castrensis*) strongly dominate the forest floor.



Environment: This association occurs at low elevations on level or gently sloping sites (sometimes steeper). Soils are well drained to moderately well drained, developing on various parent materials, including lacustrine, morainal and glaciofluvial parent materials. Soils are classified as Dystric or Eutric Brunisols. The forest floor usually has a low to moderate cover of woody debris.

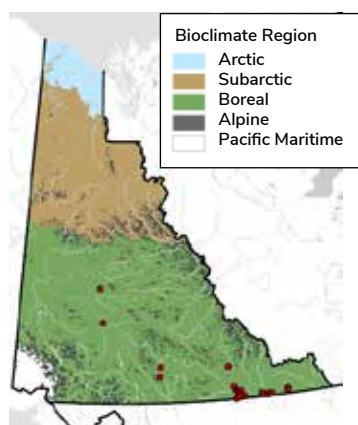
Dynamics: Stands vary in density (open to closed), with a combination of pine and black spruce and often with white spruce. Stands on similar sites could be strongly dominated by pine (P23), white spruce (Sw34), Alaska birch (W25) or various mixed-wood species (AP22, ASw21, PSb23, PSbW22, SwW28). Dominance after disturbance depends on local seed sources.

Comments

- Key characteristics: pine and black spruce stand, often with white spruce; mesic upland sites; green alder $\geq 10\%$; feathermoss $\geq 30\%$ cover (usually higher)
- Component of CNVC00120 Lodgepole Pine – Black Spruce / Lowbush Cranberry / Red-stemmed Feathermoss

PSb23 Environment table

Zone	BOL
Elevation (m)	650 – 740 – 910
Aspect	neutral, variable
Slope (%)	0 – 3 – 18
Soil moisture regime	submesic to mesic
Soil drainage	well to moderately well
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	1 – 3 – 15
Soil class	Brunisols (Dystric, Eutric)

**PSb23 Vegetation summary (%)**

Trees	13 – 52 – 99	Shrubs	10 – 38 – 92	Ground shrubs	0 – 7 – 25
Graminoids and Forbs	0 – 6 – 40	Bryophytes	30 – 74 – 99	Lichens	0 – 6 – 25

Layer	Scientific name	PSb23	Common name
		n = 40	
Trees	<i>Betula neoalaskana</i>	■	Alaska birch
	<i>Picea mariana</i>	■■■■■	black spruce
	<i>Picea glauca</i>	□□□	white spruce
	<i>Pinus contorta</i>	■■■■■	lodgepole pine
Shrubs	<i>Alnus alnobetula</i>	■■■■■	green alder
	<i>Picea mariana</i>	■■	black spruce
	<i>Rhododendron groenlandicum</i>	■■	common Labrador tea
	<i>Rosa acicularis</i>	■	prickly rose
Ground shrubs	<i>Vaccinium vitis-idaea</i>	■■■	lowbush cranberry
Forbs	<i>Cornus canadensis</i>	■■	bunchberry
	<i>Geocaulon lividum</i>	■■	bastard toadflax
Bryophytes	<i>Hylocomium splendens</i>	■■■■■	step moss
	<i>Pleurozium schreberi</i>	■■■■■	red-stemmed feathermoss
	<i>Ptilium crista-castrensis</i>	■■■■■	knight's plume
Lichens	<i>Cladina</i> spp.	■■	reindeer lichens
	<i>Peltigera</i> spp.	■■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

PSb25 Pine – Black spruce / Labrador tea / Feathermoss

PSb25 is a woodland or forest with a combination of pine and black spruce, often with some white spruce and with common Labrador tea and a feathermoss carpet, that occurs in the BOL and sometimes in the BOH.

Vegetation: Stands of PSb25 have a tree canopy of pine (*Pinus contorta*) and black spruce (*Picea mariana*), often with white spruce (*P. glauca*). The shrub layer is well developed, with tree regeneration (mostly spruce) and moderate to high cover of common Labrador tea (*Rhododendron groenlandicum*). The ground shrub layer is well developed, with lowbush cranberry (*Vaccinium vitis-idaea*) and crowberry (*Empetrum nigrum*); forbs include bastard toadflax (*Geocaulon lividum*). Feathermosses (*Hylocomium splendens*, *Pleurozium schreberi*) dominate the forest floor, although freckle pelt lichen (*Peltigera aphthosa*) or reindeer lichens (*Cladina* spp.) can be of moderate to high cover.

No photo
available

Environment: This association occurs at low to moderate elevations on level or gently sloping sites. Soils are well drained to moderately well drained, developing primarily on morainal parent materials, but also on lacustrine, glaciofluvial or eolian parent materials. Soils are classified as Dystric or Eutric Brunisols. The forest floor usually has a low to moderate cover of woody debris.

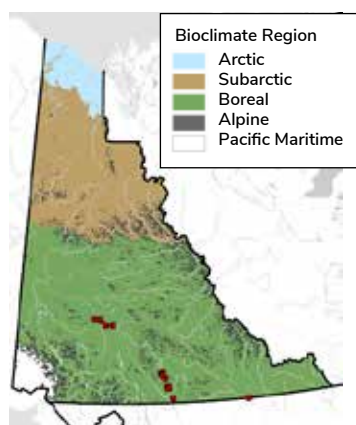
Dynamics: Stands are generally closed, and have a combination of pine and black spruce, and sometimes white spruce. Stands on similar sites could be strongly dominated by aspen (A28), pine (P24, P27), black spruce (Sb23), white spruce (Sw29) or various mixed-wood species (ASw27, PSb25, PSw27, SbSw30, SwW30). Dominance after disturbance depends on local seed sources.

Comments

- Key characteristics: pine and black spruce stand, often with white spruce; mesic upland sites; common Labrador tea $\geq 10\%$; feathermoss $\geq 30\%$ cover (usually higher)
- Component of CNVC00120 Lodgepole Pine – Black Spruce / Lowbush Cranberry / Red-stemmed Feathermoss

PSb25 Environment table

Zone	BOL (BOH)
Elevation (m)	585 – 785 – 1065
Aspect	neutral, variable
Slope (%)	0 – 5 – 15
Soil moisture regime	submesic to mesic
Soil drainage	well to moderately well
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	1 – 3 – 15 (limited data)
Soil class	Brunisols (Dystric, Eutric)

**PSb25 Vegetation summary (%)**

Trees	40 – 63 – 90	Shrubs	16 – 48 – 99	Ground shrubs	7 – 36 – 90
Graminoids and Forbs	0 – 10 – 25	Bryophytes	40 – 75 – 95	Lichens	2 – 17 – 40

Layer	Scientific name	PSb25	Common name
		n = 15	
Trees	<i>Picea glauca</i>	■ ■ ■	white spruce
	<i>Picea mariana</i>	■ ■ ■ ■	black spruce
	<i>Pinus contorta</i>	■ ■ ■ ■ ■	lodgepole pine
Shrubs	<i>Rhododendron groenlandicum</i>	■ ■ ■ ■ ■	common Labrador tea
	<i>Rosa acicularis</i>	■	prickly rose
	<i>Salix</i> spp.	■ ■ ■	willows
Ground shrubs	<i>Empetrum nigrum</i>	■ ■ ■	crowberry
	<i>Vaccinium vitis-idaea</i>	■ ■ ■ ■ ■	lowbush cranberry
Forbs	<i>Cornus canadensis</i>	■ ■ ■	bunchberry
	<i>Geocaulon lividum</i>	■ ■ ■	bastard toadflax
Bryophytes	<i>Hylocomium splendens</i>	■ ■ ■ ■ ■	step moss
	<i>Pleurozium schreberi</i>	■ ■ ■	red-stemmed feathermoss
Lichens	<i>Cladina</i> spp.	■ ■ ■	reindeer lichens
	<i>Cladonia</i> spp.	■ ■	clad lichens
	<i>Peltigera</i> spp.	■ ■ ■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ ■ 1 – 3	■ ■ ■ 3 – 10	■ ■ ■ ■ 10 – 25	■ ■ ■ ■ ■ >25

PSbSw03 Pine – Black spruce – White spruce / Lowbush cranberry / Lichen

PSbSw03 is a woodland or forest with a combination of pine, black spruce and white spruce and with high lichen ground cover that occurs in the BOL and occasionally in the BOH.

Vegetation: Stands of PSbSw03 have a tree canopy of pine (*Pinus contorta*), black spruce (*Picea mariana*) and white spruce (*P. glauca*), sometimes with aspen (*Populus tremuloides*). The shrub layer is lightly developed, with tree regeneration and some common Labrador tea (*Rhododendron groenlandicum*). Ground shrubs dominate the understorey, with a combination of lowbush cranberry (*Vaccinium vitis-idaea*) and twinflower (*Linnaea borealis*), often with kinnikinnick (*Arctostaphylos uva-ursi*) and crowberry (*Empetrum nigrum*). Bastard toadflax (*Geocaulon lividum*) and bunchberry (*Cornus canadensis*) are common forbs. Moss cover, mostly feathermosses (*Hylocomium splendens*, *Pleurozium schreberi*), is low to moderate. Lichens, mostly reindeer lichens (*Cladina* spp.), strongly dominate the forest floor.



Environment: This association occurs at low to moderate elevations on level to gently sloping sites, but can be steeper. Soils are rapidly to well drained, developing mostly on glaciofluvial parent materials, but also on eolian or shallow soils over rock. Soils are classified as Dystric or Eutric Brunisols. The forest floor usually has a low to moderate cover of woody debris.

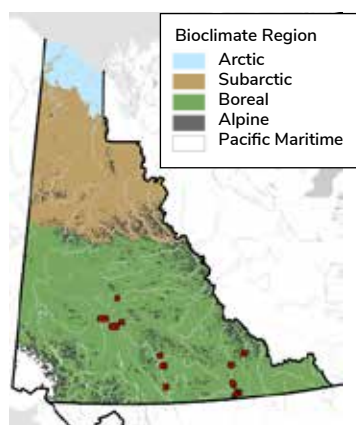
Dynamics: Stands vary in density (open to closed) and have a combination of pine, black spruce and white spruce. Stands on similar sites could be strongly dominated by pine (P01), white spruce (Sw01) or various mixed-wood species (PSw01, PSbSw03, AP04). Dominance after disturbance depends on local seed sources.

Comments

- Key characteristics: pine, black spruce and white spruce stand; dry to mesic upland site; lichens $\geq 33\%$ cover or $\geq 20\%$ and greater than moss cover
- Component of CNVC00356 Black Spruce – Lodgepole Pine / Lowbush Cranberry – Kinnikinnick / Reindeer Lichen

PSbSw03 Environment table

Zone	BOL (BOH)
Elevation (m)	585 – 730 – 1100
Aspect	neutral, neutral, warm
Slope (%)	0 – 8 – 90
Soil moisture regime	xeric to submesic
Soil drainage	rapid to well
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	0.5 – 3 – 5
Soil class	Brunisols (Dystric, Eutric)

**PSbSw03 Vegetation summary (%)**

Trees	15 – 51 – 92	Shrubs	1 – 11 – 54	Ground shrubs	0 – 21 – 85
Graminoids and Forbs	0.1 – 5 – 19	Bryophytes	0.2 – 9 – 25	Lichens	25 – 55 – 90

Layer	Scientific name	PSbSw03	Common name
		n = 21	
Trees	<i>Picea glauca</i>	■■■■■	white spruce
	<i>Picea mariana</i>	■■■	black spruce
	<i>Pinus contorta</i>	■■■■■	lodgepole pine
Shrubs	<i>Rhododendron groenlandicum</i>	■■■	common Labrador tea
	<i>Rosa acicularis</i>	■	prickly rose
	<i>Salix</i> spp.	■	willows
Ground shrubs	<i>Linnaea borealis</i>	■■	twinline
	<i>Vaccinium vitis-idaea</i>	■■■■■	lowbush cranberry
Graminoids	Poaceae	■■	grass family
Forbs	<i>Cornus canadensis</i>	■	bunchberry
	<i>Geocaulon lividum</i>	■■	bastard toadflax
Bryophytes	<i>Dicranum</i> spp.	■■	heron's-bill mosses
	<i>Hylocomium / Pleurozium</i>	■■■	feathermosses
Lichens	<i>Cetraria / Flavocetraria</i> spp.	■	Iceland / snow lichens
	<i>Cladonia</i> spp.	■■■■■	reindeer lichens
	<i>Cladonia</i> spp.	■■■	clad lichens
	<i>Peltigera</i> spp.	■■■	pelt lichens
	<i>Stereocaulon</i> spp.	■	foam lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

PSbSw22 Pine – Black spruce – White spruce / Lowbush cranberry

PSbSw22 is a forest with a combination of pine, black spruce and white spruce and with a lightly developed understorey, where some sites have a high cover of ground shrubs, but where reindeer lichen and feathermoss cover is generally low. It occurs primarily in the BOL and sometimes in the BOH.

Vegetation: Stands of PSbSw22 have a tree canopy of pine (*Pinus contorta*), black spruce (*Picea mariana*) and white spruce (*P. glauca*), sometimes with some aspen (*Populus tremuloides*). Tree regeneration is mostly spruce. Other than regeneration, the shrub layer is lightly developed. The ground shrub layer is mostly lightly developed, but some sites can have moderate to high cover of lowbush cranberry (*Vaccinium vitis-idaea*). Purple reedgrass (*Calamagrostis purpurascens*) is often present. Feathermosses (*Hylocomium splendens*, *Pleurozium schreberi*) are of low to moderate cover. Pelt lichens (*Peltigera* spp.) are of low to moderate cover as well.

No photo
available

Environment: This association occurs at low to moderate elevations on level or gently sloping sites. Soils are well drained. Data on parent materials is limited, but plots occur on glaciofluvial, morainal and fluvial parent materials. Soils are classified as Eutric Brunisols.

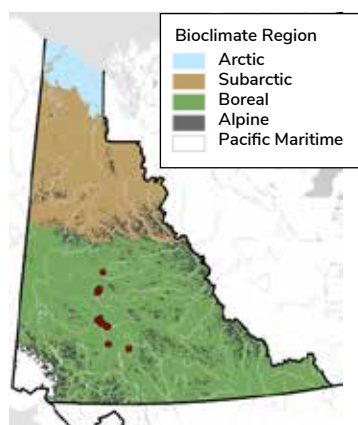
Dynamics: Stands are generally closed, with a combination of pine, black spruce and white spruce. Stands with similar vegetation could be strongly dominated by pine (P21) or mixed-wood with white spruce (PSw23). Dominance after disturbance depends on local seed sources.

Comments

- Key characteristics: pine, black spruce and white spruce stand; mesic upland sites; feathermosses <25%; lichens, except pelt lichens, <10%
- Component of CNVC00120 Lodgepole Pine – Black Spruce / Lowbush Cranberry / Red-stemmed Feathermoss

PSbSw22 Environment table

Zone	BOL (BOH)
Elevation (m)	515 – 670 – 825
Aspect	neutral, variable
Slope (%)	0 – 6 – 15
Soil moisture regime	submesic
Soil drainage	well
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	no data
Soil class	Brunisols (Eutric)

**PSbSw22 Vegetation summary (%)**

Trees	30 – 55 – 75	Shrubs	0 – 9 – 35	Ground shrubs	0.1 – 9 – 35
Graminoids and Forbs	0 – 5 – 20	Bryophytes	0.1 – 8 – 25	Lichens	0.2 – 12 – 30

Layer	Scientific name	PSbSw22	Common name
		n = 20	
Trees	<i>Picea glauca</i>	■■■■■	white spruce
	<i>Picea mariana</i>	■■■	black spruce
	<i>Pinus contorta</i>	■■■■■	lodgepole pine
	<i>Populus tremuloides</i>	■	trembling aspen
Shrubs	<i>Picea glauca</i>	■ ■	white spruce
	<i>Picea mariana</i>	■ ■ ■	black spruce
	<i>Salix</i> spp.	■	willows
Ground shrubs	<i>Linnaea borealis</i>	■ ■	twinline
	<i>Vaccinium vitis-idaea</i>	■■■	lowbush cranberry
Graminoids	<i>Calamagrostis purpurascens</i>	■ ■	purple reedgrass
Bryophytes	<i>Hylocomium splendens</i>	■■■	step moss
Lichens	<i>Cetraria / Flavocetraria</i> spp.	■	Iceland / snow lichens
	<i>Cladonia</i> spp.	■	reindeer lichens
	<i>Cladonia</i> spp.	■ ■	clad lichens
	<i>Peltigera</i> spp.	■■■	pelt lichens
	<i>Stereocaulon</i> spp.	■	foam lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ ■ 1 – 3	■ ■ ■ 3 – 10	■ ■ ■ ■ 10 – 25	■ ■ ■ ■ ■ >25

PSbSw23 Pine – Black spruce – White spruce / Lowbush cranberry / Feathermoss

PSbSw23 is a forest with a combination of pine, black spruce and white spruce, and with a lightly developed understorey other than a carpet of feathermosses, that occurs in the BOL and BOH.

Vegetation: Stands of PSbSw23 have a tree canopy of pine (*Pinus contorta*), black spruce (*Picea mariana*) and white spruce (*P. glauca*), sometimes with aspen (*Populus tremuloides*). Tree regeneration is mostly black spruce. Other than regeneration, the shrub layer is lightly developed. The ground shrub layer is mostly lightly developed, but some sites can have moderate to high cover of lowbush cranberry (*Vaccinium vitis-idaea*) and twinflower (*Linnaea borealis*). Feathermosses (*Hylocomium splendens*, *Pleurozium schreberi*, *Ptilium crista-castrensis*) dominate the forest floor. Lichens are mostly of low cover.

Environment: This association occurs at low to moderate elevations on level or gentle to moderately sloping sites. Soils are well drained to moderately well drained, on a variety of parent materials. Soils are classified as mostly Eutric Brunisols, but can be Dystric Brunisols. The forest floor usually has a light to moderate cover of woody debris.



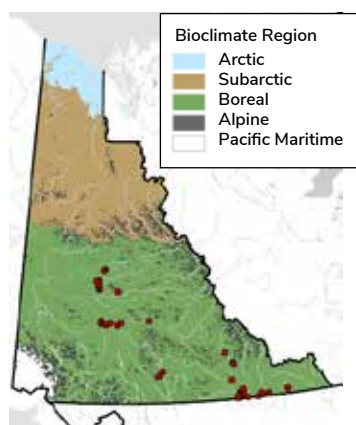
Dynamics: Stands are generally closed, with a combination of pine, black spruce and white spruce. Stands on sites with similar vegetation could be strongly dominated by pine (P28), black spruce (Sb22), white spruce (Sw27) or mixed-wood species (PSw24, SbSw22, SwB28, SbW22, AP27). Dominance after disturbance depends on local seed sources.

Comments

- Key characteristics: pine, black spruce and white spruce stand; mesic upland site; feathermosses >25%; low cover of lichens, common Labrador tea and green alder
- Component of CNVC00120 Lodgepole Pine – Black Spruce / Lowbush Cranberry / Red-stemmed Feathermoss

PSbSw23 Environment table

Zone	BOL, BOH
Elevation (m)	535 – 750 – 1035
Aspect	neutral, variable
Slope (%)	0 – 9 – 50
Soil moisture regime	submesic to mesic
Soil drainage	well to moderately well
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	1 – 4 – 10
Soil class	Brunisols (Dystric, Eutric)

**PSbSw23 Vegetation summary (%)**

Trees	15 – 53 – 99	Shrubs	0 – 12 – 40	Ground shrubs	0 – 13 – 50
Graminoids and Forbs	0 – 7 – 40	Bryophytes	26 – 66 – 99	Lichens	0.4 – 12 – 35

Layer	Scientific name	PSbSw23	Common name
		n = 47	
Trees	<i>Picea glauca</i>	■ ■ ■	white spruce
	<i>Picea mariana</i>	■ ■ ■ ■	black spruce
	<i>Pinus contorta</i>	■ ■ ■ ■ ■	lodgepole pine
Shrubs	<i>Picea mariana</i>	■ ■ ■	black spruce
	<i>Rhododendron groenlandicum</i>	■ ■	common Labrador tea
	<i>Salix</i> spp.	■ ■	willows
Ground shrubs	<i>Linnaea borealis</i>	■ ■	twinline
	<i>Vaccinium vitis-idaea</i>	■ ■ ■	lowbush cranberry
Bryophytes	<i>Hylocomium splendens</i>	■ ■ ■ ■ ■	step moss
	<i>Pleurozium schreberi</i>	■ ■ ■ ■	red-stemmed feathermoss
Lichens	<i>Cladonia</i> spp.	■	clad lichens
	<i>Cladina</i> spp.	■ ■ ■	reindeer lichens
	<i>Peltigera</i> spp.	■ ■ ■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ ■ 1 – 3	■ ■ ■ 3 – 10	■ ■ ■ ■ 10 – 25	■ ■ ■ ■ ■ >25

PSbSw31 Pine – Black spruce – White spruce / Blueberry willow / Feathermoss

PSbSw31 is a forest with a combination of pine, black spruce and white spruce, sometimes of low stature, and a moderately well developed understorey with blueberry willow, bunchberry and a carpet of feathermosses, that occurs in the BOL.

Vegetation: Stands of PSbSw31 have a tree canopy of pine (*Pinus contorta*), black spruce (*Picea mariana*) and white spruce (*P. glauca*), the latter two sometimes only of shrub height. Common shrubs are willows (*Salix* spp.) including blueberry willow (*Salix myrtillofolia*), prickly rose (*Rosa acicularis*) and common Labrador tea (*Rhododendron groenlandicum*). Ground shrubs are of low to moderate cover. Bunchberry (*Cornus canadensis*) occurs with low to moderately high cover. Feathermosses (*Hylocomium splendens*, *Pleurozium schreberi*, *Ptilium crista-castrensis*) strongly dominate the forest floor. Lichens are mostly of low cover.

No photo
available

Environment: This association occurs at low elevations on gently sloping sites. Soils are moderately well drained to imperfectly drained, occurring mostly on morainal parent materials (sometimes glaciofluvial). Soils are likely Brunisols (no data).

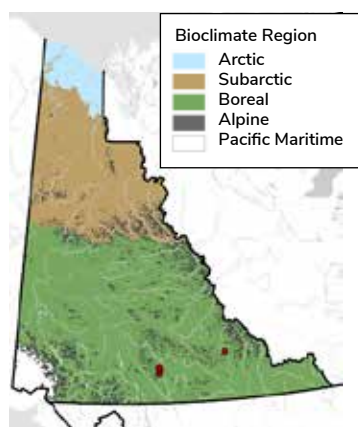
Dynamics: Stands are generally closed, can be stunted, and have a combination of pine, black spruce and white spruce. Stands on similar sites could be strongly dominated by pine (P28), black spruce (Sb32), white spruce (Sw31) or mixed-wood (SbSw31). Dominance after disturbance depends on local seed sources.

Comments

- Key characteristics: pine and black spruce and white spruce stand; mesic to moist upland sites; feathermosses >35%; bunchberry ≥2%; blueberry willow and/or red bearberry
- CNVC association not yet determined

PSbSw31 Environment table

Zone	BOL
Elevation (m)	750 – 780 – 835
Aspect	variable
Slope (%)	8 – 9 – 10
Soil moisture regime	mesic to subhygric
Soil drainage	moderately well to imperfect
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	no data
Soil class	likely Brunisols (no data)

**PSbSw31 Vegetation summary (%)**

Trees	0 – 37 – 50	Shrubs	10 – 28 – 45	Ground shrubs	5 – 6 – 8
Graminoids and Forbs	8 – 19 – 35	Bryophytes	20 – 75 – 80	Lichens	1 – 5 – 10

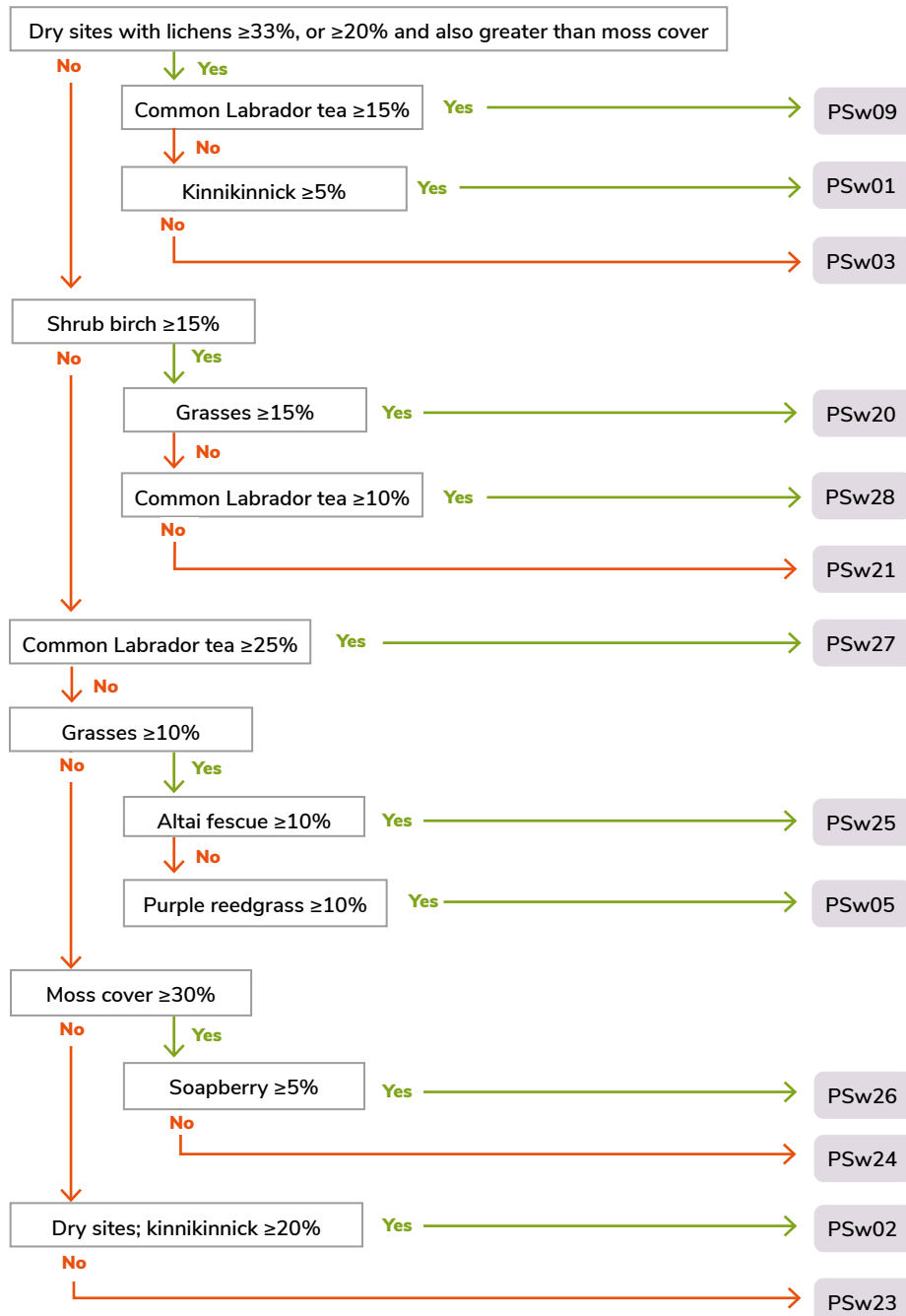
Layer	Scientific name	PSbSw31	Common name
		n = 4	
Trees	<i>Picea glauca</i>	■ ■ ■ ■	white spruce
	<i>Picea mariana</i>	■ ■ ■ ■	black spruce
	<i>Pinus contorta</i>	■ ■	lodgepole pine
Shrubs	<i>Picea glauca</i>	■ ■	white spruce
	<i>Picea mariana</i>	■ ■	black spruce
	<i>Rhododendron groenlandicum</i>	■ ■ ■	common Labrador tea
	<i>Rosa acicularis</i>	■ ■	prickly rose
	<i>Salix myrtillofolia</i>	■	blueberry willow
	<i>Salix</i> spp.	■ ■ ■	willows
	<i>Shepherdia canadensis</i>	■ ■ ■	soapberry
	<i>Vaccinium uliginosum</i>	■	blueberry
Ground shrubs	<i>Arctous rubra</i>	■	red bearberry
	<i>Empetrum nigrum</i>	■ ■	crowberry
	<i>Linnaea borealis</i>	■ ■	twinflower
	<i>Vaccinium vitis-idaea</i>	■ ■	lowbush cranberry
Forbs	<i>Cornus canadensis</i>	■ ■ ■ ■	bunchberry
	<i>Geocaulon lividum</i>	■ ■	bastard toadflax
	<i>Lupinus arcticus</i>	■	arctic lupine
	<i>Mertensia paniculata</i>	■	tall bluebells
Bryophytes	<i>Aulacomnium palustre</i>	■	glow moss
	<i>Hylocomium splendens</i>	■ ■ ■ ■ ■	step moss
	<i>Pleurozium schreberi</i>	■ ■ ■ ■	red-stemmed feathermoss
	<i>Ptilium crista-castrensis</i>	■ ■ ■	knight's plume
Lichens	<i>Cladina</i> spp.	■ ■	reindeer lichens
	<i>Peltigera</i> spp.	■ ■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ ■ 1 – 3	■ ■ ■ 3 – 10	■ ■ ■ ■ 10 – 25	■ ■ ■ ■ ■ >25

Pine – white spruce associations

Pine (P) and white spruce (Sw) co-dominate, with neither >85% of canopy composition.

Flowchart Pine – white spruce associations



Summary of features: pine – white spruce associations

Dry sites

	PSw01	PSw02	PSw03	PSw05	PSw09
Zone	BOL (BOH)	BOL (BOH, BOS)	BOL	BOL	BOL (BOH)
Geography	south	southwest	south	south-central	south-central and southeast
Important site features	xeric to mesic sites, often glaciofluvial flats or gentle warm aspects	subxeric to mesic, various parent materials	subxeric to submesic, often glaciofluvial flats or warm-aspect slopes	subxeric to submesic, often glaciofluvial	subxeric to mesic sites, often morainal; level or cool aspect
Drainage	rapid to well to moderately well	rapid to well	rapid to well	rapid to well	rapid to well
Tree canopy	pine – white spruce	pine – white spruce	pine – white spruce	pine – white spruce	pine – white spruce
Key understorey species	kinnikinnick, reindeer lichens	kinnikinnick	reindeer lichens	purple reedgrass	common Labrador tea, reindeer lichens

Mesic to moist sites

	PSw20	PSw21	PSw23	PSw24	PSw25	PSw26	PSw27	PSw28
Zone	BOL, BOH	BOH (BOL)	BOL (BOH)	BOL (BOH)	BOL (BOH)	BOL	BOL (BOH)	BOL, BOH
Geography	south-central	south	south (central)	south-central and southeast	south-central	south-central	southeast	south-central
Important site features	mesic, morainal materials; warm aspects	submesic to subhygric; morainal or fluvial	mesic; various materials	mesic; various materials	submesic to subhygric; lacustrine, glaciofluvial or fluvial	submesic to mesic; various materials	submesic to mesic; glaciofluvial, morainal	mesic to subhygric; various materials
Drainage	well to moderately well	well to imperfect	well to moderately well	well	well to moderately well (imperfect)	well to moderately well	well	well to moderately well
Tree canopy	pine – white spruce	pine – white spruce	pine – white spruce	pine – white spruce	pine – white spruce	pine – white spruce	pine – white spruce	pine – white spruce
Key understorey species	shrub birch, grasses	shrub birch, feathermoss	sparse, mostly ground shrubs	ground shrubs, feathermoss	Altai fescue	soapberry, feathermoss	common Labrador tea, feathermoss	shrub birch, common Labrador tea, step moss

Vegetation tables for pine – white spruce associations

Dry sites

Layer	Scientific name	PSw01	PSw02	PSw03	PSw05	PSw09	Common name
	n =	23	12	11	11	4	
Trees	<i>Picea glauca</i>	■■■■	■■■■	■■■■	■■■■	■■■■	white spruce
	<i>Pinus contorta</i>	■■■■	■■■■	■■■■	■■■■	■■■■	lodgepole pine
	<i>Populus tremuloides</i>				■ ■	□	trembling aspen
Shrubs	<i>Picea glauca</i>	■ ■	■ ■	■ ■	■ ■	□	white spruce
	<i>Pinus contorta</i>	□ □	■	□		□	lodgepole pine
	<i>Betula glandulosa</i>					■ ■	shrub birch
	<i>Rhododendron groenlandicum</i>	□		□		■■■■■	common Labrador tea
	<i>Rosa acicularis</i>	■ ■	■ ■	■	□	■	prickly rose
	<i>Salix</i> spp.	■ ■	■■■	□	■	■■■	willows
	<i>Shepherdia canadensis</i>	■ ■	■■■	□	■ ■		soapberry
Ground shrubs	<i>Arctostaphylos uva-ursi</i>	■■■■	■■■■■		□ □	□ □	kinnikinnick
	<i>Empetrum nigrum</i>	■ ■	■ ■	□ □		■■■	crowberry
	<i>Linnaea borealis</i>	■ ■	■■■	□	■	□ □	twinflower
	<i>Vaccinium vitis-idaea</i>	■■■	■ ■ ■	■ ■ ■		■■■■	lowbush cranberry
Graminoids	<i>Calamagrostis purpurascens</i>	nn	□ □	■ ■	■■■■		purple reedgrass
	Poaceae	□	■ ■			■ ■	grass family
Forbs	<i>Anticlea elegans</i>	□	■		□		mountain death-camas
	<i>Chamaenerion angustifolium</i>	■	■■	□	□		fireweed
	<i>Geocaulon lividum</i>	■■	■■■	■ ■	□	□ □ □	bastard toadflax
	<i>Lupinus arcticus</i>	□ □	■■	□		■	arctic lupine
Bryophytes	<i>Hylocomium / Pleurozium</i>	■ ■	□ □ □	■ ■	■■■	■ ■ ■ ■	feathermosses
Lichens	<i>Cetraria / Flavocetraria</i> spp.	■■■	■	■■■	■	■	Iceland / snow lichens
	<i>Cladina</i> spp.	■■■■■	■■■	■■■■■	□	■■■■■	reindeer lichens
	<i>Cladonia</i> spp.	■■■■	■ ■	■■	■■	■■■■	clad lichens
	<i>Peltigera</i> spp.	■■■	■■	■■■	■■■	■■■	pelt lichens
	<i>Stereocaulon</i> spp.	■■	□ □	□	■	■ ■ ■	foam lichens

Note: **gold cells** highlight key diagnostic species

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

Mesic to moist sites

Layer	Scientific name	PSw20	PSw21	PSw23	PSw24	PSw25	PSw26	PSw27	PSw28	Common name
	n =	2	4	23	17	16	8	4	6	
Trees	<i>Abies lasiocarpa</i>	■	■						□	fir
	<i>Picea glauca</i>	■■■■■	■■■■■	■■■■■	■■■■■	■■■■■	■■■■■	■■■■■	■■■	white spruce
	<i>Pinus contorta</i>	■■■■■	■■■■■	■■■■■	■■■■■	■■■■■	■■■■■	■■■■■	■■■■■	lodgepole pine
	<i>Populus tremuloides</i>		□			□		■		trembling aspen
Shrubs	<i>Picea glauca</i>		□	■	■	□	■			white spruce
	<i>Alnus alnobetula</i>							■■■■■		green alder
	<i>Betula glandulosa</i>	■■■■■	■■■■■					■	■■■■■	shrub birch
	<i>Rhododendron groenlandicum</i>	■	■	□	□□		■	■■■■■	■■■■■	common Labrador tea
	<i>Rosa acicularis</i>	■		■	■	■	■	■		prickly rose
	<i>Salix</i> spp.	■■■■■	■■■■■	■■■	■■■	■■■■■	■■■	■■■	■■■■■	willows
	<i>Shepherdia canadensis</i>	■	□	■■	■■	□□	■■■■■			soapberry
	<i>Vaccinium uliginosum</i>	■	■					■■■■■	■■■	blueberry
Ground shrubs	<i>Arctous rubra</i>	■	□				□	■		red bearberry
	<i>Arctostaphylos uva-ursi</i>	■	■	■■■	■■■	■■■■■	■■■	■■■		kinnikinnick
	<i>Empetrum nigrum</i>	■■	■■■	■■■	■■■	□□	■	■	■■■■■	crowberry
	<i>Linnaea borealis</i>	■■	□	■■■	■■	■■■	■■■	□	□	twinflower
	<i>Vaccinium vitis-idaea</i>		■■	■■■	■■■■■	■■■	■■■	■■■■■	■■■	lowbush cranberry
Graminoids	Poaceae	■■■■■	■■	■	■	■■■■■	■	■■■	■■	grass family
Forbs	<i>Anticlea elegans</i>			■	□		□			mountain death-camas
	<i>Chamaenerion angustifolium</i>	■		■	■■	■	□	■■■		fireweed
	<i>Cornus canadensis</i>	■	■■	□□	■■■	□	□	■■■	■■	bunchberry
	<i>Diphasiastrum complanatum</i>		□					■		ground-cedar
	<i>Geocaulon lividum</i>			■	■	□	■	■		bastard toadflax
	<i>Lupinus arcticus</i>	■■	□	■■	■■	□	■	□	■	arctic lupine
	<i>Spinulum annotinum</i>		■					■	■■	stiff club-moss
	<i>Orthilia secunda</i>		□	□	■		■	□		one-sided wintergreen
	<i>Pedicularis</i> spp.	■	■							louseworts
Bryophytes	<i>Dicranum</i> spp.	■	■■■	□□	□			■	■	heron's-bill mosses
	<i>Hylocomium</i> / <i>Pleurozium</i>	■■■■■	■■■■■	■■■	■■■■■	■■■	■■■■■	■■■■■	■■■■■	feathermosses
Lichens	<i>Cetraria</i> spp.	■	□	□	□	□	■		□	Iceland lichens
	<i>Cladina</i> spp.	■■■■■	■■■	■■■	■■■	■■■	■■■	■■■	■■■	reindeer lichens
	<i>Cladonia</i> spp.	■■■	■■	■■■	■■	■	■■■	■	■■■	clad lichens
	<i>Peltigera</i> spp.	■■■	■	■■■	■■■	■■	■■■	■■	■■	pelt lichens
	<i>Stereocaulon</i> spp.	■	■	■		□	□	□	□	foam lichens

Note: gold cells highlight key diagnostic species

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

Fact sheets: Pine – white spruce associations

PSw01 Pine – White spruce / Kinnikinnick / Lichen

PSw01 is a woodland or forest with a combination of pine and white spruce and with kinnikinnick and high lichen ground cover that occurs primarily in the BOL and occasionally at low elevations of the BOH.

Vegetation: Stands of PSw01 have a tree canopy of pine (*Pinus contorta*) and white spruce (*Picea glauca*), sometimes with a minor component of aspen (*Populus tremuloides*). The shrub layer is poorly developed; even tree regeneration is light. Common shrubs are prickly rose (*Rosa acicularis*) and soapberry (*Shepherdia canadensis*), both of low to moderate cover. Kinnikinnick (*Arctostaphylos uva-ursi*), lowbush cranberry (*Vaccinium vitis-idaea*) and twinflower (*Linnaea borealis*) characterize the ground shrub layer; forbs often include some bastard toadflax (*Geocaulon lividum*). Lichens strongly dominate the bryophyte layer, mostly reindeer lichens (*Cladina* spp.) and clad lichens (*Cladonia* spp.), but also including snow lichens (*Flavocetraria* spp.).



Environment: This association occurs at low to moderate elevations, mostly on level sites but also on warm gentle slopes. Soils are moderately to rapidly well drained and of varying texture. Parent materials are usually glaciofluvial, but sometimes eolian or lacustrine. Soils are classified as Eutric or Dystric Brunisols. The forest floor usually has a low to moderate cover of woody debris.

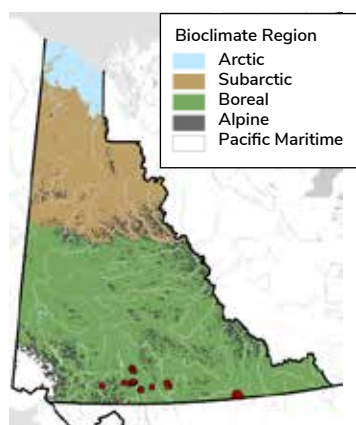
Dynamics: Stands vary in density (open to closed) and have a combination of pine and white spruce; both can occur in the forest regeneration. Stands on similar sites can be strongly dominated by pine (P01) or white spruce (Sw01) or a combination of aspen and pine (AP04) or aspen and white spruce (ASw05). Dominance after disturbance depends on local seed sources.

Comments

- Key characteristics: pine and white spruce stand; dry to mesic upland; kinnikinnick ≥5%; lichens ≥33% cover
- Component of CNVC00365 Lodgepole Pine – White Spruce / Kinnikinnick / Reindeer Lichen

PSw01 Environment table

Zone	BOL (BOH)
Elevation (m)	660 – 765 – 1000
Aspect	neutral (warm)
Slope (%)	0 – 4 – 20
Soil moisture regime	subxeric to mesic (xeric)
Soil drainage	rapid to well to moderately well
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	0.5 – 5 – 15
Soil class	Brunisols (Dystric, Eutric)

**PSw01 Vegetation summary (%)**

Trees	10 – 32 – 70	Shrubs	0.3 – 9 – 25	Ground shrubs	6 – 29 – 50
Graminoids and Forbs	1 – 11 – 25	Bryophytes	0 – 5 – 20	Lichens	33 – 50 – 80

Layer	Scientific name	PSw01	Common name
		n = 23	
Trees	<i>Picea glauca</i>	■■■■■	white spruce
	<i>Pinus contorta</i>	■■■■■	lodgepole pine
Shrubs	<i>Picea glauca</i>	■ ■	white spruce
	<i>Rosa acicularis</i>	■ ■	prickly rose
	<i>Salix</i> spp.	■ ■	willows
	<i>Shepherdia canadensis</i>	■ ■	soapberry
Ground shrubs	<i>Arctostaphylos uva-ursi</i>	■■■■■	kinnikinnick
	<i>Empetrum nigrum</i>	■ ■	crowberry
	<i>Linnaea borealis</i>	■ ■	twinflower
	<i>Vaccinium vitis-idaea</i>	■■■	lowbush cranberry
Graminoids	<i>Calamagrostis purpurascens</i>	■■	purple reedgrass
Forbs	<i>Chamaenerion angustifolium</i>	■	fireweed
	<i>Geocaulon lividum</i>	■■	bastard toadflax
Bryophytes	<i>Hylocomium / Pleurozium</i>	■ ■	feathermosses
Lichens	<i>Flavocetraria</i> spp.	■■■	snow lichens
	<i>Cladina</i> spp.	■■■■■	reindeer lichens
	<i>Cladonia</i> spp.	■■■■■	clad lichens
	<i>Peltigera</i> spp.	■■■	pelt lichens
	<i>Stereocaulon</i> spp.	■■	foam lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

PSw02 Pine – White spruce / Kinnikinnick

PSw02 is a woodland or forest with a combination of pine and white spruce and with high cover of kinnikinnick that occurs primarily in the BOL and occasionally in the BOH and BOS.

Vegetation: Stands of PSw02 have a tree canopy of pine (*Pinus contorta*) and white spruce (*Picea glauca*). The shrub layer is moderately developed with tree regeneration, willows (*Salix* spp.), soapberry (*Shepherdia canadensis*) and prickly rose (*Rosa acicularis*). Kinnikinnick (*Arctostaphylos uva-ursi*) dominates the ground shrub layer, along with twinflower (*Linnaea borealis*); forbs include some fireweed (*Chamaenerion angustifolium*) and bastard toadflax (*Geocaulon lividum*). Although both moss and lichen cover are relatively low, lichens usually dominate over mosses. Reindeer lichens (*Cladina* spp.) and pelt lichens (*Peltigera* spp.) are most common.



Environment: This association occurs mostly at low elevations on level or gently sloping sites. Soils are rapidly to well drained. Parent materials can be eolian, lacustrine, morainal or glacio-fluvial. Soils are Eutric Brunisols. The forest floor usually has a moderate to moderately high cover of woody debris.

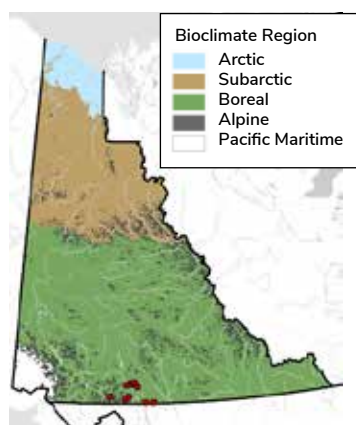
Dynamics: Stands vary in density (open to closed) and have a combination of pine and white spruce; both can occur in the forest regeneration. Stands on similar sites can be strongly dominated by pine (P02), white spruce (Sw02) or possibly aspen (A03) or mixed-wood species (APSw03). Dominance after disturbance depends on local seed sources.

Comments

- Key characteristics: pine and white spruce stand; dry to mesic upland; kinnikinnick $\geq 20\%$; lichens usually $< 20\%$ cover, but up to 25%
- Component of CNVC00365 Lodgepole Pine – White Spruce / Kinnikinnick / Reindeer Lichen

PSw02 Environment table

Zone	BOL (BOH, BOS)
Elevation (m)	660 – 830 – 1560
Aspect	neutral or variable
Slope (%)	0 – 5 – 13
Soil moisture regime	subxeric to mesic
Soil drainage	rapid to well
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	3 – 8 – 15
Soil class	Brunisols (Eutric)

**PSw02 Vegetation summary (%)**

Trees	12 – 33 – 65	Shrubs	5 – 14 – 30	Ground shrubs	20 – 40 – 60
Graminoids and Forbs	1 – 10 – 20	Bryophytes	0 – 8 – 20	Lichens	0.5 – 13 – 25

Layer	Scientific name	PSw02	Common name
		n = 12	
Trees	<i>Picea glauca</i>	■■■■■	white spruce
	<i>Pinus contorta</i>	■■■■■	lodgepole pine
Shrubs	<i>Picea glauca</i>	■ ■	white spruce
	<i>Pinus contorta</i>	■	lodgepole pine
	<i>Rosa acicularis</i>	■ ■	prickly rose
	<i>Salix</i> spp.	■■■	willows
	<i>Shepherdia canadensis</i>	■■■	soapberry
Ground shrubs	<i>Arctostaphylos uva-ursi</i>	■■■■■	kinnikinnick
	<i>Empetrum nigrum</i>	■ ■	crowberry
	<i>Linnaea borealis</i>	■■■	twinflower
	<i>Vaccinium vitis-idaea</i>	■ ■ ■	lowbush cranberry
Forbs	<i>Anticlea elegans</i>	■	mountain death-camas
	<i>Chamaenerion angustifolium</i>	■■	fireweed
	<i>Geocaulon lividum</i>	■■■	bastard toadflax
	<i>Lupinus arcticus</i>	■■	arctic lupine
Bryophytes	Bryophyta	■ ■	mosses
Lichens	<i>Cladina</i> spp.	■■■	reindeer lichens
	<i>Cladonia</i> spp.	■ ■	clad lichens
	<i>Peltigera</i> spp.	■■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

PSw03 Pine – White spruce / Lowbush cranberry / Lichen

PSw03 is a forest with a combination of pine and white spruce and with a high lichen ground cover that occurs in the BOL.

No photo
available

Vegetation: Stands of PSw03 have a tree canopy of pine (*Pinus contorta*) and white spruce (*Picea glauca*), sometimes with a minor component of aspen (*Populus tremuloides*) or black spruce (*P. mariana*). The shrub layer is poorly to moderately developed, with tree regeneration and low cover of prickly rose (*Rosa acicularis*). The ground shrub layer is poorly to moderately developed, with lowbush cranberry (*Vaccinium vitis-idaea*) of the highest cover. Common graminoids are purple reedgrass (*Calamagrostis purpurascens*) and common forbs are bastard toadflax (*Geocaulon lividum*). Lichens strongly dominate the bryophyte layer, mostly reindeer lichens (*Cladonia* spp.) and snow lichens (*Flavocetraria* spp.), along with considerable diversity of clad lichens (*Cladonia* spp.).

Environment: This association occurs at low to moderate elevations on level sites and gentle to moderate warm-aspect slopes. Soils are rapidly to well drained and usually on glaciofluvial parent materials (although data not always available). Soils are classified as Eutric or Dystric Brunisols. The forest floor usually has a low cover of woody debris.

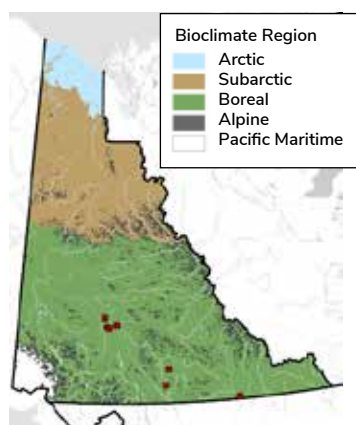
Dynamics: Stands are mostly moderately closed, with a combination of pine and white spruce; both can occur in the forest regeneration. Stands on similar sites can be strongly dominated by pine or white spruce or mixed-wood with aspen (see PSw01 for list of other possible related associations). Dominance after disturbance depends on local seed sources.

Comments

- Key characteristics: pine and white spruce stand; dry to mesic upland; kinnikinnick <5%; lichens ≥20% cover (usually much higher) and much greater than the moss cover
- Component of CNVC00365 Lodgepole Pine – White Spruce / Kinnikinnick / Reindeer Lichen

PSw03 Environment table

Zone	BOL
Elevation (m)	565 – 660 – 915
Aspect	neutral, warm
Slope (%)	0 – 11 – 35
Soil moisture regime	subxeric to submesic
Soil drainage	rapid to well
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	2 – 3 – 5
Soil class	Brunisols (Dystric, Eutric)

**PSw03 Vegetation summary (%)**

Trees	20 – 46 – 65	Shrubs	0.2 – 6 – 15	Ground shrubs	1 – 10 – 25
Graminoids and Forbs	0.1 – 6 – 15	Bryophytes	0.1 – 4 – 15	Lichens	20 – 55 – 95

Layer	Scientific name	PSw03	Common name
		n = 11	
Trees	<i>Picea glauca</i>	■■■■■	white spruce
	<i>Pinus contorta</i>	■■■■■	lodgepole pine
Shrubs	<i>Picea glauca</i>	■ ■	white spruce
	<i>Rosa acicularis</i>	■	prickly rose
Ground shrubs	<i>Vaccinium vitis-idaea</i>	■ ■ ■	lowbush cranberry
Graminoids	<i>Calamagrostis purpurascens</i>	■■■	purple reedgrass
Forbs	<i>Geocaulon lividum</i>	■ ■	bastard toadflax
Bryophytes	<i>Hylocomium / Pleurozium</i>	■ ■	feathermosses
Lichens	<i>Cetraria / Flavocetraria</i> spp.	■■■	Iceland / snow lichens
	<i>Cladina</i> spp.	■■■■■	reindeer lichens
	<i>Cladonia</i> spp.	■ ■	clad lichens
	<i>Peltigera</i> spp.	■■■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ ■ 1 – 3	■ ■ ■ 3 – 10	■ ■ ■ ■ 10 – 25	■ ■ ■ ■ ■ >25

PSw05 Pine – White spruce / Purple reedgrass

PSw05 is a forest with a combination of pine and white spruce and with purple reedgrass characterizing the understorey that occurs in the BOL.

No photo
available

Vegetation: Stands of PSw05 have a tree canopy of pine (*Pinus contorta*) and white spruce (*Picea glauca*), often with a minor component of aspen (*Populus tremuloides*). Tree regeneration is mostly white spruce, but can include aspen. Other than the regeneration, the shrub layer is poorly developed, with occasional soapberry (*Shepherdia canadensis*) or prickly rose (*Rosa acicularis*). Purple reedgrass (*Calamagrostis purpurascens*), of moderately high to high cover, dominates the graminoid layer. Moss and lichen cover is generally limited. Sometimes a moderately high cover of step moss (*Hylocomium splendens*) or freckle pelt lichen (*Peltigera aphthosa*) can occur.

Environment: This association occurs at low elevations on level sites and gentle to moderate slopes of varying aspect. Soils are mostly rapidly drained to well drained and on glaciofluvial parent materials (although data are limited). Soils are classified as Eutric or Melanic Brunisols. The forest floor usually has a low cover of woody debris.

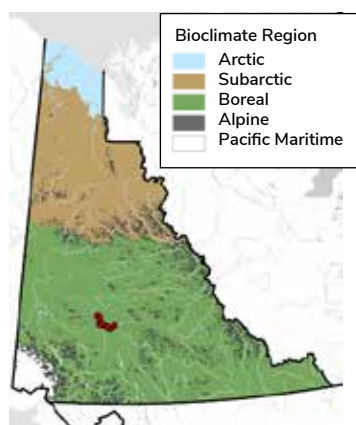
Dynamics: Stands are closed and a combination of pine and white spruce, with the regeneration mostly white spruce. Stands on similar sites can be strongly dominated by pine (P25), white spruce or aspen (A04) or a combination (ASw07, APSw06). Dominance after disturbance depends on local seed sources.

Comments

- Key characteristics: pine and white spruce stand; dry to mesic upland; purple reedgrass $\geq 10\%$ cover
- Component of CNVC00364 Lodgepole Pine – White Spruce / Purple Reedgrass

PSw05 Environment table

Zone	BOL
Elevation (m)	540 – 630 – 770
Aspect	neutral, variable
Slope (%)	0 – 12 – 45
Soil moisture regime	subxeric to submesic
Soil drainage	rapid to well
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	2 – 5 – 5
Soil class	Brunisols (Eutric, Melanic)

**PSw05 Vegetation summary (%)**

Trees	40 – 55 – 75	Shrubs	0.1 – 8 – 22	Ground shrubs	0 – 4 – 20
Graminoids and Forbs	12 – 22 – 40	Bryophytes	0 – 11 – 30	Lichens	1 – 8 – 14

Layer	Scientific name	PSw05	Common name
		n = 11	
Trees	<i>Picea glauca</i>	■■■■■	white spruce
	<i>Pinus contorta</i>	■■■■■	lodgepole pine
	<i>Populus tremuloides</i>	■ ■	trembling aspen
Shrubs	<i>Picea glauca</i>	■■	white spruce
	<i>Salix</i> spp.	■	willows
	<i>Shepherdia canadensis</i>	■ ■	soapberry
Ground shrubs	<i>Linnaea borealis</i>	■	twinline
Graminoids	<i>Calamagrostis purpurascens</i>	■■■■■	purple reedgrass
Bryophytes	<i>Hylocomium splendens</i>	■■■	step moss
Lichens	<i>Cladonia</i> spp.	■■	clad lichens
	<i>Flavocetraria cucullata</i>	■	curled snow lichen
	<i>Peltigera aphthosa</i>	■■■	freckle pelt lichen
	<i>Stereocaulon</i> spp.	■	foam lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

PSw09 Pine – White spruce / Labrador tea / Lowbush cranberry / Lichen

PSw09 is a forest with a combination of pine and white spruce, and with common Labrador tea and a high lichen ground cover, that occurs primarily in the BOL and occasionally at low elevations of the BOH.

No photo
available

Vegetation: Stands of PSw09 have a tree canopy of pine (*Pinus contorta*) and white spruce (*Picea glauca*); tree regeneration is light. The shrub layer is comprised of moderately high to very high cover of common Labrador tea (*Rhododendron groenlandicum*), with some willows (*Salix* spp.). Lowbush cranberry (*Vaccinium vitis-idaea*) and crowberry (*Empetrum nigrum*) dominate the ground shrub layer. Lichens dominate the bryophyte layer, mostly reindeer lichens (*Cladonia* spp.) and clad lichens (*Cladonia* spp.).

Environment: This association occurs at low to moderate elevations on level sites and gentle, cool-aspect slopes. Soils are rapidly to well drained and on morainal or glaciofluvial parent materials. Soils are classified as Dystric Brunisols.

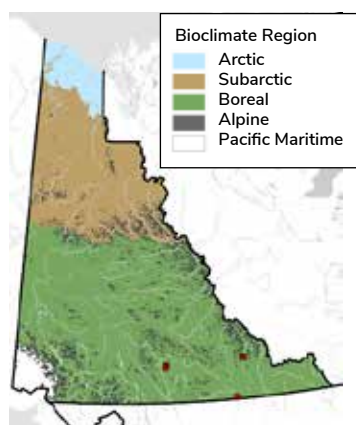
Dynamics: Stands are mostly closed, with a combination of pine and white spruce; both can occur in the forest regeneration. Stands on similar sites can be strongly dominated by black spruce (Sb12). Pine or white spruce stands with common Labrador tea and high lichen cover do not seem to occur in Sb12. Dominance after disturbance depends on local seed sources.

Comments

- Key characteristics: pine and white spruce stand; dry to mesic upland; common Labrador tea $\geq 15\%$; lichens $\geq 33\%$ cover, or $\geq 20\%$ (usually much higher) and greater than moss cover
- CNVC association not yet determined

PSw09 Environment table

Zone	BOL (BOH)
Elevation (m)	620 – 840 – 945
Aspect	neutral, cool
Slope (%)	0 – 7 – 20
Soil moisture regime	subxeric to submesic
Soil drainage	rapid to well
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	no data
Soil class	Brunisols (Dystric)

**PSw09 Vegetation summary (%)**

Trees	32 – 57 – 95	Shrubs	20 – 47 – 99	Ground shrubs	15 – 27 – 35
Graminoids and Forbs	0 – 7 – 20	Bryophytes	10 – 16 – 30	Lichens	40 – 73 – 97

Layer	Scientific name	PSw09	Common name
		n = 4	
Trees	<i>Picea glauca</i>	■■■■■	white spruce
	<i>Pinus contorta</i>	■■■■■	lodgepole pine
Shrubs	<i>Betula glandulosa</i>	■ ■	shrub birch
	<i>Rhododendron groenlandicum</i>	■■■■■	common Labrador tea
	<i>Rosa acicularis</i>	■	prickly rose
	<i>Salix</i> spp.	■■■	willows
Ground shrubs	<i>Empetrum nigrum</i>	■■■	crowberry
	<i>Vaccinium vitis-idaea</i>	■■■■■	lowbush cranberry
Graminoids	Poaceae	■■	grass family
Forbs	<i>Cornus canadensis</i>	■	bunchberry
	<i>Lupinus arcticus</i>	■	arctic lupine
Bryophytes	<i>Hylocomium / Pleurozium</i>	■■■■■	feathermosses
Lichens	<i>Cladina</i> spp.	■■■■■	reindeer lichens
	<i>Cladonia</i> spp.	■■■■■	clad lichens
	<i>Flavocetraria</i> spp.	■	snow lichens
	<i>Peltigera aphthosa</i>	■■■	freckle pelt lichen
	<i>Stereocaulon tomentosum</i>	■■■	eyed foam lichen

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

PSw20 Pine – White spruce / Shrub birch – Willow / Grass

PSw20 is a forest with a combination of pine and white spruce and with high shrub birch, willow and grass cover that occurs in the BOL and BOH.

No photo
available

Vegetation: Stands of PSw20 have a tree canopy of pine (*Pinus contorta*) and white spruce (*Picea glauca*), often with a minor component of fir (*Abies lasiocarpa*). The shrub layer is very well developed, with willows (*Salix* spp.) and shrub birch (*Betula glandulosa*). Grasses dominate the understorey. The moss and lichen cover are moderately high to high, and comprised mostly of step moss (*Hylocomium splendens*), reindeer lichens (*Cladina* spp.) and freckle pelt lichen (*Peltigera aphthosa*).

Environment: This association occurs at moderate elevations on gentle warm-aspect slopes. Soils are well drained to moderately well drained, and on morainal parent materials. Soils are classified as Eutric or Dystric Brunisols.

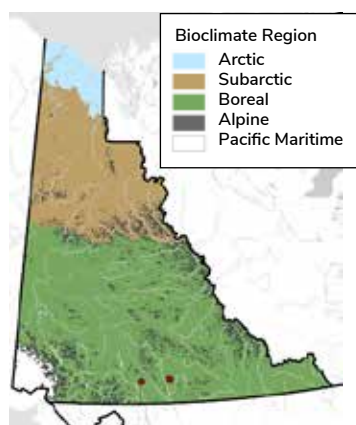
Dynamics: Stands are closed, with a combination of pine and white spruce. Stands on similar sites can be strongly dominated by pine (P30), white spruce (Sw25) or aspen (A09) or possibly various mixed-wood species. Dominance after disturbance depends on local seed sources.

Comments

- Key characteristics: pine and white spruce stand; mesic upland; shrub birch $\geq 15\%$; grasses $\geq 15\%$ cover
- CNVC association not yet determined

PSw20 Environment table

Zone	BOL, BOH
Elevation (m)	885 – 991 – 1100
Aspect	warm
Slope (%)	8 – 9 – 10
Soil moisture regime	mesic
Soil drainage	well to moderately well
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	no data
Soil class	Brunisols (Eutric, Dystric)

**PSw20 Vegetation summary (%)**

Trees	50 – 55 – 80	Shrubs	65 – 82 – 99	Ground shrubs	3 – 4 – 5
Graminoids and Forbs	42 – 54 – 65	Bryophytes	10 – 18 – 25	Lichens	5 – 24 – 43

Layer	Scientific name	PSw20	Common name
		n = 2	
Trees	<i>Picea glauca</i>	■■■■■	white spruce
	<i>Pinus contorta</i>	■■■■■	lodgepole pine
Shrubs	<i>Betula glandulosa</i>	■■■■■	shrub birch
	<i>Rhododendron groenlandicum</i>	■■	common Labrador tea
	<i>Salix</i> spp.	■■■■■	willows
Ground shrubs	<i>Arctostaphylos uva-ursi</i>	■	kinnikinnick
	<i>Arctous</i> spp.	■	bearberry
	<i>Empetrum nigrum</i>	■■	crowberry
	<i>Linnaea borealis</i>	■■	twinline
Graminoids	Poaceae	■■■■■	grass family
Forbs	<i>Chamaenerion angustifolium</i>	■	fireweed
	<i>Lupinus arcticus</i>	■■	arctic lupine
	<i>Pedicularis</i> spp.	■	louseworts
Bryophytes	<i>Hylocomium splendens</i>	■■■■	step moss
	<i>Polytrichum</i> spp.	■■■	haircap mosses
Lichens	<i>Cladina</i> spp.	■■■■	reindeer lichens
	<i>Cladonia gracilis</i>	■■■	smooth pixie lichen
	<i>Imadophila ericetorum</i>	■	fairy puke lichen
	<i>Peltigera aphthosa</i>	■■■	freckle pelt lichen
	<i>Stereocaulon</i> spp.	■	foam lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

PSw21 Pine – White spruce / Shrub birch / Crowberry

PSw21 is a forest with a combination of pine and white spruce and with high shrub birch cover that occurs mostly in the BOH and sometimes in the BOL.

No photo
available

Vegetation: Stands of PSw21 have a tree canopy of pine (*Pinus contorta*) and white spruce (*Picea glauca*), often with a minor component of fir (*Abies lasiocarpa*). The shrub layer is very well developed, with willows (*Salix* spp.) and shrub birch (*Betula glandulosa*). The understorey ground shrub layer is usually lightly developed, although crowberry can occur with moderately high cover. The moss and lichen cover is moderately high to high and comprised mostly of feathermosses (*Hylocomium splendens*, *Pleurozium schreberi*), with some lichen cover, mostly reindeer lichens (*Cladina* spp.).

Environment: This association occurs at moderate elevations on level sites. Soils are well-drained to imperfectly well drained and on morainal or fluvial parent materials. Soils are classified as Dystric Brunisols.

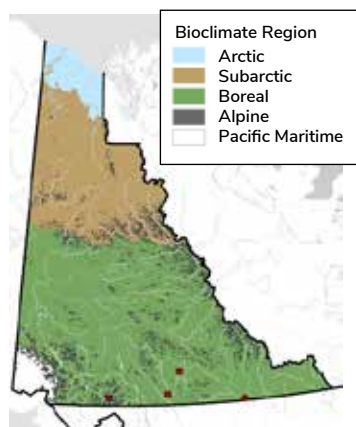
Dynamics: Stands are open to closed and a combination of pine and white spruce. Stands on similar sites can be strongly dominated by pine (P31), white spruce (Sw30), black spruce (Sb26) or various mixed-wood species with fir (FSw20, FPSw20). Dominance after disturbance depends on local seed sources.

Comments

- Key characteristics: pine and white spruce stand; mesic to moist upland; shrub birch $\geq 15\%$; grasses $< 15\%$; common Labrador tea $< 10\%$ cover
- CNVC association not yet determined

PSw21 Environment table

Zone	BOH (BOL)
Elevation (m)	690 – 920 – 1050
Aspect	neutral
Slope (%)	0 – 3 – 5
Soil moisture regime	submesic to subhygric
Soil drainage	well to imperfect
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	no data
Soil class	Brunisols (Dystric)

**PSw21 Vegetation summary (%)**

Trees	17 – 38 – 65	Shrubs	55 – 68 – 78	Ground shrubs	1 – 11 – 25
Graminoids and Forbs	1 – 6 – 12	Bryophytes	1 – 28 – 55	Lichens	2 – 13 – 30

Layer	Scientific name	PSw21	Common name
		n = 4	
Trees	<i>Abies lasiocarpa</i>	■	fir
	<i>Picea glauca</i>	■■■■■	white spruce
	<i>Pinus contorta</i>	■■■■■	lodgepole pine
Shrubs	<i>Betula glandulosa</i>	■■■■■	shrub birch
	<i>Rhododendron groenlandicum</i>	■	common Labrador tea
	<i>Salix</i> spp.	■■■■■	willows
	<i>Vaccinium uliginosum</i>	■	blueberry
Ground shrubs	<i>Arctostaphylos uva-ursi</i>	■	kinnikinnick
	<i>Empetrum nigrum</i>	■■■	crowberry
	<i>Vaccinium vitis-idaea</i>	■■	lowbush cranberry
Graminoids	Poaceae	■■	grass family
Forbs	<i>Cornus canadensis</i>	■■	bunchberry
	<i>Spinulum annotinum</i>	■	stiff club-moss
Bryophytes	<i>Dicranum</i> spp.	■■■	heron's-bill mosses
	<i>Hylocomium</i> / <i>Pleurozium</i>	■■■■■	feathermosses
Lichens	<i>Cladina</i> spp.	■■■	reindeer lichens
	<i>Cladonia</i> spp.	■■	clad lichens
	<i>Nephroma arcticum</i>	■	arctic kidney lichen
	<i>Peltigera aphthosa</i>	■	freckle pelt lichen

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

PSw23 Pine – White spruce / Lowbush cranberry – Twinflower

PSw23 is a forest with a combination of pine and white spruce and with a variable but often sparse understorey, especially the mosses and lichens, that occurs mostly in the BOL and sometimes in the BOH.

Vegetation: Stands of PSw23 have a tree canopy of pine (*Pinus contorta*) and white spruce (*Picea glauca*). The shrub layer is lightly developed, comprised of tree regeneration, usually with some soapberry (*Shepherdia canadensis*), prickly rose (*Rosa acicularis*) and willows (*Salix* spp.). The ground shrubs twinflower (*Linnaea borealis*), kinnikinnick (*Arctostaphylos uva-ursi*), lowbush cranberry (*Vaccinium vitis-idaea*) and crowberry (*Empetrum nigrum*) characterize the understorey, but cover varies from sparse to high. Moss and lichen cover is also variable, but generally low to moderate. Mosses include feathermosses (*Pleurozium schreberi*, *Hylocomium splendens*) and haircap moss (*Polytrichum* spp.). Lichens are mostly reindeer lichens (*Cladina* spp.), clad lichens (*Cladonia* spp.) and pelt lichens (*Peltigera* spp.).



Environment: This association occurs at moderate elevations on level or gently sloped, sometimes steeper, sites. Soils are well drained to moderately well drained, on glaciofluvial, lacustrine or morainal parent materials. Soils are classified as Eutric or Dystric Brunisols or Gray Luvisols. The forest floor usually has a low to moderate cover of woody debris.

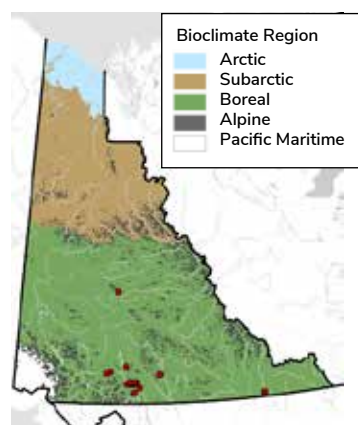
Dynamics: Stands are open to closed, with a combination of pine and white spruce. Stands on similar sites can be strongly dominated by pine (P21) or by mixed-wood species, but with pine (PSbSw22). The low cover of mosses may be linked with the pine component (needle litter). Tree canopy dominance after disturbance depends on local seed sources.

Comments

- Key characteristics: pine – white spruce overstorey; mesic upland; ground shrubs characterize understorey, but cover varies considerably; moss cover <25%; lichen cover low to moderate
- Component of CNVC00362b Lodgepole Pine – White Spruce / Lowbush Cranberry – Twinflower; *Viburnum nudum* subassociation

PSw23 Environment table

Zone	BOL (BOH)
Elevation (m)	670 – 795 – 1035
Aspect	neutral, neutral (warm)
Slope (%)	0 – 8 – 65
Soil moisture regime	mesic
Soil drainage	well to moderately well
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	0.5 – 7 – 20
Soil class	Brunisols (Dystric, Eutric), Gray Luvisols

**PSw23 Vegetation summary (%)**

Trees	10 – 34 – 80	Shrubs	1 – 12 – 54	Ground shrubs	1 – 31 – 60
Graminoids and Forbs	0.5 – 8 – 25	Bryophytes	0 – 7 – 25	Lichens	1 – 18 – 40

Layer	Scientific name	PSw23	Common name
		n = 22	
Trees	<i>Picea glauca</i>	■■■■■	white spruce
	<i>Pinus contorta</i>	■■■■■	lodgepole pine
Shrubs	<i>Picea glauca</i>	■■■	white spruce
	<i>Rosa acicularis</i>	■	prickly rose
	<i>Salix</i> spp.	■■■	willows
	<i>Shepherdia canadensis</i>	■■■	soapberry
Ground shrubs	<i>Arctostaphylos uva-ursi</i>	■■■	kinnikinnick
	<i>Empetrum nigrum</i>	■■■	crowberry
	<i>Linnaea borealis</i>	■■■	twinflower
	<i>Vaccinium vitis-idaea</i>	■■■	lowbush cranberry
Graminoids	Poaceae	■■■	grass family
Forbs	<i>Anticlea elegans</i>	■	mountain death-camas
	<i>Chamaenerion angustifolium</i>	■	fireweed
	<i>Geocaulon lividum</i>	■■■	bastard toadflax
	<i>Lupinus arcticus</i>	■■■	arctic lupine
Bryophytes	<i>Hylocomium</i> / <i>Pleurozium</i>	■■■	feathermosses
	<i>Polytrichum juniperinum</i>	■	juniper haircap moss
Lichens	<i>Cladina</i> spp.	■■■	reindeer lichens
	<i>Cladonia</i> spp.	■■■	clad lichens
	<i>Peltigera</i> spp.	■■■	pelt lichens
	<i>Stereocaulon</i> spp.	■	foam lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

PSw24 Pine – White spruce / Lowbush cranberry – Twinflower / Feathermoss

PSw24 is a forest with a combination of pine and white spruce, and with a lightly to moderately well-developed understorey, mostly of ground shrubs and a high cover of mosses, that occurs mostly in the BOL and sometimes in the BOH.

Vegetation: Stands of PSw24 have a tree canopy of pine (*Pinus contorta*) and white spruce (*Picea glauca*). The shrub layer is lightly developed, comprised of tree regeneration, usually with some soapberry (*Shepherdia canadensis*), prickly rose (*Rosa acicularis*) and willows (*Salix* spp.). The ground shrubs twinflower (*Linnaea borealis*), kinnikinnick (*Arctostaphylos uva-ursi*), lowbush cranberry (*Vaccinium vitis-idaea*) and crowberry (*Empetrum nigrum*) characterize the understorey, but cover varies from sparse to high. Feathermosses (*Pleurozium schreberi*, *Hylocomium splendens*) dominate the forest floor. Lichens are mostly reindeer lichens (*Cladonia* spp.), clad lichens (*Cladonia* spp.) and pelt lichens (*Peltigera* spp.).



Environment: This association occurs at moderate elevations on level or gently to moderately sloped sites. Soils are well drained, on morainal or glaciofluvial materials (sometimes colluvial, lacustrine or fluvial). Soils are classified as Eutric or Dystric Brunisols. The forest floor usually has a low to moderate cover of woody debris.

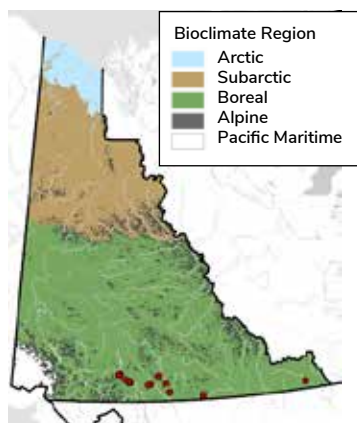
Dynamics: Stands are open to closed, with a combination of pine and white spruce. Stands on similar sites can be strongly dominated by pine (P28), white spruce (Sw27), black spruce (Sb22) or mixed-wood species (SbSw22, PSbSw23). Tree canopy dominance after disturbance depends on local seed sources.

Comments

- Key characteristics: pine – white spruce overstorey; mesic upland; ground shrubs characterize understorey, but cover varies considerably; moss cover $\geq 30\%$
- Component of CNVC00362a Lodgepole Pine – White Spruce / Lowbush Cranberry – Twinflower; typic subassociation

PSw24 Environment table

Zone	BOL (BOH)
Elevation (m)	420 – 820 – 1065
Aspect	neutral, neutral to warm
Slope (%)	0 – 9 – 35
Soil moisture regime	mesic
Soil drainage	well
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	0.5 – 6 – 15
Soil class	Brunisols (Dystric, Eutric)

**PSw24 Vegetation summary (%)**

Trees	12 – 43 – 90	Shrubs	1 – 12 – 31	Ground shrubs	1 – 23 – 70
Graminoids and Forbs	0.5 – 10 – 25	Bryophytes	30 – 55 – 90	Lichens	1 – 10 – 40

Layer	Scientific name	PSw24	Common name
		n = 17	
Trees	<i>Picea glauca</i>	■■■■■	white spruce
	<i>Pinus contorta</i>	■■■■■	lodgepole pine
Shrubs	<i>Picea glauca</i>	■■■	white spruce
	<i>Rosa acicularis</i>	■	prickly rose
	<i>Salix</i> spp.	■■■	willows
	<i>Shepherdia canadensis</i>	■■	soapberry
Ground shrubs	<i>Arctostaphylos uva-ursi</i>	■■■	kinnikinnick
	<i>Empetrum nigrum</i>	■■■	crowberry
	<i>Linnaea borealis</i>	■■	twinflower
	<i>Vaccinium vitis-idaea</i>	■■■■■	lowbush cranberry
Graminoids	Poaceae	■■	grass family
Forbs	<i>Chamaenerion angustifolium</i>	■■	fireweed
	<i>Cornus canadensis</i>	■■■	bunchberry
	<i>Geocaulon lividum</i>	■	bastard toadflax
	<i>Lupinus arcticus</i>	■■	arctic lupine
	<i>Orthilia secunda</i>	■	one-sided wintergreen
Bryophytes	<i>Hylocomium splendens</i>	■■■■■	step moss
	<i>Pleurozium schreberi</i>	■■■■■	red-stemmed feathermoss
Lichens	<i>Cladina</i> spp.	■■■	reindeer lichens
	<i>Cladonia</i> spp.	■■	clad lichens
	<i>Peltigera</i> spp.	■■■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

PSw25 Pine – White spruce / Altai fescue

PSw25 is a forest with a combination of pine and white spruce and with a grassy understory (primarily Altai fescue) that occurs mostly in the BOL and sometimes in the BOH.

Vegetation: Stands of PSw25 have a tree canopy of pine (*Pinus contorta*) and white spruce (*Picea glauca*), which can be open and stunted, with significant tree cover in the shrub layer. The shrub layer is mostly lightly developed, but can have high cover of willow (*Salix* spp.). Some prickly rose (*Rosa acicularis*) usually occurs. Altai fescue (*Festuca altaica*) is of moderately high to high cover. Sometimes purple reedgrass (*Calamagrostis purpurascens*) is present. Some moss and lichen cover occurs, usually feathermosses (*Hylocomium splendens*, *Pleurozium schreberi*) and reindeer lichens (*Cladina* spp.).

Environment: This association occurs at low to moderate elevations on level or gently to moderately sloped sites. Soil drainage varies, commonly well to moderately well, but also imperfectly. Parent materials are often lacustrine, but can be fluvial or glaciofluvial. Soils are classified as Eutric or Dystric Brunisols or Gray Luvisols. The forest floor usually has a low to moderate cover of woody debris.

Dynamics: Stands are open to closed, with a combination of pine and white spruce. Stands with an Altai fescue understory usually occur at higher elevations than PSw25 and have shrub birch. This association occurs in the southern Yukon near the B.C. border. Dominance after disturbance depends on local seed sources.

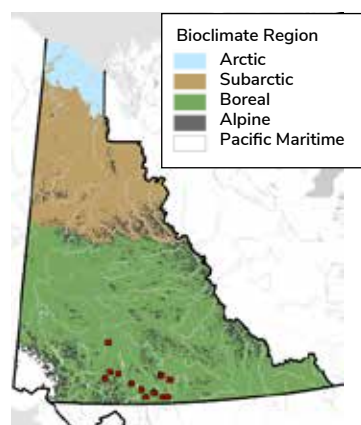
Comments

- Key characteristics: pine – white spruce overstorey; mesic to moist upland; Altai fescue $\geq 10\%$
- Component of CNVC00363 Lodgepole Pine – White Spruce / Altai Fescue



PSw25 Environment table

Zone	BOL (BOH)
Elevation (m)	270 – 770 – 1175
Aspect	neutral, variable
Slope (%)	0 – 7 – 30
Soil moisture regime	submesic to subhygric
Soil drainage	well to moderately well (imperfect)
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	3 – 8 – 12
Soil class	Brunisols (Dystric, Eutric), Gray Luvisols

**PSw25 Vegetation summary (%)**

Trees	2 – 35 – 85	Shrubs	0 – 18 – 60	Ground shrubs	1 – 23 – 70
Graminoids and Forbs	10 – 42 – 75	Bryophytes	0 – 11 – 40	Lichens	0 – 11 – 35

Layer	Scientific name	PSw25	Common name
		n = 16	
Trees	<i>Picea glauca</i>	■■■■■	white spruce
	<i>Pinus contorta</i>	■■■■■	lodgepole pine
Shrubs	<i>Rosa acicularis</i>	■	prickly rose
	<i>Salix</i> spp.	■■■■■	willows
Ground shrubs	<i>Arctostaphylos uva-ursi</i>	■■■■■	kinnikinnick
	<i>Linnaea borealis</i>	■■■	twinline
	<i>Vaccinium vitis-idaea</i>	■■■	lowbush cranberry
Graminoids	<i>Festuca altaica</i>	■■■■■	Altai fescue
Forbs	<i>Chamaenerion angustifolium</i>	■■■	fireweed
Bryophytes	<i>Hylocomium / Pleurozium</i>	■■■	feathermosses
Lichens	<i>Cladonia mitis</i>	■■■	green reindeer lichen
	<i>Cladonia</i> spp.	■■■	clad lichens
	<i>Peltigera</i> spp.	■■■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

PSw26 Pine – White spruce / Soapberry / Feathermoss

PSw26 is a forest with a combination of pine and white spruce and with soapberry, ground shrubs and feather-mosses that occurs in the BOL.

Vegetation: Stands of PSw26 have a tree canopy of pine (*Pinus contorta*) and white spruce (*Picea glauca*). The shrub layer is moderately well developed to well developed, comprised of tree regeneration, with some soapberry (*Shepherdia canadensis*), prickly rose (*Rosa acicularis*) and willows (*Salix* spp.). The ground shrubs kinnikinnick (*Arctostaphylos uva-ursi*), twinflower (*Linnaea borealis*) and lowbush cranberry (*Vaccinium vitis-idaea*) are common in the understorey. Feathermosses (*Pleurozium schreberi*, *Hylocomium splendens*) are of moderate to high cover. Scattered lichens, mostly reindeer lichens (*Cladonia* spp.), clad lichens (*Cladonia* spp.) and pelt lichens (*Peltigera* spp.), are also found.

Environment: This association occurs at moderate elevations on level sites or gently to moderately sloped warm aspects.

Soils are well drained to moderately well drained, on a variety of parent materials (morainal, glaciofluvial, eolian, lacustrine). Soils are classified as Eutric Brunisols, sometimes Dystric Brunisols. The forest floor usually has a low to moderate cover of woody debris.

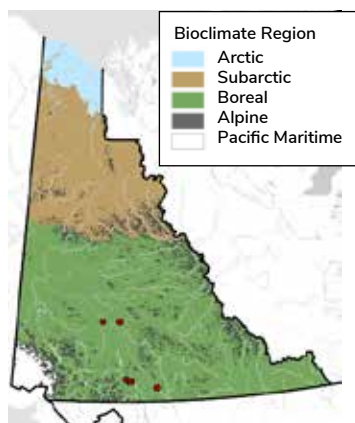
Dynamics: Stands are open to closed and a combination of pine and white spruce. Stands on similar sites can be strongly dominated by aspen (A21), pine (P22), white spruce (Sw26) or mixed-wood species (ASw06, APSw25). Tree canopy dominance after disturbance depends on local seed sources.

**Comments**

- Key characteristics: pine – white spruce overstorey; mesic upland; soapberry ≥5%; low cover of grasses, lichens
- Component of CNVC00119 Lodgepole Pine – White Spruce / Soapberry / Kinnikinnick / Feathermoss

PSw26 Environment table

Zone	BOL
Elevation (m)	655 – 735 – 810
Aspect	neutral (warm)
Slope (%)	0 – 8 – 35
Soil moisture regime	submesic to mesic
Soil drainage	well to moderately well
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	2 – 7 – 15
Soil class	Brunisols (Dystric, Eutric)

**PSw26 Vegetation summary (%)**

Trees	13 – 38 – 70	Shrubs	11 – 22 – 45	Ground shrubs	5 – 20 – 45
Graminoids and Forbs	0.2 – 7 – 17	Bryophytes	0.1 – 32 – 70	Lichens	2 – 13 – 22

Layer	Scientific name	PSw26 n = 8	Common name
Trees	<i>Picea glauca</i>	■■■■■	white spruce
	<i>Pinus contorta</i>	■■■■■	lodgepole pine
Shrubs	<i>Picea glauca</i>	■■■	white spruce
	<i>Rosa acicularis</i>	■	prickly rose
	<i>Salix</i> spp.	■■■	willows
	<i>Shepherdia canadensis</i>	■■■■■	soapberry
Ground shrubs	<i>Arctostaphylos uva-ursi</i>	■■■	kinnikinnick
	<i>Empetrum nigrum</i>	■■■	crowberry
	<i>Linnaea borealis</i>	■■■	twinflower
	<i>Vaccinium vitis-idaea</i>	■■■	lowbush cranberry
Graminoids	Poaceae	■■■	grass family
Forbs	<i>Geocaulon lividum</i>	■■■	bastard toadflax
	<i>Lupinus arcticus</i>	■■■	arctic lupine
	<i>Orthilia secunda</i>	■	one-sided wintergreen
Bryophytes	<i>Hylocomium splendens</i>	■■■■■	step moss
	<i>Pleurozium schreberi</i>	■■■	red-stemmed feathermoss
Lichens	<i>Cladonia</i> spp.	■■■	reindeer lichens
	<i>Cladonia</i> spp.	■■■	clad lichens
	<i>Peltigera</i> spp.	■■■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

PSw27 Pine – White spruce / Labrador tea / Crowberry / Feathermoss

PSw27 is a forest with a combination of pine and white spruce and with common Labrador tea and a high cover of feathermosses that occurs mostly in the BOL and sometimes in the BOH.

No photo
available

Vegetation: Stands of PSw27 have a tree canopy of pine (*Pinus contorta*) and white spruce (*Picea glauca*), sometimes with a minor component of aspen (*Populus tremuloides*). The shrub layer is well developed, mostly with common Labrador tea (*Rhododendron groenlandicum*), but can have high cover of green alder (*Alnus alnobetula*), willows (*Salix* spp.) or blueberry (*Vaccinium uliginosum*). Lowbush cranberry (*Vaccinium vitis-idaea*) dominates the ground shrub layer. Feathermosses (*Hylocomium splendens*, *Pleurozium schreberi*, *Ptilium crista-castrensis*) blanket the forest floor.

Environment: This association occurs at moderate elevations on level sites. Soils are well drained and on glaciofluvial materials (sometimes morainal). Soils are classified as Dystric Brunisols. The forest floor likely has a low to moderate cover of woody debris.

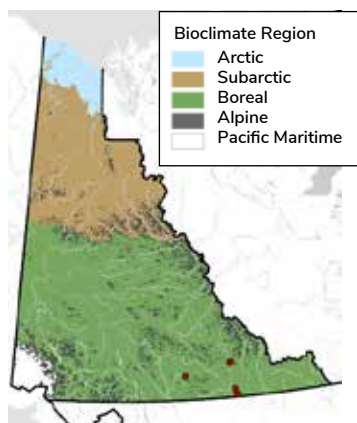
Dynamics: Stands are open to closed and a combination of pine and white spruce. Stands on similar sites can be strongly dominated by pine (P24, P29), white spruce (Sw29), black spruce (Sb23) or mixed-wood species (PSb25). Tree canopy dominance after disturbance depends on local seed sources.

Comments

- Key characteristics: pine – white spruce overstorey; mesic upland; common Labrador tea $\geq 25\%$; shrub birch $< 15\%$ (usually much less)
- CNVC association not yet determined

PSw27 Environment table

Zone	BOL (BOH)
Elevation (m)	730 – 821 – 1025
Aspect	neutral
Slope (%)	0 – 2 – 5
Soil moisture regime	submesic to mesic
Soil drainage	well
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	no data
Soil class	Brunisols (Dystric)

**PSw27 Vegetation summary (%)**

Trees	40 – 65 – 90	Shrubs	75 – 83 – 99	Ground shrubs	20 – – 21 – 22
Graminoids and Forbs	1 – 21 – 40	Bryophytes	5 – 41 – 85	Lichens	0.5 – 12 – 30

Layer	Scientific name	PSw27	Common name
		n = 4	
Trees	<i>Picea glauca</i>	■■■■■	white spruce
	<i>Pinus contorta</i>	■■■■■	lodgepole pine
	<i>Populus tremuloides</i>	■	trembling aspen
Shrubs	<i>Alnus alnobetula</i>	■■■■■	green alder
	<i>Betula glandulosa</i>	■■■	shrub birch
	<i>Rhododendron groenlandicum</i>	■■■■■	common Labrador tea
	<i>Salix</i> spp.	■■■	willows
	<i>Vaccinium uliginosum</i>	■■■■■	blueberry
Ground shrubs	<i>Arctostaphylos uva-ursi</i>	■■■	kinnikinnick
	<i>Arctous rubra</i>	■	red bearberry
	<i>Vaccinium vitis-idaea</i>	■■■■■	lowbush cranberry
Graminoids	Poaceae	■■■	grass family
Forbs	<i>Chamaenerion angustifolium</i>	■■■	fireweed
	<i>Cornus canadensis</i>	■■■	bunchberry
	<i>Diphasiastrum complanatum</i>	■	ground-cedar
Bryophytes	<i>Hylocomium</i> / <i>Pleurozium</i> / <i>Ptilium</i>	■■■■■	feathermosses
Lichens	<i>Cladina</i> spp.	■■■	reindeer lichens
	<i>Peltigera</i> spp.	■■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

PSw28 Pine – White spruce / Shrub birch – Labrador tea / Crowberry / Step moss

PSw28 is a forest with a combination of pine and white spruce and with shrub birch and common Labrador tea that occurs mostly in the BOL and BOH.

Vegetation: Stands of PSw28 have a tree canopy of pine (*Pinus contorta*) and white spruce (*Picea glauca*), sometimes with a minor component of fir (*Abies lasiocarpa*). The shrub layer is very well developed, with shrub birch (*Betula glandulosa*), common Labrador tea (*Rhododendron groenlandicum*), willows (*Salix* spp.) and blueberry (*Vaccinium uliginosum*). Crowberry (*Empetrum nigrum*) and lowbush cranberry (*Vaccinium vitis-idaea*) dominate the ground shrub layer; the forb layer includes bunchberry (*Cornus canadensis*). The moss cover varies considerably, but is mostly feathermosses (*Hylocomium splendens*, *Pleurozium schreberi*). Lichens are common, but of low to moderate cover, including reindeer lichens (*Cladonia* spp.), freckle pelt lichen (*Peltigera aphthosa*) and clad lichens (*Cladonia* spp.).

No photo
available

Environment: This association occurs at moderate elevations, mostly on level sites. Soils are well drained to moderately well drained and on various parent materials: morainal, lacustrine or glaciofluvial. Soils are classified as Dystric Brunisols. The forest floor likely has a low to moderate cover of woody debris.

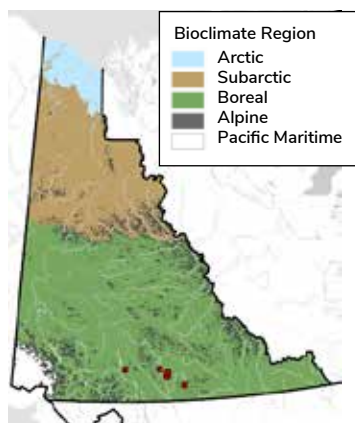
Dynamics: Stands are open to closed and a combination of pine and white spruce. Stands on upland sites with high cover of shrub birch and common Labrador tea are uncommon. Somewhat similar sites can be strongly dominated by pine (P31), white spruce (Sw30), black spruce (Sb26), fir (F19) or a combination of species (SbSw24, FSw20, FPSw20). Tree canopy dominance after disturbance depends on local seed sources.

Comments

- Key characteristics: pine – white spruce overstorey; mesic to moist upland; shrub birch $\geq 15\%$; common Labrador tea $\geq 10\%$
- CNVC association not yet determined

PSw28 Environment table

Zone	BOL, BOH
Elevation (m)	760 – 968 – 1065
Aspect	none (variable)
Slope (%)	0 – 5 – 20
Soil moisture regime	mesic to subhygric
Soil drainage	well to moderately well
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	no data
Soil class	Brunisols (Dystric)

**PSw28 Vegetation summary (%)**

Trees	10 – 60 – 85	Shrubs	40 – 83 – 99	Ground shrubs	5 – 25 – 45
Graminoids and Forbs	0.2 – 8 – 22	Bryophytes	0 – 50 – 80	Lichens	10 – 22 – 35

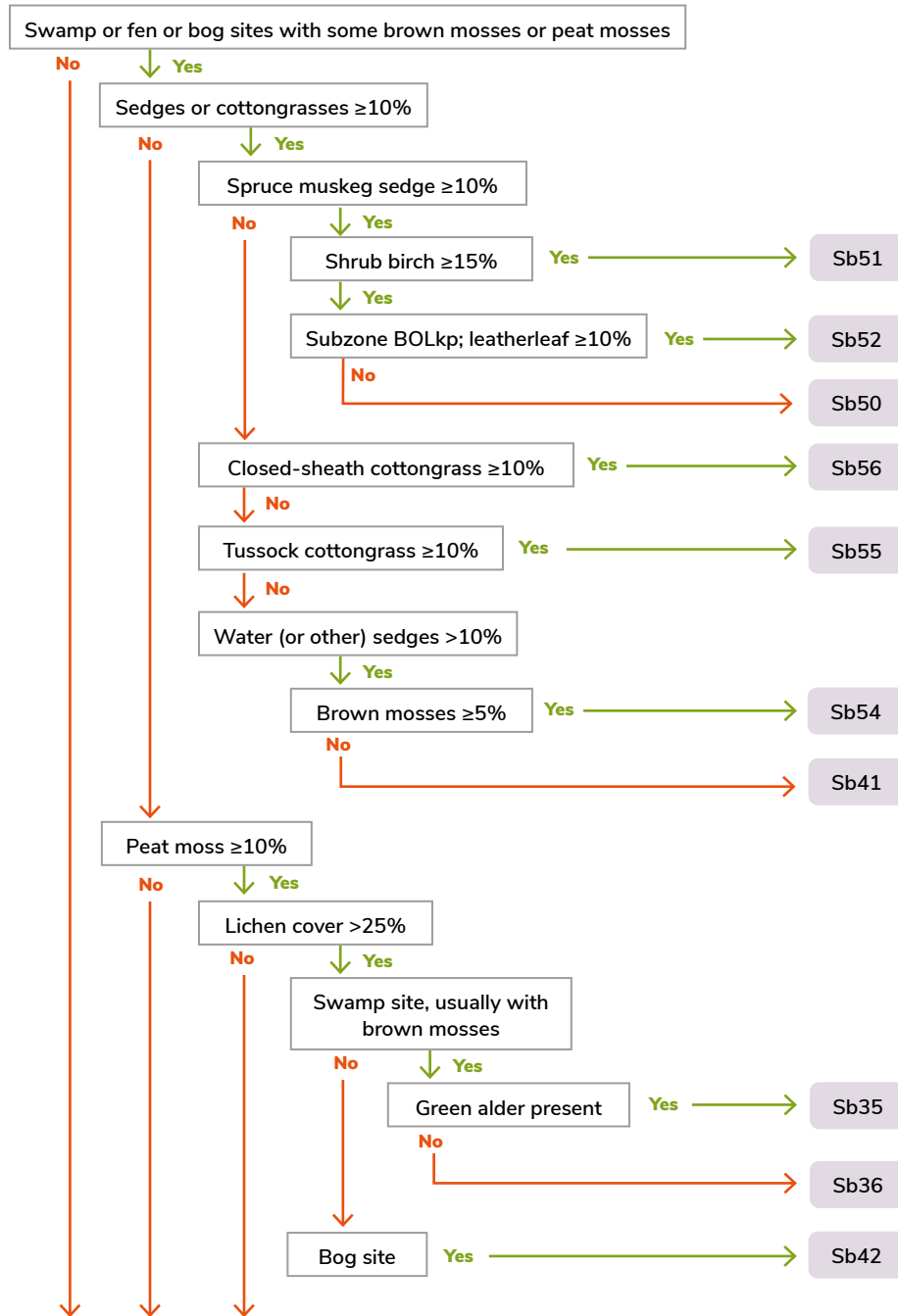
Layer	Scientific name	PSw28	Common name
		n = 6	
Trees	<i>Picea glauca</i>	■■■	white spruce
	<i>Pinus contorta</i>	■■■■■	lodgepole pine
Shrubs	<i>Betula glandulosa</i>	■■■■■	shrub birch
	<i>Rhododendron groenlandicum</i>	■■■■■	common Labrador tea
	<i>Salix</i> spp.	■■■■■	willows
	<i>Vaccinium uliginosum</i>	■■■	blueberry
Ground shrubs	<i>Empetrum nigrum</i>	■■■■■	crowberry
	<i>Vaccinium vitis-idaea</i>	■■■	lowbush cranberry
Graminoids	Poaceae	■■	grass family
Forbs	<i>Cornus canadensis</i>	■■	bunchberry
	<i>Spinulum annotinum</i>	■■	stiff club-moss
Bryophytes	<i>Dicranum</i> spp.	■■	heron's-bill mosses
	<i>Hylocomium splendens</i>	■■■■■	step moss
	<i>Pleurozium schreberi</i>	■■■■■	red-stemmed feathermoss
Lichens	<i>Cladina</i> spp.	■■■	reindeer lichens
	<i>Cladonia</i> spp.	■■■	clad lichens
	<i>Peltigera</i> spp.	■■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

Black spruce-dominated associations

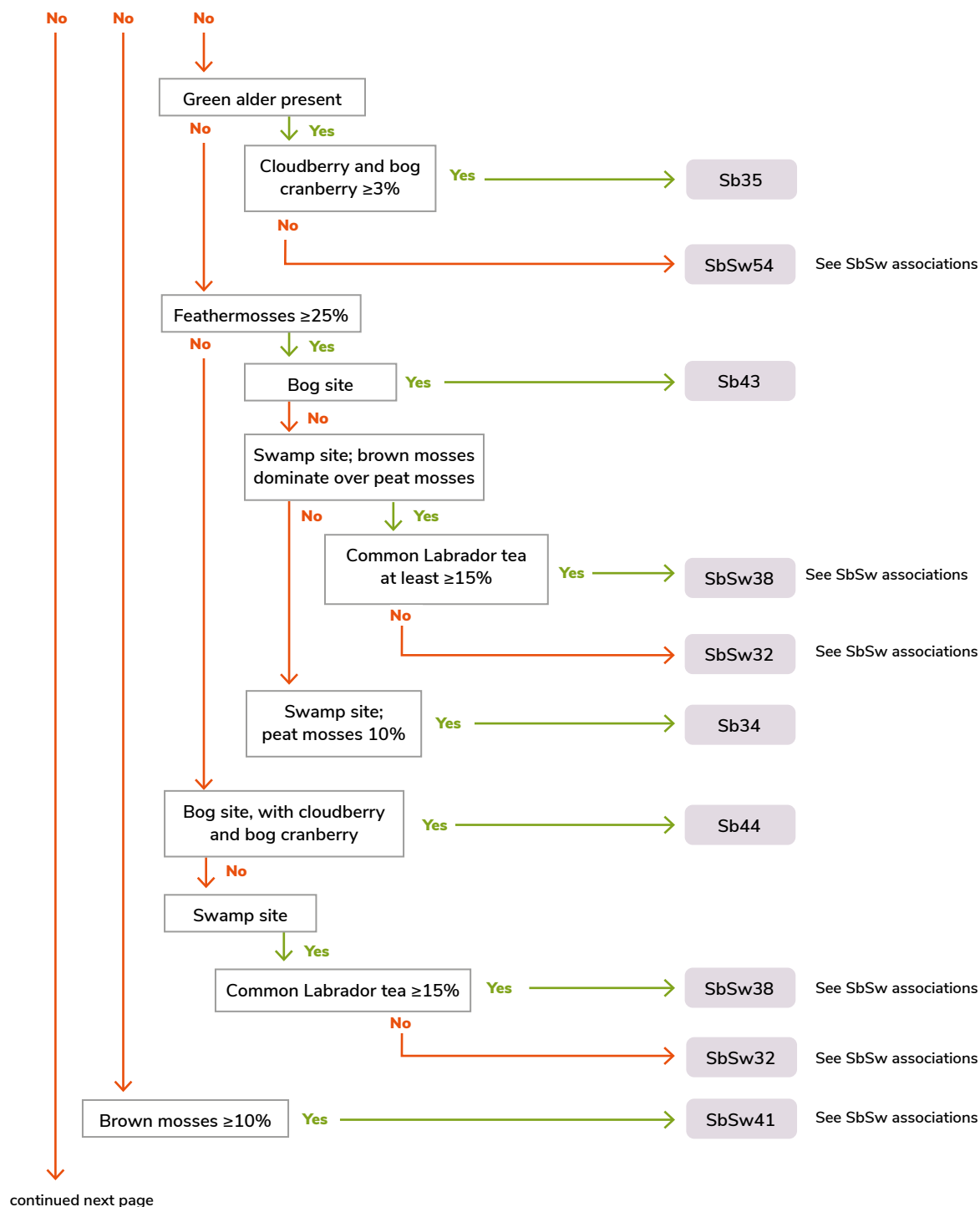
Black spruce (Sb) strongly dominates over other canopy species (>85% of canopy composition).

Flowchart Black spruce-dominated associations



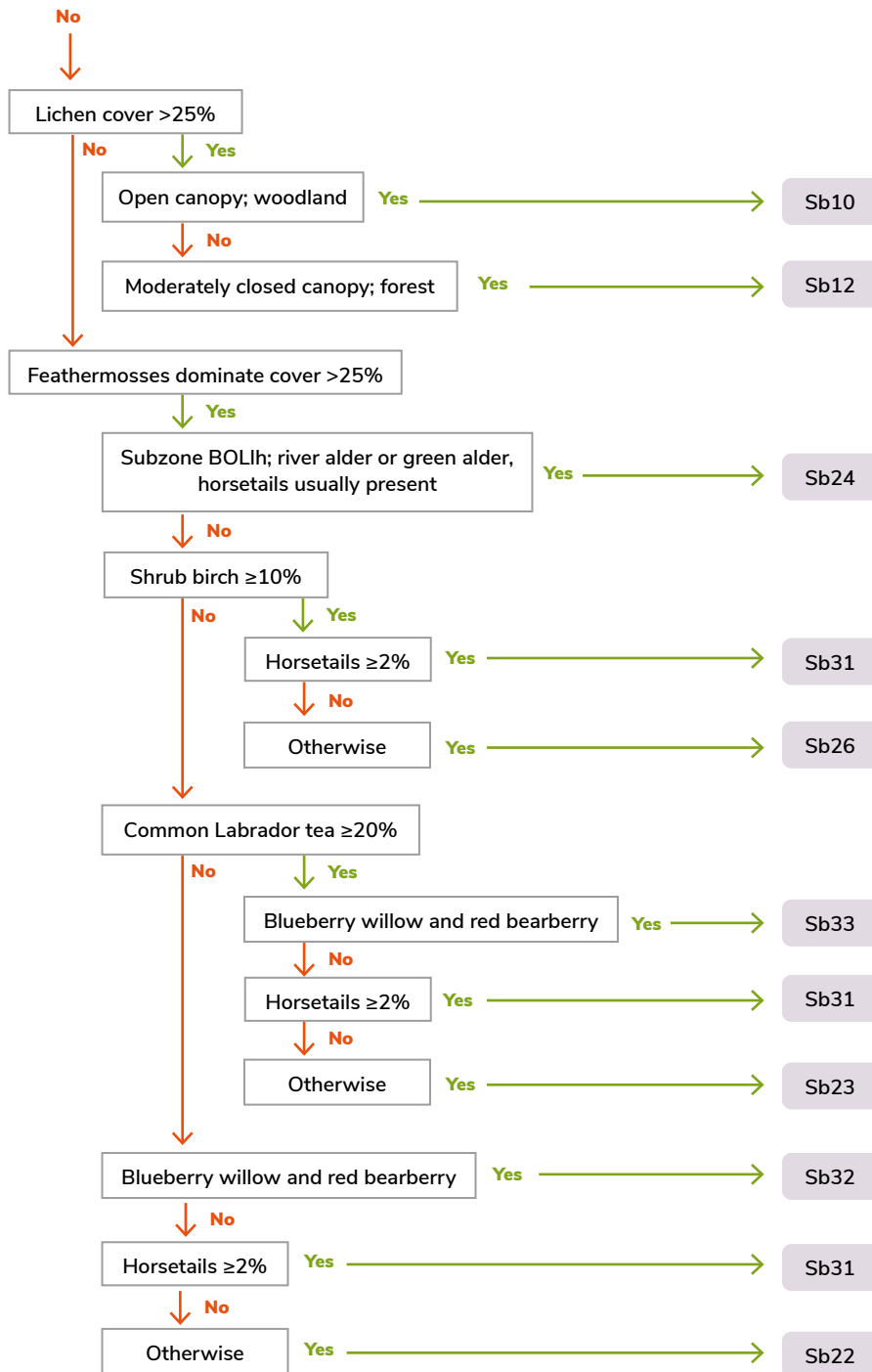
continued next pages

Black spruce-dominated associations, continued from previous page



Black spruce-dominated associations

Black spruce-dominated associations, continued from previous page



Summary of features: black spruce associations**Dry to mesic (moist) sites**

	Sb10	Sb12	Sb22	Sb23	Sb26	Sb24
Zone	BOH (BOL, SUW, SUS)	BOL (BOH)	BOL (BOH)	BOL	BOL, SUW	BOL; subzone BOLlh
Geography	central and north	south and central	central and southeast	south and west-central	central, southeast and north	southeast
Important site features	dry; open stands	dry; moderately closed stands	mesic; level to gentle slopes	mesic; gentle to moderately steep slopes	mesic	subhygric (mesic)
Drainage	rapid to well	rapid to moderately well	moderately well (well)	well to moderately well	well to moderately well	imperfect
Tree canopy	black spruce	black spruce	black spruce	black spruce	black spruce	black spruce
Key understorey species	reindeer lichen	reindeer lichen	feathermoss	common Labrador tea, feathermoss	shrub birch, feathermoss	alder, horsetail, feathermoss

Moist to wet (swamp) sites

	Sb31	Sb32	Sb33	Sb34	Sb35	Sb36
Zone	BOH (BOL)	BOL	BOL	BOL, BOH, SUW	BOL, BOH, SUW	BOL, BOH
Geography	central	south and west-central	southeast	central and north (south)	central and north	central (south)
Important site features	mesic to subhygric	mesic to subhygric	mesic to subhygric	swamp; permafrost common	swamp; permafrost common	swamp; permafrost common
Drainage	moderately well to imperfect	moderately well to imperfect	moderately well to imperfect	poor to very poor	imperfect to poor (very poor)	poor
Tree canopy	black spruce	black spruce	black spruce	black spruce	black spruce	black spruce
Key understorey species	horsetail, feathermoss	blueberry willow, red bearberry	common Labrador tea, blueberry willow, red bearberry	peat moss; brown moss, feathermoss	alder, peat moss, brown moss; reindeer lichen	reindeer lichen, peat moss (brown moss)

Wet sites – Bogs

	Sb41	Sb42	Sb43	Sb43s	Sb44
Zone	BOL	BOL, BOH, SUW	BOL, BOH	BOL, BOH	BOL, BOH, SUW
Geography	central and south	south, central and north	central (south)	central	south, central and north
Important site features	bog, permafrost, level	bog, permafrost, level	bog, permafrost, level	sloping bog, permafrost moderate to steep, cool aspects	bog, permafrost, level
Drainage	poor	imperfect to poor	imperfect to poor	imperfect to poor	imperfect to poor
Tree canopy	black spruce	black spruce	black spruce	black spruce	black spruce
Key understorey species	peat moss	peat moss, reindeer lichen	peat moss, feathermoss	peat moss, feathermoss	peat moss

Black spruce-dominated associations

Wet sites – Fens

	Sb50	Sb51	Sb52	Sb54	Sb55	Sb56
Zone	BOL (BOH, BOS)	BOL, BOH	BOL; subzone BOLkp	BOL (BOH)	BOL, SUW	BOL
Geography	central (southwest)	west-central	west-central	central and south	central and north	central and southwest
Important site features	fen, level or gently sloping, permafrost	fen, level or cool-aspect slopes, permafrost	fen, level, permafrost	fen, level	fen, level or cool-aspect slopes, permafrost	fen, level or cool-aspect slopes, permafrost
Drainage	poor	imperfect to poor	poor	poor (very poor)	poor	poor
Tree canopy	black spruce	black spruce	black spruce	black spruce	black spruce	black spruce
Key understorey species	spruce muskeg sedge	shrub birch, spruce muskeg sedge	leatherleaf, spruce muskeg sedge	water sedge	tussock cottongrass	closed-sheath cottongrass

Vegetation tables for black spruce-dominated associations

Dry to mesic (moist) sites

Layer	Scientific name	Sb10	Sb12	Sb22	Sb23	Sb24	Sb26	Common name
	n =	20	11	24	12	16	28	
Trees	<i>Picea mariana</i>	■■■■	■■■■■	■■■■■	■■■■■	■■■■■	■■■■	black spruce
	<i>Picea glauca</i>		□□□			■■■	□□	white spruce
Shrubs	<i>Picea mariana</i>	■■■	■■■■	■■■■■	■■■	□□	■■■	black spruce
	<i>Alnus incana / alnobetula</i>					■■■■		river / green alder
	<i>Betula glandulosa</i>	■■■	■■■				■■■■	shrub birch
	<i>Rhododendron groenlandicum</i>	■■■■	■■■■	■■■	■■■■■	■■■	■■■■	common Labrador tea
	<i>Rosa acicularis</i>		■■	■■	□□	■■■	□□	prickly rose
	<i>Salix</i> spp.	■■	■■■	■■	■■■	■■	■■■	willows
	<i>Vaccinium uliginosum</i>	■■■	■■	□	□□		■■■	blueberry
	<i>Empetrum nigrum</i>	■■	■■■	□	■■		■■	crowberry
	<i>Linnaea borealis</i>					■■		twinline
Ground shrubs	<i>Vaccinium vitis-idaea</i>	■■■	■■■■	■■■	■■■■	■■	■■■	lowbush cranberry
	<i>Cornus canadensis</i>		□	■	□	■■■	□	bunchberry
	<i>Equisetum arvense / pratense</i>					■■■■		horsetails
Forbs	<i>Equisetum scirpoides</i>				□	■		dwarf scouring-rush
	<i>Geocaulon lividum</i>		□□	□	■■	■	□	bastard toadflax
	<i>Mertensia paniculata</i>					■		tall bluebells
	<i>Mitella nuda</i>					■■		naked mitrewort
	<i>Petasites frigidus</i>					■■■	□	arctic sweet coltsfoot
	<i>Dicranum</i> spp.	■■■		□	□		□	heron's-bill mosses
	<i>Hylocomium / Pleurozium</i>	■■■■	■■■■■	■■■■■	■■■■■	■■■■■	■■■■■	feathermosses
Lichens	<i>Polytrichum juniperinum</i>	■■■	□□□	□□			□	juniper haircap moss
	<i>Cetraria</i> spp.	■■	■■■				□	Iceland lichens
	<i>Cladina</i> spp.	■■■■■	■■■■■	■■■■	■■■■	□	■■■■	reindeer lichens
	<i>Cladonia</i> spp.	■■■	■■■	■■	■■		□	clad lichens
	<i>Peltigera</i> spp.	■■■	■■■■	■■	■■■	□□	■■	pelt lichens

Note: gold cells highlight key diagnostic species

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

Moist to wet (swamp) sites

Layer	Scientific name	Sb31	Sb32	Sb33	Sb34	Sb35	Sb36	Common name
	n =	14	16	9	23	21	21	
Trees	<i>Picea mariana</i>	■■■■	■■■■■	■■■■■	■■■■	■■■■	■■■■	black spruce
Shrubs	<i>Picea mariana</i>	■■■	■■■■	□□□	■■■■	■■■■	■■■■	black spruce
	<i>Alnus alnobetula</i>					■■■		green alder
	<i>Betula glandulosa</i>	■■■	□	□	■■■	■■■	■■■	shrub birch
	<i>Rhododendron</i> spp.	■■■■	■■■■	■■■■■	■■■■	■■■■	■■■■	Labrador teas
	<i>Rosa acicularis</i>	□□	■■	■■		□		prickly rose
	<i>Salix myrtilifolia</i>		■■■	■■				blueberry willow
	<i>Salix</i> spp.	■■■■	■■■	■■■	■■■	■■■	□□	willows
	<i>Vaccinium uliginosum</i>	■■■	■■■	□□□	■■■	■■■	■■■	blueberry
Ground shrubs	<i>Arctous rubra</i>		■■	■■		□□	□□	red bearberry
	<i>Empetrum nigrum</i>	■■	■■	■■	■■■	□□	■■	crowberry
	<i>Rubus chamaemorus</i>	■■		■■	■■■	■■■	■■■	cloudberry
	<i>Vaccinium oxycoccos</i>				■	■	□	bog cranberry
	<i>Vaccinium vitis-idaea</i>	■■■	■■■	■■■	■■■	■■■■	■■■	lowbush cranberry
Graminoids	<i>Carex bigelowii</i> ssp. <i>lugens</i>				■■		□□	spruce muskeg sedge
Forbs	<i>Equisetum scirpoides</i>		■■	■■				dwarf scouring-rush
	<i>Equisetum</i> spp.	■■■	□□□		□□□	□	□	horsetails
	<i>Geocaulon lividum</i>	□	■	■				bastard toadflax
	<i>Petasites frigidus</i>	□	■■		■■	□	□	arctic sweet coltsfoot
Bryophytes	Amblystegiaceae		□		■■■■	■■■	■■■	brown mosses
	<i>Hylcomium</i> / <i>Pleurozium</i>	■■■■■	■■■■■	■■■■■	■■■■■	■■■■	■■■■	feathermosses
	<i>Sphagnum</i> spp.	■■■	□	□□	■■■■■	■■■■	■■■■	peat mosses
Lichens	<i>Cladina</i> spp.	■■■	■■■■	■■■■	■■■	■■■■	■■■■■	reindeer lichens
	<i>Cladonia</i> spp.	□	■	□	■	□□	□	clad lichens
	<i>Peltigera</i> spp.	■■	■■	■■	■		□	pelt lichens

Note: gold cells highlight key diagnostic species

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

Black spruce-dominated associations

Wet sites – bogs

Layer	Scientific name	Sb41	Sb42	Sb43	Sb44	Common name
	n =	3	50	18	31	
Trees	<i>Picea mariana</i>	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■	black spruce
Shrubs	<i>Picea mariana</i>	□ □ □	■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	black spruce
	<i>Betula glandulosa</i>	□ □	■ ■ ■	■ ■ ■	■ ■ ■	shrub birch
	<i>Rhododendron</i> spp.	■ ■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■ ■	■ ■ ■ ■	Labrador teas
	<i>Salix</i> spp.	■ ■ ■ ■		■ ■ ■	■ ■	willows
	<i>Vaccinium uliginosum</i>	■ ■ ■	□ □	■ ■ ■	■ ■	blueberry
Ground shrubs	<i>Empetrum nigrum</i>	■ ■ ■ ■	□ □	■ ■	■ ■ ■	crowberry
	<i>Rubus chamaemorus</i>	■ ■ ■	■ ■ ■	■ ■ ■	■ ■ ■ ■	cloudberry
	<i>Vaccinium oxycoccos</i>	■ ■	■	■	■ ■	bog cranberry
	<i>Vaccinium vitis-idaea</i>	■ ■ ■	■ ■ ■	■ ■ ■	■ ■ ■	lowbush cranberry
Graminoids	<i>Carex</i> spp.	■ ■ ■ ■				sedges
Bryophytes	<i>Hylocomium / Pleurozium</i>	□ □ □	■ ■ ■	■ ■ ■ ■ ■	■ ■ ■	feathermosses
	<i>Sphagnum</i> spp.	■ ■ ■ ■ ■	■ ■ ■ ■ ■	■ ■ ■ ■ ■	■ ■ ■ ■ ■	peat mosses
Lichens	<i>Cetraria</i> spp.		■ ■	□ □	□ □	Iceland lichens
	<i>Cladina</i> spp.	■ ■ ■ ■	■ ■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	reindeer lichens
	<i>Cladonia</i> spp.	□	■ ■	■ ■	■ ■	clad lichens

Note: gold cells highlight key diagnostic species

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ ■ 1 – 3	■ ■ ■ 3 – 10	■ ■ ■ ■ 10 – 25	■ ■ ■ ■ ■ >25

Wet sites – fens

Layer	Scientific name	Sb50	Sb51	Sb52	Sb54	Sb55	Sb56	Common name
	n =	32	14	5	8	42	5	
Trees	<i>Picea mariana</i>	■■■	■■■■	□□□	■■■	■■■	■■■	black spruce
Shrubs	<i>Picea mariana</i>	■■■■	■■■■	■■■■	■■■■	■■■■	■■■	black spruce
	<i>Betula glandulosa</i>	■■	■■■■■	■■■■	■■■■	■■■	■■■	shrub birch
	<i>Chamaedaphne calyculata</i>			■■■■■	□□			leatherleaf
	<i>Rhododendron</i> spp.	■■■■	■■■■	■■■■■	■■■	■■■■	■■■■	Labrador teas
	<i>Salix</i> spp.	■■■	■■■	□□□	■■■■	■■■	■■	willows
	<i>Vaccinium uliginosum</i>	■■■	■■■■	■■■■	■■■	□□	■■■	blueberry
Ground shrubs	<i>Arctous rubra</i>	■■■	□	□	■■		■■	red bearberry
	<i>Rubus chamaemorus</i>	■■	■■■	□□	■■	■■■	■■	cloudberry
	<i>Vaccinium oxycoccos</i>	□			■	□	■■	bog cranberry
	<i>Vaccinium vitis-idaea</i>	■■■	■■■■	□□□	■■■	■■■	■■■■	lowbush cranberry
	<i>Empetrum nigrum</i>	□□	□□□		■■■	□□	□	crowberry
Graminoids	<i>Carex bigelowii</i> ssp. <i>lugens</i>	■■■■	■■■■■	■■■■			■■■	spruce muskeg sedge
	<i>Carex aquatilis</i>			□	■■■■			water sedge
	<i>Eriophorum brachyantherum</i>						■■■■	closed-sheath cottongrass
	<i>Eriophorum vaginatum</i>	□□				■■■■■		tussock cottongrass
Forbs	<i>Equisetum</i> spp.				■■			horsetails
	<i>Pedicularis labradorica</i>						■	Labrador lousewort
Bryophytes	<i>Amblystegiaceae</i>	■■■■	□□□	■■■■	□□□	■■■	■■■■	brown mosses
	<i>Hylocomium / Pleurozium</i>	■■■■	■■■■■	□□□	■■■■	■■■	■■■	feathermosses
	<i>Sphagnum</i> spp.	■■■■	■■■	■■■■■	■■■■■	■■■■	■■■■	peat mosses
Lichens	<i>Cladina</i> spp.	■■■■	■■■■	□□	■■	■■■	□	reindeer lichens
	<i>Cladonia</i> spp.	□□	□□□	□□□□	□	□□	■	clad lichens
	<i>Peltigera</i> spp.	□	□□□		■■	□	■	pelt lichens
	<i>Stereocaulon</i> spp.						■	foam lichens

Note: gold cells highlight key diagnostic species

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

Fact sheets: Black spruce-dominated associations

Sb10 **Black spruce / Labrador tea / Lichen woodland**

Sb10 is a black spruce woodland with high lichen ground cover that commonly occurs at higher elevations of the BOH and also at lower elevations (BOL) and in subarctic areas (SUW and SUS).

Vegetation: Stands of Sb10 have a tree canopy of black spruce (*Picea mariana*), with some black spruce in the shrub layer. The understorey has a moderately well developed shrub layer comprised mostly of Labrador teas (generally *Rhododendron groenlandicum*), but often including blueberry (*Vaccinium uliginosum*) and shrub birch (*Betula glandulosa*). Lowbush cranberry (*V. vitis-idaea*) and crowberry (*Empetrum nigrum*) are the primary ground shrubs. Mosses are also common, including feathermosses (*Hylocomium splendens*, *Pleurozium schreberi*), heron's-bill mosses (*Dicranum* spp.) and haircap mosses (mostly *Polytrichum commune*). Lichens, mostly reindeer lichens (*Cladina* spp.), dominate the forest floor.



Environment: This association occurs at varying elevations, but often at higher elevations or subarctic areas, on rapidly drained to well-drained sites. Soils are medium- to coarse-textured, on mostly morainal or colluvial parent materials (also fluvial and glaciofluvial) and classified as Brunisols (sometimes Cryosols). Occasionally, the forest floor can have a low cover of woody debris.

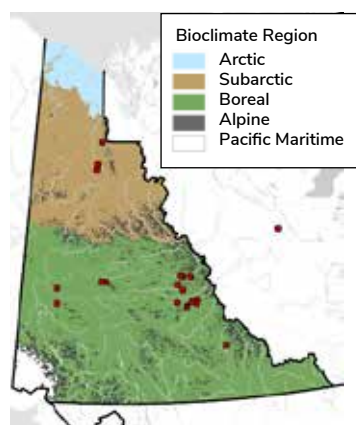
Dynamics: Stands are open, likely due to a combination of site conditions, cooler climates and stand history. The open stands are strongly dominated by black spruce, usually in both the tree and shrub layers. Scattered other tree species can occur, including white spruce, aspen, fir or pine. Dominance after disturbance depends on local seed sources.

Comments

- Key characteristics: dry site; black spruce-dominated; open stand; high lichen cover
- Component of CNVC00458 Black Spruce / Common Labrador Tea – Bog Bilberry / Reindeer Lichens

Sb10 Environment table

Zone	BOH (BOL, SUW, SUS)
Elevation (m)	386 – 819 – 1125
Aspect	variable
Slope (%)	0 – 10 – 20
Soil moisture regime	xeric, subxeric (submesic)
Soil drainage	rapid, well
Permafrost presence/depth (cm)	infrequent
Unvegetated cover (%)	0 – 4 – 15
Soil class	Brunisols (Eutric or Dystric), Cryosols

**Sb10 Vegetation summary (%)**

Trees	10 – 15 – 20	Shrubs	20 – 27 – 45	Ground shrubs	2 – 9 – 25
Graminoids and Forbs	0.1 – 3 – 13	Bryophytes	2 – 30 – 60	Lichens	30 – 60 – 90

Layer	Scientific name	Sb10	Common name
		n = 22	
Trees	<i>Picea mariana</i>	■■■■■	black spruce
Shrubs	<i>Picea mariana</i>	■■■	black spruce
	<i>Betula glandulosa</i>	■■■	shrub birch
	<i>Rhododendron groenlandicum</i>	■■■■■	common Labrador tea
	<i>Salix</i> spp.	■ ■	willows
	<i>Vaccinium uliginosum</i>	■■■	blueberry
Ground shrubs	<i>Empetrum nigrum</i>	■■	crowberry
	<i>Vaccinium vitis-idaea</i>	■■■	lowbush cranberry
Bryophytes	<i>Dicranum</i> spp.	■ ■ ■	heron's-bill mosses
	<i>Hylocomium / Pleurozium</i>	■■■■■	feathermosses
	<i>Polytrichum juniperinum</i>	■ ■ ■	juniper haircap moss
Lichens	<i>Cladina</i> spp.	■■■■■	reindeer lichens
	<i>Cladonia</i> spp.	■ ■	pixie-cup lichens
	<i>Nephroma arcticum</i>	■ ■	arctic kidney lichen
	<i>Peltigera</i> spp.	■■■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

Sb12 Black spruce / Willow – Labrador tea / Lichen

Sb12 is a black spruce forest with high lichen ground cover that commonly occurs in the BOL and lower elevations of the BOH.

Vegetation: Stands of Sb12 have a moderately closed canopy of black spruce (*Picea mariana*), with moderate to high cover of black spruce in the shrub layer. White spruce (*Picea glauca*) or lodgepole pine (*Pinus contorta*) are often present, but stands are dominated by black spruce. The understory has a moderately well developed shrub layer, comprised mostly of common Labrador tea (*Rhododendron groenlandicum*), but often including shrub birch (*Betula glandulosa*), willows (*Salix* spp.), prickly rose (*Rosa acicularis*) and blueberry (*Vaccinium uliginosum*). Lowbush cranberry (*V. vitis-idaea*) and crowberry (*Empetrum nigrum*) are the primary ground shrubs. Mosses are also common, mostly feathermosses (*Hylocomium splendens*, *Pleurozium schreberi*). Lichens, mostly reindeer lichens (*Cladina* spp.), dominate the forest floor.



Environment: This association occurs at low to moderate elevations on level or gentle to moderate slopes, on rapidly drained to well-drained sites. Soils are medium-textured to coarse-textured, on mostly glaciofluvial or morainal parent materials (but data are limited) and classified as Brunisols. The forest floor usually has a low to moderate cover of woody debris.

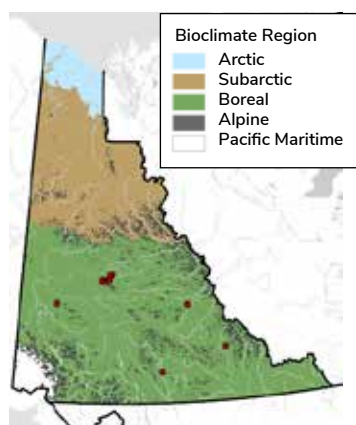
Dynamics: Stands vary in density, due to a combination of site conditions and stand history. The stands are dominated by black spruce, usually in both the tree and shrub layers, but with some other tree species, depending on stand history. Dominance after disturbance depends on local seed sources.

Comments

- Key characteristics: dry site; black spruce-dominated; moderately closed stand; high lichen cover
- Component of CNVC00437 Black Spruce / Common Labrador Tea – Lowbush Cranberry / Reindeer Lichens

Sb12 Environment table

Zone	BOL (BOH)
Elevation (m)	610 – 807 – 960
Aspect	variable
Slope (%)	0 – 8 – 20
Soil moisture regime	xeric, subxeric (submesic)
Soil drainage	rapid to moderately well
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	0 – 5 – 15
Soil class	Brunisols (Dystric)

**Sb12 Vegetation summary (%)**

Trees	10 – 30 – 75	Shrubs	20 – 50 – 75	Ground shrubs	2 – 16 – 30
Graminoids and Forbs	0.1 – 5 – 54	Bryophytes	0 – 20 – 50	Lichens	45 – 68 – 100

Layer	Scientific name	Sb12	Common name
		n = 11	
Trees	<i>Picea mariana</i>	■■■■■	black spruce
Shrubs	<i>Picea mariana</i>	■■■■	black spruce
	<i>Rhododendron groenlandicum</i>	■■■■	common Labrador tea
	<i>Rosa acicularis</i>	■ ■	prickly rose
	<i>Vaccinium uliginosum</i>	■ ■	blueberry
Ground shrubs	<i>Empetrum nigrum</i>	■■■	crowberry
	<i>Vaccinium vitis-idaea</i>	■■■■	lowbush cranberry
Bryophytes	<i>Hylocomium / Pleurozium</i>	■■■■■	feathermosses
Lichens	<i>Cetraria</i> spp.	■■■	Iceland lichens
	<i>Cladina</i> spp.	■■■■■	reindeer lichens
	<i>Cladonia</i> spp.	■■■	pixie-cup lichens
	<i>Peltigera</i> spp.	■■■■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

Sb22 Black spruce / Lowbush cranberry / Feathermoss

Sb22 is a black spruce woodland or forest with high feathermoss ground cover that occurs primarily in the BOL and occasionally in the low elevations of the BOH.

Vegetation: Stands of Sb22 have a tree canopy of black spruce (*Picea mariana*), with low to high cover of black spruce in the shrub layer. Lodgepole pine (*Pinus contorta*) is often present with low cover. The shrub layer, other than trees, is poorly developed, comprised of common Labrador tea (*Rhododendron groenlandicum*), often with scattered willows (*Salix* spp.) or prickly rose (*Rosa acicularis*). Lowbush cranberry (*Vaccinium vitis-idaea*) is a consistent ground shrub, of low to moderate cover. Feathermosses (*Hylocomium splendens*, *Pleurozium schreberi*) dominate the ground cover. Lichens, mostly reindeer lichens (*Cladonia* spp.), often occur with low to moderate cover.

Environment: This association occurs at low to moderate elevations, mostly on level to gentle slopes. Soils are well drained to moderately well drained and of varying texture. Parent materials are mostly morainal, but Sb22 can occur on various parent materials, including eolian, glaciofluvial or lacustrine. Soils are classified as Brunisols, but data are limited. The forest floor usually has a low to moderate cover of woody debris.

Dynamics: Stands vary in density, due to a combination of site conditions and stand history. Sb22 is dominated by black spruce, usually in both the tree and shrub layers, often with some lodgepole pine. Similar pine stands of association P28 and mixed-wood pine – spruce stands of PSbSw23 occur on similar sites; the occurrence of the three associations after disturbance depends on local seed sources.

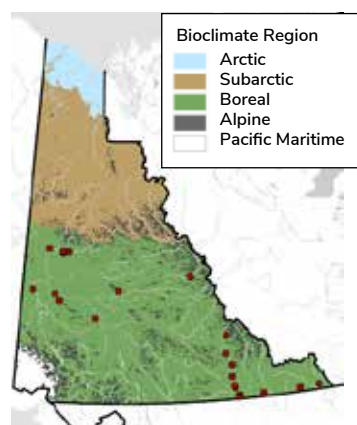
Comments

- Key characteristics: black spruce-dominated upland; trees at shrub height and circumference; high feathermoss cover
- Component of CNVC00120 Lodgepole Pine – Black Spruce / Lowbush Cranberry / Red-stemmed Feathermoss



Sb22 Environment table

Zone	BOL (BOH)
Elevation (m)	425 – 724 – 950
Aspect	variable
Slope (%)	0 – 8 – 50
Soil moisture regime	mesic
Soil drainage	moderately well (well)
Permafrost presence/depth (cm)	seldom
Unvegetated cover (%)	0 – 4 – 20
Soil class	Brunisols (Dystric, Eutric) (Static Cryosol)

**Sb22** Vegetation summary (%)

Trees	10 – 40 – 95	Shrubs	0.1 – 20 – 75	Ground shrubs	1 – 8 – 20
Graminoids and Forbs	0 – 5 – 26	Bryophytes	32 – 73 – 99	Lichens	0.5 – 20 – 50

Layer	Scientific name	Sb22	Common name
		n = 24	
Trees	<i>Picea mariana</i>	■■■■■	black spruce
Shrubs	<i>Picea mariana</i>	■■■■	black spruce
	<i>Rhododendron groenlandicum</i>	■■■	common Labrador tea
	<i>Rosa acicularis</i>	■ ■	prickly rose
	<i>Salix</i> spp.	■ ■	willows
Ground shrubs	<i>Vaccinium vitis-idaea</i>	■■■	lowbush cranberry
Forbs	<i>Cornus canadensis</i>	■	bunchberry
Bryophytes	<i>Hylocomium</i> / <i>Pleurozium</i>	■■■■■	feathermosses
Lichens	<i>Cladina</i> spp.	■■■■	reindeer lichens
	<i>Cladonia</i> spp.	■ ■	pixie-cup lichens
	<i>Peltigera</i> spp.	■■■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

Sb23 Black spruce / Labrador tea / Feathermoss

Sb23 is a black spruce forest with high Labrador tea and feathermoss ground cover that occurs in the BOL.

Vegetation: Stands of Sb23 have a tree canopy of black spruce (*Picea mariana*), with low to high cover of black spruce in the shrub layer. Lodgepole pine (*Pinus contorta*) is occasionally present with low cover. The shrub layer, other than small trees, is well developed, and dominated by common Labrador tea (*Rhododendron groenlandicum*), often with some willows (*Salix* spp.). Lowbush cranberry (*Vaccinium vitis-idaea*) is a consistent ground shrub, of low to moderate cover. Feathermosses (*Hylocomium splendens*, *Pleurozium schreberi*) dominate the ground cover. Reindeer lichens (*Cladina* spp.) are usually present, with low to moderate cover.

No photo
available

Environment: This association occurs at low to moderate elevations on lower to middle, gentle to moderately steep slopes. Soils are well drained to moderately well drained and of varying texture. Parent materials are morainal, colluvial or glaciofluvial. Soils are classified as Dystric or Eutric Brunisols (data are limited). The forest floor sometimes has a low cover of woody debris.

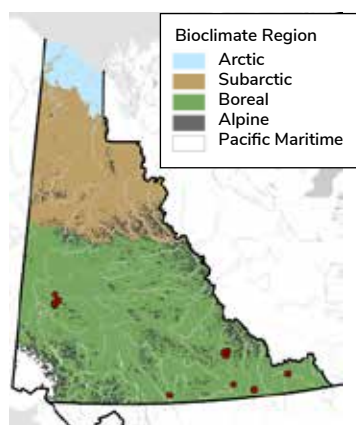
Dynamics: Sb23 Stands are mostly quite dense and comprised of black spruce in both the tree and shrub layers. Other tree species are uncommon. Similar pine stands of association P27 and mixed-wood pine – black spruce stands of PSb25 occur on similar sites; the occurrence of the three associations after disturbance depends on local seed sources.

Comments

- Key characteristics: black spruce-dominated upland; moderately closed stand; common Labrador tea $\geq 25\%$ cover; high feathermoss cover
- Component of CNVC00120 Lodgepole Pine – Black Spruce / Lowbush Cranberry / Red-stemmed Feathermoss

Sb23 Environment table

Zone	BOL
Elevation (m)	689 – 788 – 962
Aspect	variable
Slope (%)	0 – 19 – 45
Soil moisture regime	mesic
Soil drainage	well to moderately well
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	0 – 1 – 2
Soil class	Brunisols (Dystric, Eutric)

**Sb23** Vegetation summary (%)

Trees	10 – 40 – 95	Shrubs	20 – 63 – 99	Ground shrubs	0.1 – 13 – 28
Graminoids and Forbs	0 – 4 – 15	Bryophytes	15 – 55 – 99	Lichens	0 – 30 – 75

Layer	Scientific name	Sb23 n = 12	Common name
Trees	<i>Picea mariana</i>	■■■■■	black spruce
Shrubs	<i>Picea mariana</i>	■■■	black spruce
	<i>Rhododendron groenlandicum</i>	■■■■■	common Labrador tea
	<i>Salix</i> spp.	■■■	willows
Ground shrubs	<i>Empetrum nigrum</i>	■■■	crowberry
	<i>Vaccinium vitis-idaea</i>	■■■■	lowbush cranberry
Forbs	<i>Geocaulon lividum</i>	■■■	bastard toadflax
Bryophytes	<i>Hylocomium</i> / <i>Pleurozium</i>	■■■■■	feathermosses
Lichens	<i>Cladina</i> spp.	■■■■■	reindeer lichens
	<i>Cladonia</i> spp.	■■■	pixie-cup lichens
	<i>Peltigera</i> spp.	■■■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

Sb24 Black spruce / Alder / Sweet coltsfoot – Horsetail / Feathermoss

Sb24 is a black spruce forest with alder and common Labrador tea, shrubs and horsetails and feathermoss ground cover that occurs in the BOL (subzone BOLlh).

Vegetation: Sb24 stands have a tree canopy dominated by black spruce (*Picea mariana*), often with some white spruce (*P. glauca*). The shrub layer is well developed, with river or green alder (*Alnus incana*, *A. alnobetula*), common Labrador tea (*Rhododendron groenlandicum*) and prickly rose (*Rosa acicularis*), often with some willows (*Salix* spp.). Lowbush cranberry (*Vaccinium vitis-idaea*) is a consistent ground shrub, of low cover. The forb layer is diverse, with bunchberry (*Cornus canadensis*), horsetails (*Equisetum arvense*, *E. pratense*, *E. sylvaticum*), arctic sweet coltsfoot (*Petasites frigidus*), tall bluebells (*Mertensia paniculata*), naked mitrewort (*Mitella nuda*), and others. Feathermosses (*Hylocomium splendens*, *Pleurozium schreberi*, *Ptilium crista-castrensis*) dominate the ground cover.



Environment: This association occurs at low elevations on moist and nutrient-rich, level to gently sloping sites. Soils are imperfectly drained and of varying texture. Parent materials include fluvial, glaciofluvial and lacustrine (limited data). Soils are classified as Gleyed Brunisols (data are limited). The forest floor has a low cover of woody debris.

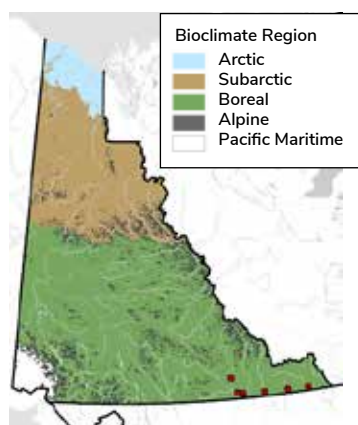
Dynamics: Stands are of moderate to high density, generally with limited tree regeneration. A minor cover of hardwoods often occurs. Sb24 can occur on fluvial sites, and associations A34, Sw18 and Sw34 are horsetail sites on fluvial materials. The occurrence of the four associations depends on disturbance history and on local seed sources; it seems that Sb24 develops on different sites than the other three associations do.

Comments

- Key characteristics: black spruce-dominated upland, sometimes with a minor cover of white spruce; river/green alder and horsetails are characteristic; southeast Yukon (subzone BOLlh)
- Component of CNVC00110 Black Spruce – White Spruce / Tall Bluebells / Step Moss

Sb24 Environment table

Zone	BOL; subzone BOLlh
Elevation (m)	460 – 736 – 909
Aspect	variable
Slope (%)	0 – 4 – 11
Soil moisture regime	subhygric (mesic)
Soil drainage	imperfect
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	3 – 7 – 15
Soil class	Brunisols (Eutric, Gleyed)

**Sb24 Vegetation summary (%)**

Trees	19 – 37 – 75	Shrubs	2 – 30 – 80	Ground shrubs	0 – 3 – 15
Graminoids and Forbs	0.2 – 35 – 99	Bryophytes	16 – 78 – 97	Lichens	0 – 5 – 50

Layer	Scientific name	Sb24	Common name
		n = 16	
Trees	<i>Picea glauca</i>	■ ■ ■	white spruce
	<i>Picea mariana</i>	■ ■ ■ ■ ■	black spruce
Shrubs	<i>Alnus incana / alnobetula</i>	■ ■ ■ ■	river / green alder
	<i>Rhododendron groenlandicum</i>	■ ■ ■	common Labrador tea
	<i>Rosa acicularis</i>	■ ■ ■	prickly rose
	<i>Salix</i> spp.	■ ■	willows
Ground shrubs	<i>Vaccinium vitis-idaea</i>	■ ■	lowbush cranberry
Forbs	<i>Cornus canadensis</i>	■ ■ ■	bunchberry
	<i>Equisetum arvense / pratense</i>	■ ■ ■ ■ ■	horsetails
	<i>Equisetum scirpoides</i>	■	dwarf scouring-rush
	<i>Geocaulon lividum</i>	■	bastard toadflax
	<i>Linnaea borealis</i>	■ ■	twinline
	<i>Mertensia paniculata</i>	■	tall bluebells
	<i>Mitella nuda</i>	■ ■	naked mitrewort
	<i>Petasites frigidus</i>	■ ■ ■	arctic sweet coltsfoot
	<i>Rubus pubescens</i>	■	dwarf raspberry
Bryophytes	<i>Hylocomium / Pleurozium</i>	■ ■ ■ ■ ■	feathermosses

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ ■ 1 – 3	■ ■ ■ 3 – 10	■ ■ ■ ■ 10 – 25	■ ■ ■ ■ ■ >25

Sb26 Black spruce / Shrub birch / Lowbush cranberry / Feathermoss

Sb26 is typically a black spruce woodland, with a shrubby understorey of shrub birch, willows and common Labrador tea and a feathermoss ground cover, that occurs in the BOH and subarctic regions (SUW).

Vegetation: Sb26 stands have an open or stunted canopy dominated by black spruce (*Picea mariana*), sometimes with some white spruce (*P. glauca*). The shrub layer is well developed, with shrub birch (*Betula glandulosa*), willows (*Salix* spp.), common Labrador tea (*Rhododendron groenlandicum*) and blueberry (*Vaccinium uliginosum*). The ground shrub layer is lightly developed, with lowbush cranberry (*V. vitis-idaea*) consistently present. Feathermosses (*Hylocomium splendens*, *Pleurozium schreberi*) dominate the bryophyte layer, with a lesser cover of reindeer lichens (*Cladonia mitis*, *C. rangiferina*, *C. stellaris*).

Environment: This association mostly occurs in cooler climates of the BOH and sometimes in the SUW. Sites are mesic, well drained to moderately well drained, and occur on level to moderate slopes. Permafrost is noted on sites with a deeper organic layer or higher elevation or farther north. Parent materials are mostly morainal or colluvial. Soils are mostly classified as Dystric Brunisols or Turbic Cryosols (data are limited). The forest floor has a low cover of woody debris, and surface rocks are sometimes abundant.

Dynamics: Stands are open and often of low height, mostly due to climate. Sw30 occurs on similar sites, but is dominated by white spruce. At higher elevations, fir becomes more common, and FSw20 and FPSw20 associations become more common on mesic sites. Dominance after disturbance depends on local seed sources.

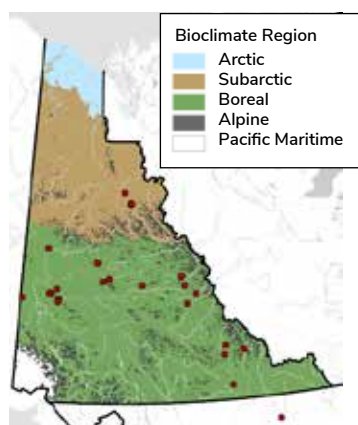
Comments

- Key characteristics: black spruce-dominated upland; open stand; high shrub cover of shrub birch, common Labrador tea, blueberry and willows; high feathermoss cover
- Component of CNVC00457 Black Spruce / Shrub Birch (Bog Blueberry) / Lowbush Cranberry / Step Moss



Sb26 Environment table

Zone	BOH, SUW
Elevation (m)	260 – 938 – 1402
Aspect	variable
Slope (%)	0 – 12 – 40
Soil moisture regime	mesic
Soil drainage	well to moderately well
Permafrost presence/depth (cm)	infrequent
Unvegetated cover (%)	0 – 3 – 30
Soil class	Brunisols (Eutric, Gleyed)

**Sb26 Vegetation summary (%)**

Trees	1 – 21 – 70	Shrubs	19 – 64 – 99	Ground shrubs	0.5 – 10 – 30
Graminoids and Forbs	0 – 5 – 17	Bryophytes	30 – 68 – 99	Lichens	0 – 25 – 60

Layer	Scientific name	Sb26	Common name
		n = 28	
Trees	<i>Picea mariana</i>	■■■■■	black spruce
Shrubs	<i>Picea mariana</i>	■■■	black spruce
	<i>Betula glandulosa</i>	■■■■■	shrub birch
	<i>Rhododendron groenlandicum</i>	■■■■■	common Labrador tea
	<i>Salix</i> spp.	■■■	willows
	<i>Vaccinium uliginosum</i>	■■■	blueberry
Ground shrubs	<i>Empetrum nigrum</i>	■■■	crowberry
	<i>Vaccinium vitis-idaea</i>	■■■	lowbush cranberry
Bryophytes	<i>Hylocomium</i> / <i>Pleurozium</i>	■■■■■	feathermosses
Lichens	<i>Cladina</i> spp.	■■■■■	reindeer lichens
	<i>Peltigera</i> spp.	■■■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

Sb31 Black spruce / Horsetail / Step moss

Sb31 is a black spruce woodland or forest with shrubby understorey of common Labrador tea, shrub birch, blueberry, horsetails, and a feathermoss ground cover, that occurs in the central Yukon at the higher elevations of the BOL and also in the BOH.

Vegetation: Sb31 stands have a tree canopy dominated by black spruce (*Picea mariana*), sometimes with white spruce (*P. glauca*). The shrub layer is well developed, with common Labrador tea (*Rhododendron groenlandicum*), shrub birch (*Betula glandulosa*), willows (*Salix* spp.) and blueberry (*Vaccinium uliginosum*). Lowbush cranberry (*V. vitis-idaea*) and crowberry (*Empetrum nigrum*) are common ground shrubs; cloudberry (*Rubus chamaemorus*) is often present. Horsetails (*Equisetum sylvaticum*, *E. arvense*, *E. pratense*) are characteristic. Feathermosses (*Hylocomium splendens*, *Pleurozium schreberi*) dominate the moss cover. Low amounts of peat mosses (*Sphagnum* spp.) can be present. Low to moderate cover of reindeer lichens (*Cladina mitis*, *C. rangiferina*, *C. stellaris*) occurs.



Environment: This association mostly occurs on mesic to subhygric, moderately well drained to imperfectly drained sites, that are mostly on level to gentle slopes. Parent materials vary. Sites often have permafrost (data are limited), and soil types include Cryosols (Static, Turbic, Organic). Other soils are classified as Brunisols. The forest floor has a low cover of woody debris.

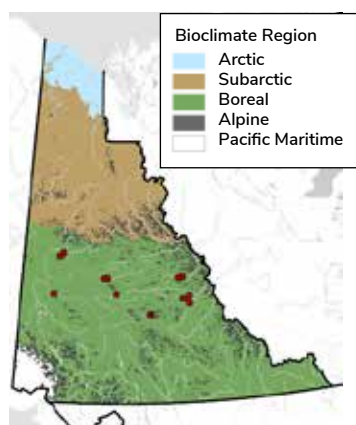
Dynamics: Stands are of varying density, but often open, mostly due to climate. Stands are likely to regenerate to black spruce after disturbance.

Comments

- Key characteristics: black spruce-dominated upland, open to closed stand; common Labrador tea, blueberry and shrub birch as key shrubs; horsetails; high feathermoss cover; central Yukon
- Component of CNVC00440 Black Spruce / Bog Blueberry / Horsetail / Step Moss

Sb31 Environment table

Zone	BOL (BOH)
Elevation (m)	488 – 892 – 1165
Aspect	variable
Slope (%)	0 – 12 – 40
Soil moisture regime	mesic-subhygric
Soil drainage	moderately well to imperfect
Permafrost presence/depth (cm)	common / 25-30 cm
Unvegetated cover (%)	0 – 6 – 15
Soil class	Cryosols, Brunisols

**Sb31** Vegetation summary (%)

Trees	3 – 24 – 50	Shrubs	16 – 40 – 99	Ground shrubs	3 – 13 – 50
Graminoids and Forbs	2 – 12 – 33	Bryophytes	32 – 80 – 99	Lichens	0 – 13 – 30

Layer	Scientific name	Sb31	Common name
		n = 14	
Trees	<i>Picea mariana</i>	■■■■■	black spruce
Shrubs	<i>Picea mariana</i>	■■■	black spruce
	<i>Betula glandulosa</i>	■■■	shrub birch
	<i>Rhododendron groenlandicum</i>	■■■■■	common Labrador tea
	<i>Salix</i> spp.	■■■■■	willows
	<i>Vaccinium uliginosum</i>	■■■	blueberry
Ground shrubs	<i>Empetrum nigrum</i>	■■■	crowberry
	<i>Rubus chamaemorus</i>	■■■	cloudberry
	<i>Vaccinium vitis-idaea</i>	■■■	lowbush cranberry
Forbs	<i>Equisetum</i> spp.	■■■	horsetails
Bryophytes	<i>Hylocomium</i> / <i>Pleurozium</i>	■■■■■	feathermosses
	<i>Sphagnum</i> spp.	■■■	peat mosses
Lichens	<i>Cladonia</i> spp.	■■■	reindeer lichens
	<i>Nephroma arcticum</i>	■■■	arctic kidney lichen

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

Sb32 Black spruce / Blueberry willow / Dwarf scouring-rush / Step moss

Sb32 is a black spruce woodland or forest characterized by blueberry willow and red bearberry, with a feathermoss ground cover, that occurs on cool sites at low to moderate elevations of the BOL.

Vegetation: Sb32 stands have a tree canopy dominated by black spruce (*Picea mariana*). The shrub layer is well developed, with black spruce, common Labrador tea (*Rhododendron groenlandicum*) and willows (*Salix* spp.), usually blueberry willow (*S. myrtilifolia*). Lowbush cranberry (*V. vitis-idaea*), red bearberry (*Arctous rubra*), dwarf scouring-rush (*Equisetum scirpoides*) and bastard toadflax (*Geocaulon lividum*) are common in the understorey. Feathermosses (*Hylocomium splendens*, *Pleurozium schreberi*) dominate the moss cover. Low to moderate cover of reindeer lichens (*Cladina mitis*, *C. rangiferina*, *C. stellaris*) also occurs.

Environment: Sb32 occurs mostly on mesic to subhygric, moderately well drained to imperfectly drained sites, mostly on level to gentle slopes. Parent materials are usually fluvial or lacustrine, but can be morainal, colluvial or glaciofluvial. Permafrost is common at depths of 30 to 100 cm, and soil types include Cryosols (Turbic) and Brunisols (Dystric, Eutric, Melanic). The forest floor has a low cover of woody debris.

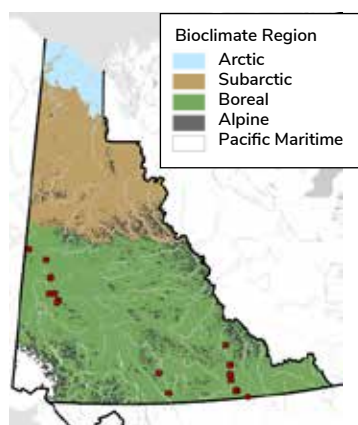
Dynamics: Stands are of varying density, with open stands having more black spruce in the shrub layer. As sites are cool, due to climate or local site conditions, stands are likely to regenerate to black spruce after disturbance. The Sb33 association differs only in the amount of common Labrador tea, which could be site-associated or disturbance-associated.

**Comments**

- Key characteristics: black spruce-dominated upland; blueberry willow and red bearberry; common Labrador tea <15%; high feathermoss cover
- Component of CNVC00114 Black Spruce / Blueberry Willow / Step Moss – Glow Moss

Sb32 Environment table

Zone	BOL
Elevation (m)	346 – 689 – 920
Aspect	variable
Slope (%)	0 – 4 – 20
Soil moisture regime	mesic-subhygric
Soil drainage	moderately well to imperfect
Permafrost presence/depth (cm)	common / >30 cm
Unvegetated cover (%)	2 – 6 – 10
Soil class	Cryosols, Brunisols

**Sb32** Vegetation summary (%)

Trees	5 – 34 – 80	Shrubs	11 – 42 – 99	Ground shrubs	1 – 11 – 25
Graminoids and Forbs	1 – 10 – 35	Bryophytes	30 – 65 – 99	Lichens	0 – 15 – 50

Layer	Scientific name	Sb32 n = 16	Common name
Trees	<i>Picea mariana</i>	■■■■■	black spruce
Shrubs	<i>Picea mariana</i>	■■■■	black spruce
	<i>Rhododendron groenlandicum</i>	■■■■	common Labrador tea
	<i>Rosa acicularis</i>	■■	prickly rose
	<i>Salix myrtillofolia</i>	■■■	blueberry willow
	<i>Salix</i> spp.	■■■	willows
	<i>Vaccinium uliginosum</i>	■■■	blueberry
Ground shrubs	<i>Arctous rubra</i>	■■	red bearberry
	<i>Empetrum nigrum</i>	■■	crowberry
	<i>Vaccinium vitis-idaea</i>	■■■	lowbush cranberry
Forbs	<i>Equisetum scirpoides</i>	■■	dwarf scouring-rush
	<i>Geocaulon lividum</i>	■	bastard toadflax
	<i>Petasites frigidus</i>	■■	arctic sweet coltsfoot
Bryophytes	<i>Hylocomium splendens</i>	■■■■■	step moss
	<i>Pleurozium schreberi</i>	■■■■	red-stemmed feathermoss
Lichens	<i>Cladina</i> spp.	■■■■	reindeer lichens
	<i>Peltigera</i> spp.	■■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

Sb33 Black spruce / Labrador tea – Blueberry willow / Dwarf scouring-rush / Step moss

Sb33 is a black spruce woodland or forest characterized by blueberry willow and red bearberry, high cover of common Labrador tea, and a feathermoss ground cover, that occurs on cool sites at low to moderate elevations of the BOL.

Vegetation: Stands have a tree canopy dominated by black spruce (*Picea mariana*). The shrub layer is well developed, with black spruce, moderate to high cover of common Labrador tea (*Rhododendron groenlandicum*) and willows (*Salix* spp.), usually blueberry willow (*S. myrtilifolia*). Lowbush cranberry (*V. vitis-idaea*), red bearberry (*Arctous rubra*), dwarf scouring-rush (*Equisetum scirpoides*) and bastard toadflax (*Geocaulon lividum*) are common in the understorey. Feathermosses (*Hylocomium splendens*, *Pleurozium schreberi*) dominate the moss cover. Low to moderate cover of reindeer lichens (*Cladina mitis*, *C. rangiferina*, *C. stellaris*) also occurs.

Environment: Sb33 occurs mostly on mesic to subhygric, moderately well drained to imperfectly drained sites that are generally on level to gentle slopes. Parent materials can be fluvial, lacustrine, morainal, colluvial or glaciofluvial. Permafrost is rare, but data are poor. Soil types include Cryosols (Turbic) and Brunisols. The forest floor has a very low cover of woody debris.

Dynamics: Stands are of varying density, with open stands having more black spruce in the shrub layer. As sites are cool, due to climate or local site conditions, stands are likely to regenerate to black spruce after disturbance. The Sb32 association differs only in the amount of common Labrador tea, which could be site- or disturbance-associated.

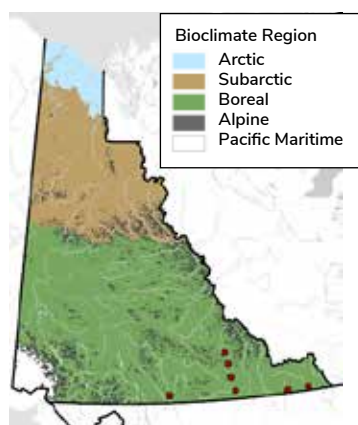
Comments

- Key characteristics: black spruce-dominated upland; blueberry willow and red bearberry; common Labrador tea >20%; high feathermoss cover
- Component of CNVC00114 Black Spruce / Blueberry Willow / Step Moss – Glow Moss



Sb33 Environment table

Zone	BOL
Elevation (m)	460 – 695 – 810
Aspect	variable
Slope (%)	0 – 8 – 40
Soil moisture regime	mesic-subhygric
Soil drainage	moderately well to imperfect
Permafrost presence/depth (cm)	common / >30 cm
Unvegetated cover (%)	0 – 1 – 2
Soil class	Cryosols, Brunisols

**Sb33** Vegetation summary (%)

Trees	5 – 33 – 75	Shrubs	32 – 57 – 99	Ground shrubs	1 – 12 – 41
Graminoids and Forbs	0.1 – 4 – 14	Bryophytes	20 – 75 – 99	Lichens	1 – 13 – 40

Layer	Scientific name	Sb33 n = 9	Common name
Trees	<i>Picea mariana</i>	■■■■■	black spruce
Shrubs	<i>Rhododendron groenlandicum</i>	■■■■■	common Labrador tea
	<i>Rosa acicularis</i>	■ ■	prickly rose
	<i>Salix</i> spp.	■■■	willows
	<i>Salix myrtillifolia</i>	■ ■	blueberry willow
Ground shrubs	<i>Arctous rubra</i>	■ ■	red bearberry
	<i>Empetrum nigrum</i>	■ ■	crowberry
	<i>Rubus chamaemorus</i>	■ ■	cloudberry
	<i>Vaccinium vitis-idaea</i>	■■■	lowbush cranberry
Forbs	<i>Equisetum scirpoides</i>	■■	dwarf scouring-rush
	<i>Geocaulon lividum</i>	■	bastard toadflax
Bryophytes	<i>Hylocomium</i> / <i>Pleurozium</i>	■■■■■	feathermosses
Lichens	<i>Cladina</i> spp.	■■■■	reindeer lichens
	<i>Peltigera</i> spp.	■■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

Sb34 Black spruce / Labrador tea / Lowbush cranberry / Feathermoss – Peat moss

Sb34 is a black spruce swamp forest, characterized by shrub birch, common Labrador tea, cloudberry and a moss cover comprised of feathermosses, peat mosses and some brown mosses, that occurs on wet sites in the BOL, BOH and SUW. This association comprises part of the Sb – Labrador Tea – Peat Moss Swamp ecosite (S07).

Vegetation: Stands have a tree canopy of black spruce (*Picea mariana*). The shrub layer is well developed, with black spruce, variable cover of common Labrador tea (*Rhododendron groenlandicum*), shrub birch (*Betula glandulosa*) and willows (*Salix* spp.). Cloudberry (*Rubus chamaemorus*), lowbush cranberry (*Vaccinium vitis-idaea*) and crowberry (*Empetrum nigrum*) are prominent ground shrubs. Feathermosses (*Hylocomium splendens*, *Pleurozium schreberi*) and peat mosses (*Sphagnum* spp.) dominate the moss cover, but brown mosses (*Aulacomnium*, *Tomentypnum*, *Drepanocladus*) are also usually present. Low to moderate cover of reindeer lichens (*Cladina mitis*, *C. rangiferina*, *C. stellaris*) usually occurs.



Environment: Sb34 occurs mostly on hygric, poorly-drained to very poorly drained sites that are generally on level ground or gentle slopes. Parent materials are morainal, colluvial or organic, usually with permafrost at about 30 cm or so. Soil types include Cryosols (mostly Turbic, but including Static and Organic) and sometimes Gleysols. The forest floor has a low to moderate cover of woody debris.

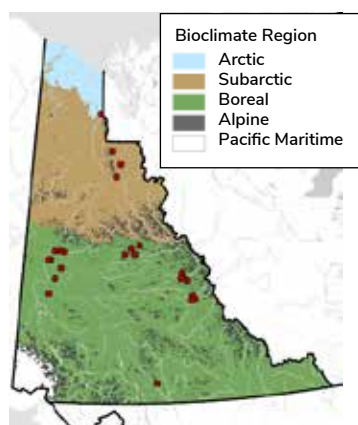
Dynamics: Stands are of varying density, with open stands having more black spruce in the shrub layer. Based on site conditions, stands are likely to regenerate to black spruce after disturbance.

Comments

- Key characteristics: black spruce swamp; shrub birch and common Labrador tea; cloudberry and lowbush cranberry; peat mosses >10%, brown mosses present
- Component of CNVC00459 Black Spruce / Labrador Tea / Crowberry / Step Moss – Peat Moss

Sb34 Environment table

Zone	BOL, BOH, SUW
Elevation (m)	395 – 710 – 1191
Aspect	variable
Slope (%)	0 – 9 – 37
Soil moisture regime	hygic to subhydryc
Soil drainage	poor, very poor
Permafrost presence/depth (cm)	common / >30 cm
Unvegetated cover (%)	0 – 2 – 15
Soil class	Cryosols (Gleysols)

**Sb34** Vegetation summary (%)

Trees	1 – 13 – 50	Shrubs	21 – 54 – 99	Ground shrubs	1 – 19 – 60
Graminoids and Forbs	0.1 – 8 – 21	Bryophytes	15 – 70 – 96	Lichens	0 – 10 – 21

Layer	Scientific name	Sb34 n = 23	Common name
Trees	<i>Picea mariana</i>	■■■■■	black spruce
Shrubs	<i>Picea mariana</i>	■■■■■	black spruce
	<i>Betula glandulosa</i>	■■■	shrub birch
	<i>Rhododendron groenlandicum</i>	■■■■■	common Labrador tea
	<i>Vaccinium uliginosum</i>	■■■	blueberry
	<i>Salix</i> spp.	■■■	willows
Ground shrubs	<i>Empetrum nigrum</i>	■■■	crowberry
	<i>Rubus chamaemorus</i>	■■■	cloudberry
	<i>Vaccinium oxycoccos</i>	■	bog cranberry
	<i>Vaccinium vitis-idaea</i>	■■■	lowbush cranberry
Graminoids	<i>Carex bigelowii</i> ssp. <i>lugens</i>	■■	spruce muskeg sedge
Forbs	<i>Petasites frigidus</i>	■■	arctic sweet coltsfoot
Bryophytes	<i>Hylocomium splendens</i>	■■■■■	step moss
	<i>Pleurozium schreberi</i>	■■■■■	red-stemmed feathermoss
	<i>Sphagnum</i> spp.	■■■■■	peat mosses
	Amblystegiaceae	■■■■■	brown mosses
Lichens	<i>Cladonia</i> spp.	■■■	reindeer lichens
	<i>Cladonia</i> spp.	■	clad lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

Sb35 Black spruce / Alder – Labrador tea / Lichen – Peat moss

Sb35 is an open black spruce swamp, often on sloping sites, characterized by green alder, Labrador teas, and a moss cover comprised of feathermosses, peat mosses, brown mosses and lichens, that occurs in the BOL, BOH and SUW. This association comprises part of the SbSw – Alder – Labrador tea – Peat Moss Swamp ecosite (S15).

Vegetation: Stands have a tree canopy dominated by black spruce (*Picea mariana*); sometimes minor white spruce (*P. glauca*) or larch (*Larix laricina*) occurs. The shrub layer is well developed, with black spruce, green alder (*Alnus alnobetula*) and Labrador teas (*Rhododendron groenlandicum*, *R. tomentosum*) dominating. Lowbush cranberry (*Vaccinium vitis-idaea*) and cloudberry (*Rubus chamaemorus*) are prominent ground shrubs. Bog cranberry (*V. oxycoccus*) is usually present. Dominance in the moss/lichen layers varies; any of feathermosses (*Hylocomium splendens*, *Pleurozium schreberi*), peat mosses (*Sphagnum* spp.), brown mosses (*Aulacomnium*, *Tomentypnum*, *Drepanocladus*) or reindeer lichens (*Cladina mitis*, *C. rangiferina*, *C. stellaris*) can dominate.

Environment: The Sb35 association mostly occurs on hygric, imperfectly to very poorly drained sites, on cool level sites or slopes that vary in gradient (gentle to moderate). Parent materials are morainal, colluvial or organic, usually with permafrost at about 25 cm or so. Soil types include Cryosols (mostly Turbic or Organic) and sometimes Gleysols. The forest floor has a low to moderate cover of woody debris.

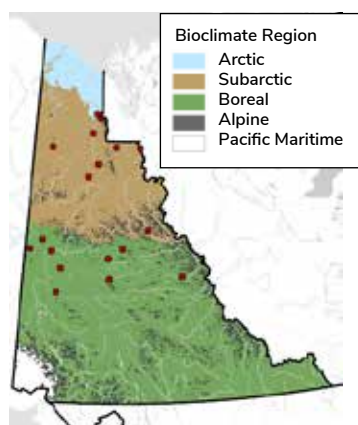
Dynamics: Stands are open, and black spruce dominates in the forest regeneration. Based on site conditions, stands are likely to regenerate to black spruce after disturbance.

**Comments**

- Key characteristics: black spruce swamp; green alder and Labrador teas present; peat mosses >10%
- Component of CNVC00460 Black Spruce / Green Alder – Northern Labrador Tea / Peat Moss – Reindeer Lichen

Sb35 Environment table

Zone	BOL, BOH, SUW
Elevation (m)	86 – 575 – 975
Aspect	variable
Slope (%)	0 – 22 – 52
Soil moisture regime	hygric to subhydryc
Soil drainage	imperfect to poor (very poor)
Permafrost presence/depth (cm)	common / >25 cm
Unvegetated cover (%)	0 – 5 – 15
Soil class	Cryosols (Gleysols)

**Sb35** Vegetation summary (%)

Trees	1 – 13 – 50	Shrubs	22 – 62 – 99	Ground shrubs	3 – 25 – 70
Graminoids and Forbs	0.5 – 6 – 25	Bryophytes	15 – 65 – 96	Lichens	2 – 25 – 95

Layer	Scientific name	Sb35 n = 21	Common name
Trees	<i>Picea mariana</i>	■■■■■	black spruce
Shrubs	<i>Picea mariana</i>	■■■■■	black spruce
	<i>Alnus alnobetula</i>	■■■	green alder
	<i>Betula glandulosa</i>	■■■	shrub birch
	<i>Rhododendron</i> spp.	■■■■■	Labrador teas
	<i>Vaccinium uliginosum</i>	■■■	blueberry
Ground shrubs	<i>Rubus chamaemorus</i>	■■■	cloudberry
	<i>Vaccinium oxycoccos</i>	■	bog cranberry
	<i>Vaccinium vitis-idaea</i>	■■■■■	lowbush cranberry
Bryophytes	<i>Hylocomium</i> / <i>Pleurozium</i>	■■■■■	feathermosses
	<i>Sphagnum</i> spp.	■■■■■	peat mosses
	Amblystegiaceae	■■■	brown mosses
Lichens	<i>Cladina</i> spp.	■■■■■	reindeer lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

Sb36 Black spruce / Labrador tea / Lowbush cranberry / Lichen – Peat moss

Sb36 is a black spruce swamp forest, characterized by common Labrador tea, a high cover of reindeer lichens and a moss cover of feathermosses, peat mosses and some brown mosses, that occurs on wet sites in the BOL and BOH. This association comprises part of the Sb – Labrador Tea – Peat Moss Swamp ecosite (S07).

Vegetation: Stands have a tree canopy of black spruce (*Picea mariana*). The shrub layer is well developed, with black spruce and common Labrador tea (*Rhododendron groenlandicum*), often with shrub birch (*Betula glandulosa*) and blueberry (*Vaccinium uliginosum*). Ground shrubs, including lowbush cranberry (*Vaccinium vitis-idaea*), crowberry (*Empetrum nigrum*) and cloudberry (*Rubus chamaemorus*), are common, along with variable cover of feathermosses (*Hylocomium splendens*, *Pleurozium schreberi*), peat mosses (*Sphagnum* spp.) and brown mosses (*Aulacomnium*, *Tomentypnum*, *Drepanocladus*). Reindeer lichens (*Cladina mitis*, *C. rangiferina*, *C. stellaris*, *C. arbuscula*) are of high to very high cover,

Environment: The Sb36 association mostly occurs on hygric, poorly drained sites that are generally on level to gentle slopes. Parent materials are varied, mostly organic, and usually with permafrost at about 25 cm or so. Soils are usually Cryosols (mostly Turbic or Static), but sometimes Gleysols. The forest floor has a low to moderate cover of woody debris and sometimes standing water.

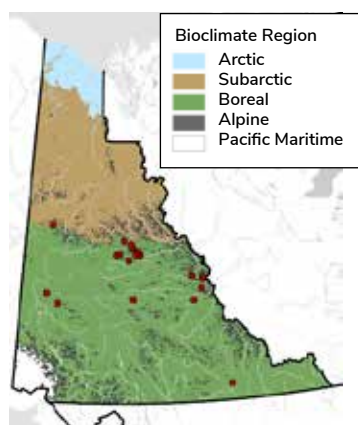
Dynamics: Stands are of varying density, with open stands having more black spruce in the shrub layer. Based on site conditions, stands are likely to regenerate to black spruce after disturbance.

**Comments**

- Key characteristics: black spruce swamp; shrub birch and common Labrador tea; lowbush cranberry; peat mosses >10%; reindeer lichens >20%, brown mosses usually present
- Component of CNVC00459 Black Spruce / Labrador Tea / Crowberry / Step Moss – Peat Moss

Sb36 Environment table

Zone	BOL, BOH
Elevation (m)	607 – 780 – 1186
Aspect	variable
Slope (%)	0 – 5 – 20
Soil moisture regime	hygric to subhydryc
Soil drainage	poor
Permafrost presence/depth (cm)	common / >25 cm
Unvegetated cover (%)	0 – 3 – 15
Soil class	Cryosols (Gleysols)

**Sb36 Vegetation summary (%)**

Trees	1 – 17 – 65	Shrubs	16 – 43 – 99	Ground shrubs	0.4 – 14 – 44
Graminoids and Forbs	0.1 – 7 – 25	Bryophytes	20 – 52 – 83	Lichens	17 – 44 – 80

Layer	Scientific name	Sb36	Common name
		n = 21	
Trees	<i>Picea mariana</i>	■■■■■	black spruce
Shrubs	<i>Picea mariana</i>	■■■■■	black spruce
	<i>Betula glandulosa</i>	■■■	shrub birch
	<i>Rhododendron groenlandicum</i>	■■■■■	common Labrador tea
	<i>Vaccinium uliginosum</i>	■ ■	blueberry
Ground shrubs	<i>Empetrum nigrum</i>	■ ■	crowberry
	<i>Rubus chamaemorus</i>	■ ■ ■	cloudberry
	<i>Vaccinium vitis-idaea</i>	■■■	lowbush cranberry
Bryophytes	<i>Hylocomium / Pleurozium</i>	■■■■■	feathermosses
	<i>Sphagnum</i> spp.	■■■■■	peat mosses
	<i>Aulacomnium / Tomentypnum</i>	■■■	brown mosses
Lichens	<i>Cladina</i> spp.	■■■■■	reindeer lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

Sb41 Black spruce / Labrador tea / Sedge / Peat moss

Sb41 is an open black spruce bog characterized by Labrador teas, cloudberry, sedges and peat moss that occurs in the BOL. This association comprises part of the Sb – Labrador Tea – Peat Moss Bog ecosite (B03).

Vegetation: Stands have a tree canopy dominated by black spruce (*Picea mariana*). The shrub layer is well developed, with black spruce and Labrador teas (*Rhododendron groenlandicum*, *R. tomentosum*) dominating. Crowberry (*Empetrum nigrum*), lowbush cranberry (*Vaccinium vitis-idaea*) and cloudberry (*Rubus chamaemorus*) are prominent ground shrubs. Bog cranberry (*V. oxycoccus*) is usually present. Peat mosses (*Sphagnum* spp.) dominate the moss/lichen layer. Reindeer lichens (*Cladina mitis*, *C. rangiferina*, *C. stellaris*) occur with moderate cover.

Environment: The Sb41 association occurs mostly on hygric, poorly drained sites, on level sites or gentle slopes. Parent materials are organic, usually with permafrost at about 30 cm or so. Soils are Organic Cryosols. The forest floor has a low to moderate cover of woody debris.

Dynamics: Stands are open, and black spruce dominates in the forest regeneration. Based on site conditions, stands are likely to regenerate to black spruce after disturbance. These bogs are slightly richer than most bogs; hence, the sedge component.

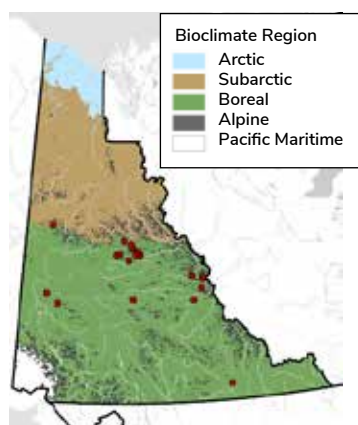
Comments

- Key characteristics: black spruce bog; Labrador teas present; peat mosses abundant; sedges >15%
- Component of CNVC00314 Black Spruce / Shrub Birch / Lowbush Cranberry / Peat Moss



Sb41 Environment table

Zone	BOL
Elevation (m)	700 – 750 – 825
Aspect	variable
Slope (%)	0 – 2 – 10
Soil moisture regime	hygic
Soil drainage	poor
Permafrost presence/depth (cm)	common / >30 cm
Unvegetated cover (%)	0 – 10 – 25
Soil class	Cryosols

**Sb41** Vegetation summary (%)

Trees	0 – 18 – 25	Shrubs	22 – 54 – 99	Ground shrubs	13 – 32 – 70
Graminoids and Forbs	15 – 19 – 20	Bryophytes	40 – 70 – 88	Lichens	5 – 12 – 25

Layer	Scientific name	Sb41	Common name
		n = 3	
Trees	<i>Picea mariana</i>	■■■■■	black spruce
Shrubs	<i>Rhododendron</i> spp.	■■■■■	Labrador teas
	<i>Salix</i> spp.	■■■■■	willows
	<i>Vaccinium uliginosum</i>	■■■	blueberry
Ground shrubs	<i>Empetrum nigrum</i>	■■■■■	crowberry
	<i>Rubus chamaemorus</i>	■■■	cloudberry
	<i>Vaccinium oxycoccos</i>	■■■	bog cranberry
	<i>Vaccinium vitis-idaea</i>	■■■	lowbush cranberry
Graminoids	<i>Carex</i> spp.	■■■■■	sedges
Bryophytes	<i>Sphagnum</i> spp.	■■■■■	peat mosses
Lichens	<i>Cladina</i> spp.	■■■■■	reindeer lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

Sb42 Black spruce / Labrador tea / Lichen – Peat moss

Sb42 is an open black spruce lichen bog characterized by Labrador teas, cloudberry, reindeer lichens and peat mosses that occurs in the BOL, BOH and SUW. This association characterizes the Sb – Lichen Bog ecosite (B04).

Vegetation: Stands have a tree canopy dominated by black spruce (*Picea mariana*). The shrub layer is well developed, with black spruce and Labrador teas — *R. tomentosum* dominates in the northern Labrador tea subassociation (Sb42n) and *Rhododendron groenlandicum* dominates in the typical subassociation (Sb42t). Lowbush cranberry (*Vaccinium vitis-idaea*) and cloudberry (*Rubus chamaemorus*) are prominent ground shrubs. Bog cranberry (*V. oxycoccus*) is usually present. Peat mosses (*Sphagnum* spp.) and reindeer lichens (*Cladina mitis*, *C. rangiferina*, *C. stellaris*) generally occur with high cover, with the lichen cover often exceeding the moss cover.

Environment: The Sb42 association occurs on hygric, imperfectly to poorly drained sites, which are usually level or sometimes very gently sloped. Parent materials are organic, with 30 to 40 cm or more of fibric peat, and with permafrost at about 30 cm or so. Soils are generally Organic Cryosols (sometimes Static Cryosols). The forest floor often has a very low cover of woody debris.

Dynamics: Stands are open and black spruce dominates in the forest regeneration. Based on site conditions, stands are likely to regenerate to black spruce after disturbance. These bogs are raised above the water table enough to have a dry surface layer; hence, the high lichen cover.

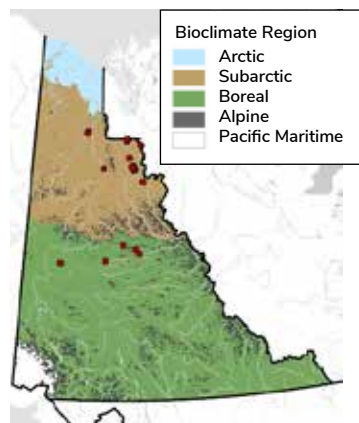
Comments

- Key characteristics: black spruce bog; Labrador teas; peat mosses abundant; reindeer lichens >25%
- Component of CNVC00314 Black Spruce / Shrub Birch / Lowbush Cranberry / Peat Moss



Sb42 Environment Table

Zone	BOL, BOH, SUW
Elevation (m)	40 – 615 – 1090
Aspect	neutral (variable)
Slope (%)	0 – 2 – 10
Soil moisture regime	hygric (subhydryc)
Soil drainage	imperfect to poor
Permafrost presence/depth (cm)	common / >30 cm
Unvegetated cover (%)	0 – 1 – 8
Soil class	Cryosols

**Sb42 Vegetation summary (%)**

Trees	0.1 – 12 – 70	Shrubs	7 – 40 – 99	Ground shrubs	1.5 – 13 – 70
Graminoids and Forbs	0.1 – 3 – 13	Bryophytes	0.5 – 36 – 90	Lichens	20 – 55 – 99

Layer	Scientific name	Sb42n n = 22	Sb42t n = 28	Common name
Trees	<i>Picea mariana</i>	■■■	■■■■	black spruce
Shrubs	<i>Picea mariana</i>	■■■■	■■■	black spruce
	<i>Betula glandulosa</i>	■ ■	■■■	shrub birch
	<i>Rhododendron tomentosum</i>	■■■■		northern Labrador tea
	<i>Rhododendron groenlandicum</i>		■■■■	common Labrador tea
	<i>Vaccinium uliginosum</i>		■ ■	blueberry
Ground shrubs	<i>Rubus chamaemorus</i>	■■■	■■■	cloudberry
	<i>Vaccinium oxycoccos</i>	□	■	bog cranberry
	<i>Vaccinium vitis-idaea</i>	■■■	■■■	lowbush cranberry
Bryophytes	<i>Pleurozium schreberi</i>	□ □	■ ■ ■	red-stemmed feathermoss
	<i>Sphagnum</i> spp.	■■■■	■■■■■	peat mosses
Lichens	<i>Cladina</i> spp.	■■■■■	■■■■■	reindeer lichens
	<i>Cladonia</i> spp.	■ ■ ■	■ ■	clad lichens
	<i>Flavocetraria cucullata</i>	□ □	■	curled snow lichen
	<i>Flavocetraria nivalis</i>		■	crinkled snow lichen

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

Sb43 Black spruce / Labrador tea / Feathermoss – Peat moss

Sb43 is an open black spruce bog characterized by Labrador teas and high peat moss and feathermoss cover that occurs in the BOL and BOH. Sb43 comprises part of the Sb – Labrador Tea – Peat Moss Bog ecosite (B03), and the slope phase (Sb43s) comprises the Sb – Sloping Bog ecosite (B06).

Vegetation: Stands have a tree canopy dominated by black spruce (*Picea mariana*). The shrub layer is well developed, with black spruce and common Labrador tea (*Rhododendron groenlandicum*). Stands of the Sb43s phase have most of their spruce cover in the shrub layer. Lowbush cranberry (*Vaccinium vitis-idaea*) is prominent in the understorey. Peat mosses (*Sphagnum* spp.) and feathermosses (*Hylcomium splendens*, *Pleurozium schreberi*) generally occur with high cover.

Environment: The Sb43 association occurs on hygric, imperfectly to poorly drained sites, which are level or on moderate to steep, cool-aspect slopes. Two phases are recognized that characterize the level bogs (Sb43) from the sloping bogs (Sb43s). Parent materials are organic, with 30 cm or more of fibric peat and with permafrost at about 30 to 60 cm. Soils are Cryosols. The forest floor often has a very low cover of woody debris.

Dynamics: Stands are open and black spruce dominates in the forest regeneration. Based on site conditions, stands are likely to regenerate to black spruce after disturbance. These bogs are raised above the water table enough to have a dry surface layer; hence, the high feathermoss cover.

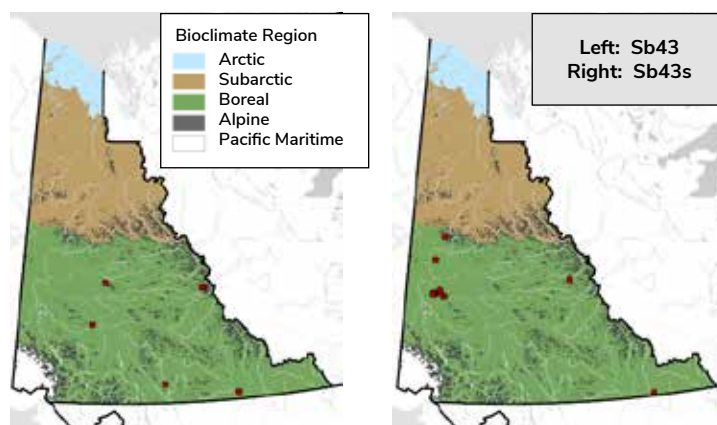
Comments

- Key characteristics: black spruce bog; common Labrador tea; peat mosses; feathermosses >25% and often > peat moss cover; both level sites and moderate to steep cool slopes
- Component of CNVC00314 Black Spruce / Shrub Birch / Lowbush Cranberry / Peat Moss



Sb43 Environment table

Zone	BOL, BOH
Elevation (m)	390 – 890 – 1400
Aspect	neutral or cool (north to northeast)
Slope (%)	0 – 24 – 63
Soil moisture regime	hygic
Soil drainage	imperfect to poor
Permafrost presence/depth (cm)	common / >30 cm
Unvegetated cover (%)	0 – 3 – 7
Soil class	Cryosols

**Sb43** Vegetation summary (%)

Trees	0 – 10 – 55	Shrubs	24 – 63 – 99	Ground shrubs	0.4 – 16 – 41
Graminoids and Forbs	0 – 7 – 21	Bryophytes	35 – 77 – 99	Lichens	2 – 19 – 58

Layer	Scientific name	Sb43 n = 6	Sb43s n = 12	Common name
Trees	<i>Picea mariana</i>	■■■■■	■■■■	black spruce
Shrubs	<i>Picea mariana</i>	■ ■	■■■■■	black spruce
	<i>Betula glandulosa</i>	■■■	■ ■ ■	shrub birch
	<i>Betula occidentalis</i>		■	water birch
	<i>Rhododendron groenlandicum</i>	■■■■■	■■■■■	common Labrador tea
	<i>Rhododendron tomentosum</i>		■ ■ ■	northern Labrador tea
	<i>Salix</i> spp.	■■■■■	■ ■ ■	willows
	<i>Vaccinium uliginosum</i>	■■■	■ ■ ■	blueberry
Ground shrubs	<i>Empetrum nigrum</i>	■■	■ ■ ■	crowberry
	<i>Rubus chamaemorus</i>	■■■■■	■ ■ ■	cloudberry
	<i>Vaccinium oxycoccos</i>	■	■	bog cranberry
	<i>Vaccinium vitis-idaea</i>	■■■	■■■	lowbush cranberry
Bryophytes	<i>Hylocomium splendens</i>	■■■■■	■ ■ ■ ■	step moss
	<i>Pleurozium schreberi</i>	■ ■ ■	■■■■■	red-stemmed feathermoss
	<i>Sphagnum</i> spp.	■■■■■	■■■■■	peat mosses
Lichens	<i>Cetraria</i> spp.		■ ■ ■	Iceland lichens
	<i>Cladina</i> spp.	■■■■■	■■■■■	reindeer lichens
	<i>Cladonia</i> spp.	■ ■	■	clad lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ ■ 1 – 3	■ ■ ■ 3 – 10	■ ■ ■ ■ 10 – 25	■ ■ ■ ■ ■ >25

Sb44 Black spruce / Labrador tea / Cloudberry – Lowbush cranberry / Peat moss

Sb44 is an open black spruce bog characterized by Labrador teas, bog cranberry, cloudberry and high peat moss cover that occurs in the BOL, BOH and SUW. This association characterizes the Sb – Labrador Tea – Peat Moss Bog ecosite (B03).

Vegetation: Stands have a tree canopy dominated by black spruce (*Picea mariana*). The shrub layer is well developed, with black spruce and Labrador teas — *R. tomentosum* dominates in the northern Labrador tea subassociation (Sb44n) and *Rhododendron groenlandicum* dominates in the typic subassociation (Sb44t). Cloudberry (*Rubus chamaemorus*), lowbush cranberry (*Vaccinium vitis-idaea*), and bog cranberry (*V. oxycoccus*) are prominent ground shrubs. Peat mosses (*Sphagnum* spp.) are of high cover.

Environment: The Sb44 association occurs on hygric, imperfectly to poorly drained sites, which are usually level or sometimes very gently sloped. Parent materials are organic, with 30 to 40 cm or more of fibric peat and with permafrost at about 30 cm or so. Soils are generally Organic Cryosols (sometimes Static or Turbic Cryosols). The forest floor often has a very low cover of woody debris.

Dynamics: Stands are open, and black spruce dominates in the forest regeneration. Based on site conditions, stands are likely to regenerate to black spruce after disturbance.

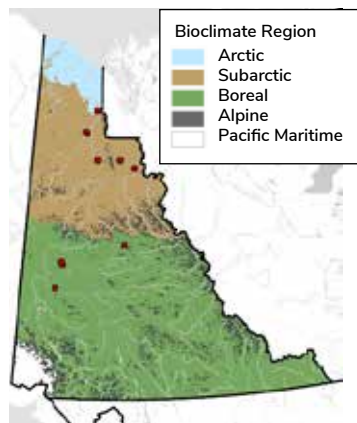
Comments

- Key characteristics: black spruce bog; Labrador teas; peat mosses abundant; reindeer lichens <25%; feathermosses <25%
- Component of CNVC00314 Black Spruce / Shrub Birch / Lowbush Cranberry / Peat Moss



Sb44 Environment table

Zone	BOL, BOH, SUW
Elevation (m)	308 – 664 – 1097
Aspect	neutral (variable)
Slope (%)	0 – 2 – 10
Soil moisture regime	hygic (subhydric)
Soil drainage	imperfect to poor
Permafrost presence/depth (cm)	common / >30 cm
Unvegetated cover (%)	0 – 3 – 6
Soil class	Cryosols

**Sb44** Vegetation summary (%)

Trees	0 – 10 – 40	Shrubs	11 – 46 – 99	Ground shrubs	5 – 25 – 80
Graminoids and Forbs	0 – 10 – 44	Bryophytes	35 – 72 – 99	Lichens	2 – 17 – 45

Layer	Scientific name	Sb44n n = 11	Sb44t n = 21	Common name
Trees	<i>Picea mariana</i>	■■■	■■■■■	black spruce
Shrubs	<i>Picea mariana</i>	■■■■■	■■■■■	black spruce
	<i>Betula glandulosa</i>	■■■	■■■	shrub birch
	<i>Rhododendron groenlandicum</i>	□□	■■■■■	common Labrador tea
	<i>Rhododendron tomentosum</i>	■■■■■		northern Labrador tea
	<i>Vaccinium uliginosum</i>	□	■■	blueberry
Ground shrubs	<i>Empetrum nigrum</i>	■■	■■■	crowberry
	<i>Rubus chamaemorus</i>	■■■	■■■■■	cloudberry
	<i>Vaccinium oxycoccos</i>	■■	■■	bog cranberry
	<i>Vaccinium vitis-idaea</i>	■■■	■■■	lowbush cranberry
Bryophytes	<i>Pleurozium schreberi</i>	□□	■■■	red-stemmed feathermoss
	<i>Sphagnum</i> spp.	■■■■■	■■■■■	peat mosses
Lichens	<i>Cladonia</i> spp.	■■■■■	■■■■■	reindeer lichens
	<i>Cladonia</i> spp.	□	■■	clad lichens
	<i>Cetraria</i> spp.	■■■		Iceland lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

Sb50 Black spruce / Spruce muskeg sedge

Sb50 is an open black spruce fen characterized by spruce muskeg sedge that occurs primarily in the BOL and sometimes in the BOH and BOS. This association is a component of the Sb – Tussock Sedge Fen ecosite (F05).

Vegetation: Stands have a tree canopy dominated by black spruce (*Picea mariana*), although white spruce (*P. glauca*) is sometimes present. The shrub layer is well developed, mostly with black spruce. Common Labrador tea (*Rhododendron groenlandicum*), willows (*Salix* spp.) and blueberry (*Vaccinium uliginosum*) are prominent shrubs. Red bearberry (*Arctous rubra*) and lowbush cranberry (*Vaccinium vitis-idaea*) are usually present. Spruce muskeg sedge (*Carex bigelowii* ssp. *lugens*) is characteristic and is usually of moderately high to high cover. The main mosses are a combination of brown mosses (mostly *Aulacomnium palustre* and *Tomentypnum nitens*), feather-mosses (mostly *Hylocomium splendens*) and peat mosses (*Sphagnum* spp.). Reindeer lichens (*Cladina* spp.) occur with varying cover, from low to moderately high.



Environment: The Sb50 association occurs on hygric to subhydryc sites that are level or gently sloping. Parent materials are organic veneers (20–40 cm or so) over mineral soil, with permafrost at about 30 cm or so. Soils are Organic or Turbic Cryosols. The forest floor often has a very low cover of woody debris.

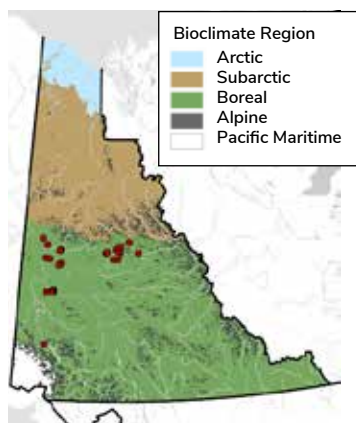
Dynamics: Stands are open, and black spruce dominates in the forest regeneration. Based on site conditions, stands are likely to regenerate to black spruce after disturbance, but white spruce can occur where there is a seed source.

Comments

- Key characteristics: black spruce fen; spruce muskeg sedge $\geq 10\%$; shrub birch $< 10\%$
- Component of CNVC00461 Black Spruce / Spruce Muskeg Sedge / Peat Moss

Sb50 Environment table

Zone	BOL (BOH, BOS)
Elevation (m)	314 – 619 – 1260
Aspect	neutral (variable)
Slope (%)	0 – 6 – 15
Soil moisture regime	hygric to subhydryc
Soil drainage	poor
Permafrost presence/depth (cm)	common / >30 cm
Unvegetated cover (%)	0 – 3 – 6
Soil class	Cryosols

**Sb50 Vegetation summary (%)**

Trees	0 – 10 – 35	Shrubs	11 – 46 – 99	Ground shrubs	2 – 16 – 40
Graminoids and Forbs	10 – 25 – 55	Bryophytes	30 – 60 – 95	Lichens	0 – 16 – 60

Layer	Scientific name	Sb50	Common name
		n = 32	
Trees	<i>Picea mariana</i>	■■■	black spruce
Shrubs	<i>Picea mariana</i>	■■■■	black spruce
	<i>Betula glandulosa</i>	■ ■	shrub birch
	<i>Dasiphora fruticosa</i>	■	shrubby cinquefoil
	<i>Rhododendron groenlandicum</i>	■■■	common Labrador tea
	<i>Salix</i> spp.	■■■	willows
	<i>Vaccinium uliginosum</i>	■■■	blueberry
Ground shrubs	<i>Arctous rubra</i>	■■■	red bearberry
	<i>Rubus chamaemorus</i>	■ ■	cloudberry
	<i>Vaccinium vitis-idaea</i>	■ ■ ■	lowbush cranberry
Graminoids	<i>Carex bigelowii</i> ssp. <i>lugens</i>	■■■■	spruce muskeg sedge
Bryophytes	<i>Aulacomnium</i> / <i>Tomentypnum</i>	■■■■	brown mosses
	<i>Hylocomium</i> / <i>Pleurozium</i>	■■■■	feathermosses
	<i>Sphagnum</i> spp.	■■■■	peat mosses
Lichens	<i>Cladina</i> spp.	■■■■	reindeer lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ ■ 1 – 3	■ ■ ■ 3 – 10	■ ■ ■ ■ 10 – 25	■ ■ ■ ■ ■ >25

Sb51 Black spruce / Shrub birch / Spruce muskeg sedge

Sb51 is an open black spruce fen characterized by shrub birch and spruce muskeg sedge that occurs in the BOL and BOH. This association is a component of the Sb – Tussock Sedge Fen ecosite (F05).

Vegetation: Stands have a tree canopy dominated by black spruce (*Picea mariana*), but the spruce is often only of shrub height. White spruce (*P. glauca*) is sometimes present. The shrub layer is very well developed, with black spruce and shrub birch (*Betula glandulosa*). Common Labrador tea (*Rhododendron groenlandicum*) and willows (*Salix* spp.) are often present as well. Lowbush cranberry (*Vaccinium vitis-idaea*) is also prominent. Spruce muskeg sedge (*Carex bigelowii* ssp. *lugens*) is characteristic and is of moderately high to high cover. Mosses are primarily feathermosses (*Hylocomium splendens*, *Pleurozium schreberi*), with lesser cover of peat mosses (*Sphagnum* spp.) or brown mosses (mostly *Aulacomnium palustre*, *Tomentypnum nitens*). Lichen cover, mostly reindeer lichens (*Cladonia* spp.), varies considerably.



Environment: The Sb51 association occurs on subhygric to hygric sites that are on level ground or gently to moderately sloping cool aspects (north to northeast). The surface organic layer is 20 to 40 cm thick over mineral soil (eolian, fluvial, colluvial), with greater depths occurring under tussocks. Soils are Turbic Cryosols, although data are limited. The forest floor sometimes has a very low cover of woody debris.

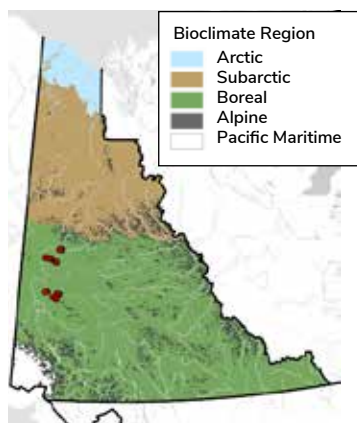
Dynamics: Stands are open and black spruce dominates in the forest regeneration. Based on site conditions, stands are likely to regenerate to black spruce after disturbance, but some white spruce can occur where there is a seed source.

Comments

- Key characteristics: black spruce fen; spruce muskeg sedge $\geq 10\%$; shrub birch $\geq 15\%$
- Component of CNVC00461 Black Spruce / Spruce Muskeg Sedge / Peat Moss

Sb51 Environment table

Zone	BOL, BOH
Elevation (m)	338 – 717 – 1177
Aspect	neutral or cool
Slope (%)	0 – 15 – 38
Soil moisture regime	subhygric to hygric
Soil drainage	imperfect to poor
Permafrost presence/depth (cm)	common / >30 cm
Unvegetated cover (%)	0 – 3 – 5
Soil class	Cryosols

**Sb51 Vegetation summary (%)**

Trees	0 – 22 – 35	Shrubs	41 – 85 – 99	Ground shrubs	1 – 23 – 99
Graminoids and Forbs	10 – 25 – 50	Bryophytes	25 – 65 – 95	Lichens	0 – 25 – 75

Layer	Scientific name	Sb51	Common name
		n = 14	
Trees	<i>Picea mariana</i>	■ ■ ■ ■	black spruce
Shrubs	<i>Picea mariana</i>	■ ■ ■ ■	black spruce
	<i>Betula glandulosa</i>	■ ■ ■ ■ ■	shrub birch
	<i>Rhododendron groenlandicum</i>	■ ■ ■ ■	common Labrador tea
	<i>Vaccinium uliginosum</i>	■ ■ ■ ■	blueberry
Ground shrubs	<i>Rubus chamaemorus</i>	■ ■ ■	cloudberry
	<i>Vaccinium vitis-idaea</i>	■ ■ ■ ■	lowbush cranberry
Graminoids	<i>Carex bigelowii</i> ssp. <i>lugens</i>	■ ■ ■ ■ ■	spruce muskeg sedge
Bryophytes	<i>Hylocomium splendens</i>	■ ■ ■ ■ ■	step moss
	<i>Pleurozium schreberi</i>	■ ■ ■ ■	red-stemmed feathermoss
	<i>Sphagnum</i> spp.	■ ■ ■	peat mosses
	<i>Aulacomnium</i> / <i>Tomentypnum</i>	■ ■ ■ ■	brown mosses
Lichens	<i>Cladina</i> spp.	■ ■ ■ ■	reindeer lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ ■ 1 – 3	■ ■ ■ 3 – 10	■ ■ ■ ■ 10 – 25	■ ■ ■ ■ ■ >25

Sb52 Black spruce / Leatherleaf / Spruce muskeg sedge

Sb52 is an open black spruce fen characterized by leatherleaf and spruce muskeg sedge that occurs in the BOL (known only from subzone BOLkp). This association is a component of the Sb – Tussock Sedge Fen ecosite (F05).

Vegetation: Stands have a tree canopy dominated by black spruce (*Picea mariana*), but the spruce is often stunted and only of shrub height. The shrub layer is very well developed, with black spruce, leatherleaf (*Chamaedaphne calyculata*), shrub birch (*Betula glandulosa*) and Labrador teas (*Rhododendron groenlandicum*, *R. tomentosum*). Spruce muskeg sedge (*Carex bigelowii* ssp. *lugens*) is characteristic and is of moderately high to high cover. Mosses are primarily peat mosses (*Sphagnum* spp.) and brown mosses (mostly *Tomentypnum nitens*). Feathermosses (mostly *Pleurozium schreberi*) commonly occur. Lichen cover, mostly reindeer lichens (*Cladina* spp.), is low.

Environment: This association occurs on hygric, relatively level sites. Parent materials are organic, up to 75 cm, or with a surface organic layer that is 20 to 40 cm thick or more over mineral soil (fluvial), with the depth greater under tussocks and less between tussocks. Soils are Cryosols, although data are limited.

Dynamics: Stands are open and black spruce dominates in the forest regeneration. Based on site conditions, stands are likely to regenerate to black spruce after disturbance.

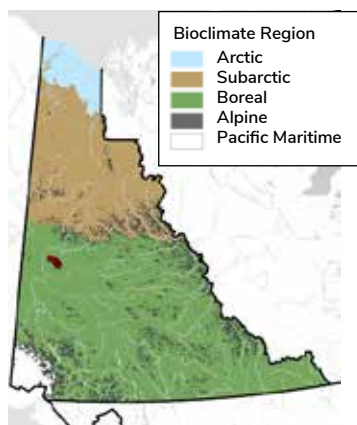
Comments

- Key characteristics: black spruce fen; spruce muskeg sedge $\geq 10\%$; leatherleaf $\geq 10\%$
- Component of CNVC00461 Black Spruce / Spruce Muskeg Sedge / Peat Moss



Sb52 Environment table

Zone	BOL; subzone BOLkp
Elevation (m)	400 – 460 – 525
Aspect	neutral
Slope (%)	0 – 1 – 2
Soil moisture regime	hygric
Soil drainage	poor
Permafrost presence/depth (cm)	common / >30 cm
Unvegetated cover (%)	no data
Soil class	Cryosols

**Sb52 Vegetation summary (%)**

Trees	0 – 20 – 40	Shrubs	57 – 87 – 99	Ground shrubs	0 – 26 – 66
Graminoids and Forbs	10 – 21 – 40	Bryophytes	3 – 60 – 90	Lichens	0 – 10 – 40

Layer	Scientific name	Sb52	Common name
		n = 5	
Trees	<i>Picea mariana</i>	□□□	black spruce
Shrubs	<i>Picea mariana</i>	■ ■ ■ ■	black spruce
	<i>Betula glandulosa</i>	■ ■ ■ ■	shrub birch
	<i>Chamaedaphne calyculata</i>	■ ■ ■ ■ ■	leatherleaf
	<i>Rhododendron</i> spp.	■ ■ ■ ■ ■	Labrador teas
	<i>Vaccinium uliginosum</i>	■ ■ ■ ■	blueberry
Graminoids	<i>Carex bigelowii</i> ssp. <i>lugens</i>	■ ■ ■ ■	spruce muskeg sedge
Bryophytes	<i>Sphagnum</i> spp.	■ ■ ■ ■ ■	peat mosses
	<i>Tomentypnum nitens</i>	■ ■ ■ ■	golden fuzzy fen moss

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ ■ 1 – 3	■ ■ ■ 3 – 10	■ ■ ■ ■ 10 – 25	■ ■ ■ ■ ■ >25

Sb54 Black spruce / Water sedge / Brown moss

Sb54 is an open black spruce fen characterized by water sedge and brown mosses that occurs mostly in the BOL, but sometimes in the BOH. This association is a component of the SbSw – Water Sedge Fen ecosite (F04).

Vegetation: Stands have a tree canopy dominated by black spruce (*Picea mariana*). White spruce (*P. glauca*) is sometimes a minor component. The shrub layer is well developed, with black spruce, Labrador tea (*Rhododendron groenlandicum*), shrub birch (*Betula glandulosa*), willows (*Salix* spp.) and blueberry (*Vaccinium uliginosum*). Lowbush cranberry (*Vaccinium vitis-idaea*), crowberry (*Empetrum nigrum*) and horsetails (*Equisetum arvense*, *E. pratense*, *E. sylvaticum*) are usually present. Water sedge (*Carex aquatilis*) is characteristic and is of moderately high to high cover. The bryophyte layer is dominated by peat mosses (*Sphagnum* spp.) and brown mosses (*Aulacomnium palustre*, *Tomentypnum nitens*, *Calliergon giganteum*, *Scorpidium scorpioides*). Lichens, mostly reindeer lichens (*Cladina* spp.), are of low cover.



Environment: This association occurs on level subhydric sites. Parent materials are deep peat or organic veneers over mineral soil (morainal, glaciofluvial). Soils are mostly organic and classified as Typic or Terric Mesisols or Fibrisols or sometimes Cryosols or Gleysols. Permafrost is occasionally present. The forest floor sometimes has a low cover of woody debris and small pools of standing water.

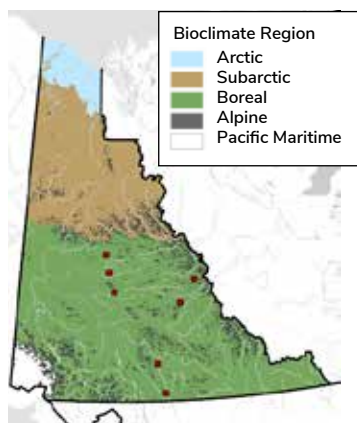
Dynamics: Stands are open and black spruce dominates in the forest regeneration.

Comments

- Key characteristics: black spruce fen; water sedge $\geq 10\%$
- CNVC association not yet determined

Sb54 Environment table

Zone	BOL (BOH)
Elevation (m)	580 – 775 – 1185
Aspect	neutral
Slope (%)	0 – 0 – 2
Soil moisture regime	subhydric
Soil drainage	poor (very poor)
Permafrost presence/depth (cm)	occasional / >30 cm
Unvegetated cover (%)	2 – 5 – 20
Soil class	Mesisols (Fbrisols, Cryosols)

**Sb54** Vegetation summary (%)

Trees	0 – 10 – 22	Shrubs	5 – 50 – 80	Ground shrubs	0 – 13 – 30
Graminoids and Forbs	10 – 35 – 96	Bryophytes	10 – 63 – 95	Lichens	0 – 5 – 15

Layer	Scientific name	Sb54	Common name
		n = 8	
Trees	<i>Picea mariana</i>	■■■	black spruce
Shrubs	<i>Picea mariana</i>	■■■■	black spruce
	<i>Betula glandulosa</i>	■■■■	shrub birch
	<i>Rhododendron groenlandicum</i>	■■■	common Labrador tea
	<i>Salix</i> spp.	■■■■	willows
	<i>Vaccinium uliginosum</i>	■■■	blueberry
Ground shrubs	<i>Arctous rubra</i>	■■	red bearberry
	<i>Empetrum nigrum</i>	■■■	crowberry
	<i>Rubus chamaemorus</i>	■■	cloudberry
	<i>Vaccinium oxycoccos</i>	■	bog cranberry
	<i>Vaccinium vitis-idaea</i>	■■■	lowbush cranberry
Graminoids	<i>Carex aquatilis</i>	■■■■	water sedge
Forbs	<i>Equisetum</i> spp.	■■	horsetails
Bryophytes	Amblystegiaceae	■■■■	brown mosses
	<i>Hylocomium</i> / <i>Pleurozium</i>	■■■■	feathermosses
	<i>Sphagnum</i> spp.	■■■■■	peat mosses
Lichens	<i>Cladina</i> spp.	■■	reindeer lichens
	<i>Peltigera</i> spp.	■■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

Sb55 Black spruce / Tussock cottongrass

Sb55 is an open black spruce fen characterized by tussock cottongrass that mostly occurs in the BOL and SUW. This association is a component of the Sb – Tussock Sedge Fen ecosite (F05).

Vegetation: Stands have a tree canopy dominated by black spruce (*Picea mariana*), but the spruce is often stunted and only of shrub height. The shrub layer is well developed, with black spruce, Labrador teas (*Rhododendron groenlandicum*, *R. tomentosum*) and shrub birch (*Betula glandulosa*). Lowbush cranberry (*Vaccinium vitis-idaea*) and cloudberry (*Rubus chamaemorus*) are prominent ground shrubs. Tussock cottongrass (*Eriophorum vaginatum*) is characteristic and is of moderately high to very high cover. The bryophyte layer is usually dominated by peat mosses (*Sphagnum* spp.). Brown mosses (*Aulacomnium palustre*, *Tomentypnum nitens*) and feathermosses (*Hylocomium splendens*, *Pleurozium schreberi*) are usually present and can be of high cover. Lichen cover, mostly reindeer lichens (*Cladina* spp.), is usually low to moderate.



Environment: This association occurs on sites with hygric to subhydryc moisture regimes, usually level to gently sloping, but they can also occur on moderately sloped cool aspects. The surface organic layer is 20 to 40 cm thick over mineral soil (eolian, fluvial), with the depth greater under tussocks. Soils are Cryosols, mostly Turbic or Organic Cryosols. The forest floor sometimes has a very low cover of woody debris.

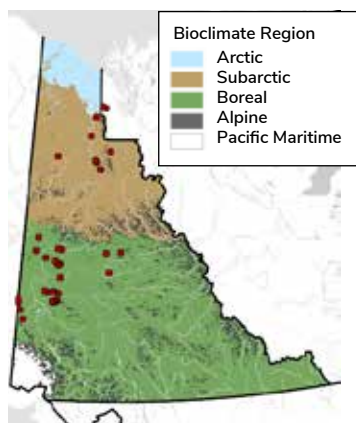
Dynamics: Stands are open, and black spruce dominates in the forest regeneration. Based on site conditions, stands are likely to regenerate to black spruce after disturbance.

Comments

- Key characteristics: black spruce fen; tussock cottongrass $\geq 10\%$
- Component of CNVC00462 Black Spruce / Northern Labrador Tea / Tussock Cottongrass / Peat Moss

Sb55 Environment table

Zone	BOL, SUW
Elevation (m)	290 – 540 – 1050
Aspect	neutral or cool
Slope (%)	0 – 8 – 44
Soil moisture regime	hygric – subhydic
Soil drainage	poor
Permafrost presence/depth (cm)	common / >30 cm
Unvegetated cover (%)	0 – 1 – 5
Soil class	Cryosols

**Sb55 Vegetation Table**

Trees	0 – 8 – 30	Shrubs	10 – 50 – 99	Ground shrubs	0 – 16 – 67
Graminoids and Forbs	10 – 35 – 85	Bryophytes	7 – 50 – 99	Lichens	0 – 15 – 50

Layer	Scientific name	Sb55	Common name
		n = 42	
Trees	<i>Picea mariana</i>	■ ■ ■	black spruce
Shrubs	<i>Picea mariana</i>	■ ■ ■ ■	black spruce
	<i>Betula glandulosa</i>	■ ■ ■	shrub birch
	<i>Rhododendron</i> spp.	■ ■ ■ ■	Labrador teas
	<i>Salix</i> spp.	■ ■ ■	willows
Ground shrubs	<i>Rubus chamaemorus</i>	■ ■ ■	cloudberry
	<i>Vaccinium vitis-idaea</i>	■ ■ ■	lowbush cranberry
Graminoids	<i>Eriophorum vaginatum</i>	■ ■ ■ ■ ■	tussock cottongrass
Bryophytes	<i>Sphagnum</i> spp.	■ ■ ■ ■	peat mosses
	<i>Hylocomium</i> / <i>Pleurozium</i>	■ ■ ■	feathermosses
	<i>Aulacomnium</i> / <i>Tomentypnum</i>	■ ■ ■	brown mosses
Lichens	<i>Cladina</i> spp.	■ ■ ■	reindeer lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ ■ 1 – 3	■ ■ ■ 3 – 10	■ ■ ■ ■ 10 – 25	■ ■ ■ ■ ■ >25

Sb56 Black spruce / Closed-sheath cottongrass

Sb56 is an open black spruce fen characterized by closed-sheath cottongrass that occurs mostly in the BOL. This association is a component of the Sb – Tussock Sedge Fen ecosite (F05).

Vegetation: Stands have a tree canopy dominated by black spruce (*Picea mariana*), but the spruce is often stunted and only of shrub height. White spruce (*P. glauca*) is sometimes a minor component. The shrub layer is well developed, with black spruce, Labrador teas (*Rhododendron groenlandicum*, *R. tomentosum*), shrub birch (*Betula glandulosa*), grey-leaved willow (*Salix glauca*) and blueberry (*Vaccinium uliginosum*). Lowbush cranberry (*Vaccinium vitis-idaea*) and cloudberry (*Rubus chamaemorus*) are prominent ground shrubs. Closed-sheath cottongrass (*Eriophorum brachyantherum*) is characteristic and is of moderately high to very high cover. Spruce muskeg sedge (*Carex bigelowii* ssp. *lugens*) is often present. The bryophyte layer is dominated by peat mosses (*Sphagnum* spp.) or brown mosses (*Aulacomnium palustre*, *Tomentypnum nitens*). Feathermosses (*Hylcomium splendens*, *Pleurozium schreberi*) often occur. Lichens are of low cover and include clad lichens (*Cladonia* spp.), pelt lichens (*Peltigera* spp.) and foam lichens (*Stereocaulon* spp.).



Environment: This association occurs on subhydric sites that are usually level or gently sloping. Sloped sites are on cool aspects. The surface organic layer is 30 to 40 cm thick over mineral soil. Soils are Turbic or Organic Cryosols. The forest floor sometimes has a very low cover of woody debris.

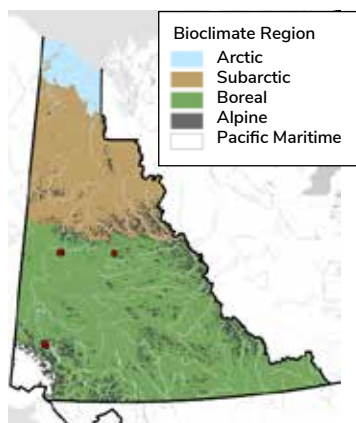
Dynamics: Stands are open and black spruce dominates in the forest regeneration, although some white spruce may occur. Based on site conditions, stands are likely to regenerate to black spruce after disturbance.

Comments

- Key characteristics: black spruce fen; closed-sheath cottongrass $\geq 10\%$
- CNVC association not yet determined

Sb56 Environment table

Zone	BOL
Elevation (m)	650 – 725 – 850
Aspect	neutral or cool
Slope (%)	2 – 6 – 10
Soil moisture regime	subhydic
Soil drainage	poor
Permafrost presence/depth (cm)	common / >30 cm
Unvegetated cover (%)	0 – 1 – 5
Soil class	Cryosols

**Sb56 Vegetation Table**

Trees	0 – 11 – 20	Shrubs	38 – 45 – 68	Ground shrubs	7 – 21 – 31
Graminoids and Forbs	30 – 40 – 46	Bryophytes	19 – 44 – 80	Lichens	2 – 5 – 10

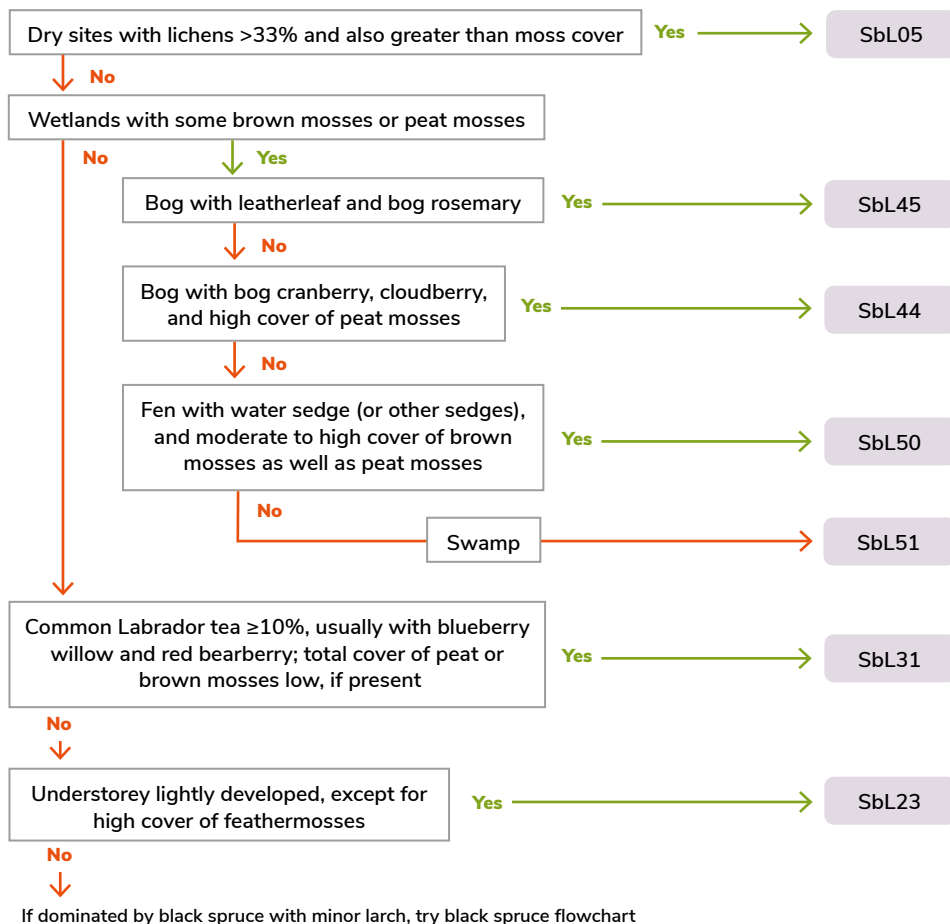
Layer	Scientific name	Sb56	Common name
		n = 5	
Trees	<i>Picea mariana</i>	■■■	black spruce
Shrubs	<i>Picea mariana</i>	■■■	black spruce
	<i>Betula glandulosa</i>	■■■	shrub birch
	<i>Rhododendron</i> spp.	■■■■	Labrador teas
	<i>Salix glauca</i>	■■	grey-leaved willow
	<i>Vaccinium uliginosum</i>	■■■	blueberry
Ground shrubs	<i>Arctous rubra</i>	■■	red bearberry
	<i>Rubus chamaemorus</i>	■■	cloudberry
	<i>Vaccinium oxycoccos</i>	■■	bog cranberry
	<i>Vaccinium vitis-idaea</i>	■■■■	lowbush cranberry
Graminoids	<i>Carex bigelowii</i> ssp. <i>lugens</i>	■■■	spruce muskeg sedge
	<i>Eriophorum brachyantherum</i>	■■■■	closed-sheath cottongrass
Bryophytes	<i>Aulacomnium</i> / <i>Tomentypnum</i>	■■■■	brown mosses
	<i>Hylocomium</i> / <i>Pleurozium</i>	■■■	feathermosses
	<i>Sphagnum</i> spp.	■■■■	peat mosses
Lichens	<i>Cladonia</i> spp.	■	clad lichens
	<i>Peltigera aphthosa</i>	■	freckle pelt lichen
	<i>Stereocaulon</i> spp.	■	foam lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

Black spruce – larch associations

Larch (L) is a component of stands and usually is co-dominant with black spruce (Sb) or sometimes, white spruce (Sw).

Flowchart Black spruce – larch associations



Summary of features: Black spruce – larch associations

	SbL05	SbL23	SbL31	SbL44	SbL45	SbL50	SbL51
Zone	BOL	BOL	BOL	BOL, SUW	BOL (SUW)	BOL (SUW)	BOL (BOH, SUW)
Geography	southeast	southeast	southeast	northeast, southeast	northeast, southeast	northwest, southeast	northeast, southeast
Important site features	dry	mesic to moist	moist	bog	bog	fen	swamp
Drainage	rapid to well	moderately well to imperfect	imperfect	poor to very poor	poor to very poor	poor to very poor	poor to very poor
Tree canopy	black spruce – larch (pine), (aspen)	black spruce – larch – white spruce	black spruce – larch (white spruce)	black spruce – larch	black spruce – larch or larch	black spruce – larch – white spruce or larch	black spruce – larch – white spruce or larch
Key understorey species	lichens	feathermoss	common Labrador tea, blueberry willow, red bearberry, feathermoss	Labrador teas, cloudberry, peat moss	leatherleaf, bog rosemary, peat moss	shrub birch, water sedge, brown mosses, peat mosses	Labrador teas, brown mosses, feathermosses, peat moss

Vegetation table for Black spruce – larch associations

Layer	Scientific name	SbL05	SbL23	SbL31	SbL44	SbL45	SbL50	SbL51	Common name
	n =	4	4	14	6	6	18	13	
Trees	<i>Larix laricina</i>	■■■	■■■	■■■	■■■	■■■	■■■	■■■	larch
	<i>Picea mariana</i>	■■■■	■■■■	■■■■	■■■■	■■■■	■■■	■■■■	black spruce
	<i>Picea glauca</i>		■■■					□□	white spruce
	<i>Pinus contorta</i>	■■■	□						pine
Shrubs	<i>Larix laricina</i>	■■		■■	■■	■■■	■■	■■	larch
	<i>Picea mariana</i>	■■■■	■■■	■■■	■■■■	■■■	■■	■■■	black spruce
	<i>Betula glandulosa</i>	■■■	■■	■■■■	■■■■	■■■	■■■■	■■■	shrub birch
	<i>Chamaedaphne calyculata</i>					■■■■			leatherleaf
	<i>Rhododendron</i> spp.	■■■	□	■■■■	■■■■	■■■	■■■	■■■■	Labrador teas
	<i>Rosa acicularis</i>	■■	■■	■				□□	prickly rose
	<i>Salix myrtillifolia</i>		■■	■■■■			□□□	□□	blueberry willow
	<i>Salix</i> spp.	■■	■■	■■■	■	□□	■■■	■■■	willows
	<i>Vaccinium uliginosum</i>	■		■■■	■■	□	□□	■■■	blueberry
Ground shrubs	<i>Andromeda polifolia</i>					■■■■			bog rosemary
	<i>Arctous rubra</i>	■	■	■■			□□	■■■	red bearberry
	<i>Empetrum nigrum</i>	■		■	□□□	□	□	■■■	crowberry
	<i>Linnaea borealis</i>		■■	□					twinline
	<i>Rubus arcticus</i>	□	□□	□			□	■■	arctic raspberry
	<i>Rubus chamaemorus</i>				■■■■	■■■			cloudberry
	<i>Rubus pubescens</i>		■						dwarf raspberry
	<i>Vaccinium oxycoccos</i>			□	■■■	■■■	□	■	bog cranberry
	<i>Vaccinium vitis-idaea</i>	■■■■	■■■	■■■	■■■	□	■■	■■	lowbush cranberry
Graminoids	<i>Carex aquatilis</i>				□	■■■	■■■■	□□	water sedge
Forbs	<i>Cornus canadensis</i>	■■	■	□					bunchberry
	<i>Equisetum scirpoides</i>		■■	■■■	□		□□	■■■	dwarf scouring-rush
	<i>Geocaulon lividum</i>	□		■				□	bastard toadflax
	<i>Maianthemum trifolium</i>					■■■			three-leaved false Solomon's-seal
	<i>Mertensia paniculata</i>		■	□					tall bluebells
	<i>Mitella nuda</i>		■				□		naked mitrewort
	<i>Pedicularis labradorica</i>				□		■	□	Labrador lousewort
Bryophytes	<i>Aulacomnium</i> / <i>Tomentypnum</i>		■	□□	□□	□□	■■■■	■■■■	brown mosses
	<i>Hylocomium</i> / <i>Pleurozium</i>	■■■■	■■■■	■■■■	■■■■		□□□□	■■■■	feathermosses
	<i>Sphagnum</i> spp.				■■■■	■■■■	■■■	■■■■	peat mosses
Lichens	<i>Cladina</i> spp.	■■■■	■■	■■	■■■	□□□	□	■■■	reindeer lichens
	<i>Cladonia</i> spp.	■■■	■	□□□		□		■■	clad lichens
	<i>Nephroma arcticum</i>	■■■	□						arctic kidney lichen
	<i>Peltigera</i> spp.	■■■	■■■	■■■	■		□□	■■	pelt lichens

Note: gold cells highlight key diagnostic species

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

Fact sheets: Black spruce – larch associations

SbL05 **Black spruce – Larch / Lowbush cranberry / Lichen**

SbL05 is a woodland or forest with a combination of black spruce and larch and with high lichen ground cover that occurs in the BOL.

No photo
available

Vegetation: SbL05 stands have a tree canopy of black spruce (*Picea mariana*) and larch (*Larix laricina*), sometimes with a minor component of pine (*Pinus contorta*) or aspen (*Populus tremuloides*). The shrub layer is well developed, with tree regeneration, common Labrador tea (*Rhododendron groenlandicum*), shrub birch (*Betula glandulosa*) and some willow (*Salix* spp.). The ground shrub layer is characterized by low to moderate cover of lowbush cranberry (*Vaccinium vitis-idaea*), along with low cover of crowberry (*Empetrum nigrum*). Red-stemmed feathermoss (*Pleurozium schreberi*) and step moss (*Hylocomium splendens*) are common bryophytes. Lichens dominate the forest floor, primarily reindeer lichens (*Cladina* spp.).

Environment: This association occurs at low elevations on level or nearly level sites. Soils are rapidly drained to well drained. Parent materials are mostly glaciofluvial, but can be morainal. Soil classification information is not available. The forest floor has some cover of woody debris.

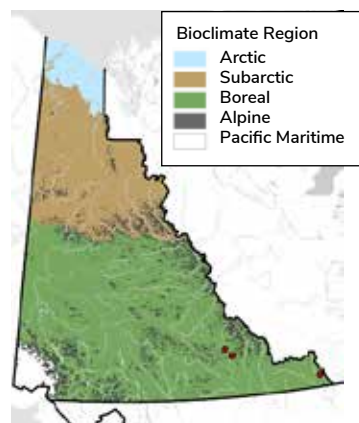
Dynamics: Stands on similar sites can be primarily black spruce (Sb10) or a combination of species (such as PSb09). Dominance after disturbance depends on local seed sources.

Comments

- Key characteristics: dry site; black spruce – larch stand, sometimes with some pine or aspen; high to very high cover of lichens; lichen cover > moss cover
- CNVC association not yet determined

SbL05 Environment table

Zone	BOL
Elevation (m)	830 – 838 – 840
Aspect	neutral
Slope (%)	0 – 3 – 5
Soil moisture regime	xeric, subxeric
Soil drainage	rapid to well
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	1 – 4 – 7
Soil class	no data

**SbL05 Vegetation summary (%)**

Trees	16 – 35 – 65	Shrubs	22 – 28 – 45	Ground shrubs	1 – 13 – 35
Graminoids and Forbs	0 – 4 – 6	Bryophytes	2 – 15 – 45	Lichens	33 – 45 – 60

Layer	Scientific name	SbL05	Common name
		n = 4	
Trees	<i>Larix laricina</i>	■■■	larch
	<i>Picea mariana</i>	■■■■	black spruce
	<i>Pinus contorta</i>	■■■	pine
	<i>Populus tremuloides</i>	■■	trembling aspen
Shrubs	<i>Larix laricina</i>	■■	larch
	<i>Picea mariana</i>	■■■■	black spruce
	<i>Betula glandulosa</i>	■■■	shrub birch
	<i>Rhododendron groenlandicum</i>	■■■	common Labrador tea
	<i>Rosa acicularis</i>	■■	prickly rose
	<i>Salix</i> spp.	■■	willows
Ground shrubs	<i>Empetrum nigrum</i>	■	crowberry
	<i>Vaccinium vitis-idaea</i>	■■■■	lowbush cranberry
Forbs	<i>Cornus canadensis</i>	■■	bunchberry
Bryophytes	<i>Hylocomium</i> / <i>Pleurozium</i>	■■■■	feathermosses
Lichens	<i>Cladina</i> spp.	■■■■■	reindeer lichens
	<i>Cladonia</i> spp.	■■■	clad lichens
	<i>Nephroma arcticum</i>	■■■	arctic kidney lichen
	<i>Peltigera</i> spp.	■■■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

SbL23 Spruce – Larch / Lowbush cranberry / Step moss

SbL23 is a woodland or forest with a combination of black spruce and larch, often with white spruce and a lightly developed understorey, except for high feathermoss ground cover, that occurs in the BOL.

Vegetation: SbL23 stands have a tree canopy of black spruce (*Picea mariana*) and larch (*Larix laricina*), often with a component of white spruce (*P. glauca*). The shrub layer is lightly developed, with some tree regeneration, prickly rose (*Rosa acicularis*) and willows (*Salix* spp.). Lowbush cranberry (*Vaccinium vitis-idaea*) and twinflower (*Linnaea borealis*) characterize the lightly developed ground shrub layer. Forbs include dwarf scouring-rush (*Equisetum scirpoides*). Step moss (*Hylocomium splendens*) dominates the forest floor, often with red-stemmed feathermoss (*Pleurozium schreberi*).

Environment: This association occurs at low elevations on level to gently sloping sites. Soils are mesic to subhygric and moderately well drained to imperfectly drained. Based on limited data, parent materials are fluvial or morainal, and soils are classified as Eutric Brunisols. The forest floor has some cover of woody debris.

Dynamics: Stands on similar sites can be primarily black spruce (Sb22) or combination of species (such as PSw24). Dominance after disturbance depends on local seed sources.

Comments

- Key characteristics: mesic to moist site; black spruce – larch stand, often with white spruce; high to very high cover of feathermosses; moss cover > lichen cover
- CNVC association not yet determined



SbL23 Environment table

Zone	BOL
Elevation (m)	690 – 715 – 750
Aspect	neutral, variable
Slope (%)	0 – 4 – 14
Soil moisture regime	mesic, subhygric
Soil drainage	moderately well to imperfect
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	1 – 4 – 6
Soil class	Brunisols (limited data)

No map
available

SbL23 Vegetation summary (%)

Trees	22 – 32 – 47	Shrubs	4 – 13 – 17	Ground shrubs	1 – 8 – 11
Graminoids and Forbs	2 – 7 – 14	Bryophytes	85 – 90 – 99	Lichens	1 – 8 – 13

Layer	Scientific name	SbL23	Common name
		n = 4	
Trees	<i>Larix laricina</i>	■■■	larch
	<i>Picea glauca</i>	■■■	white spruce
	<i>Picea mariana</i>	■■■■	black spruce
Shrubs	<i>Betula glandulosa</i>	■■	shrub birch
	<i>Picea mariana</i>	■■■	black spruce
	<i>Rosa acicularis</i>	■■	prickly rose
	<i>Salix myrtillofolia</i>	■■	blueberry willow
	<i>Salix</i> spp.	■■	willows
Ground shrubs	<i>Arctous rubra</i>	■	red bearberry
	<i>Linnaea borealis</i>	■■	twinline
	<i>Vaccinium vitis-idaea</i>	■■■	lowbush cranberry
Forbs	<i>Cornus canadensis</i>	■	bunchberry
	<i>Equisetum scirpoides</i>	■■	dwarf scouring-rush
	<i>Mertensia paniculata</i>	■	tall bluebells
	<i>Mitella nuda</i>	■	naked mitrewort
	<i>Rubus pubescens</i>	■	dwarf raspberry
Bryophytes	<i>Aulacomnium palustre</i>	■	glow moss
	<i>Hylocomium splendens</i>	■■■■■	step moss
	<i>Pleurozium schreberi</i>	■■■■	red-stemmed feathermoss
Lichens	<i>Cladina</i> spp.	■■	reindeer lichens
	<i>Cladonia</i> spp.	■	clad lichens
	<i>Peltigera aphthosa</i>	■■■	freckle pelt lichen

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

SbL31 Black spruce – Larch / Blueberry / Red bearberry / Step moss

SbL31 is a woodland or forest with a combination of black spruce and larch, sometimes with white spruce or pine and with an understorey of common Labrador tea, blueberry, red bearberry and feathermosses, that occurs in the BOL.

Vegetation: SbL31 stands have a tree canopy of black spruce (*Picea mariana*) and larch (*Larix laricina*), sometimes with a component of white spruce (*P. glauca*) or pine (*Pinus contorta*). The shrub layer is well developed to very well developed, with some tree regeneration, and common Labrador tea (*Rhododendron groenlandicum*), blueberry (*Vaccinium uliginosum*), blueberry willow (*Salix myrtillofolia*) and shrub birch (*Betula glandulosa*). Lowbush cranberry (*Vaccinium vitis-idaea*) and red bearberry (*Arctostaphylos rubra*) characterize the lightly developed ground shrub layer. Step moss (*Hylocomium splendens*) dominates the forest floor, often with red-stemmed feathermoss (*Pleurozium schreberi*). A low cover of brown mosses (*Aulacomnium palustre*, *Tomentypnum nitens*) or peat moss (*Sphagnum* spp.) often occurs.



Environment: This association occurs at low elevations on level sites or gently sloping cool or neutral-aspect sites. Soils are subhygric to hygric and imperfectly drained. Parent materials are varied, including morainal, lacustrine and glaciofluvial. Soils are classified as Gleysols or Brunisols. The forest floor has some cover of woody debris.

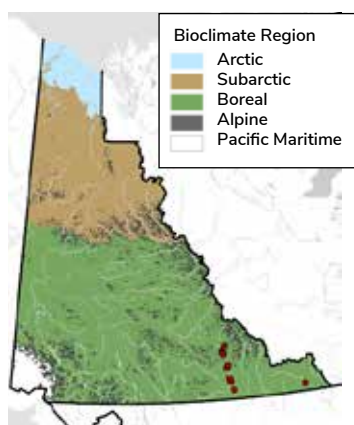
Dynamics: Stands on similar sites can be primarily black spruce (Sb32, Sb33), white spruce (Sw31) or mixed-wood species (such as SbSw31, PSbSw31). Dominance after disturbance depends on local seed sources.

Comments

- Key characteristics: moist site; black spruce – larch stand, sometimes with white spruce; common Labrador tea, blueberry willow, red bearberry and high feathermoss cover
- CNVC association not yet determined

SbL31 Environment table

Zone	BOL
Elevation (m)	420 – 745 – 930
Aspect	neutral, cool, neutral
Slope (%)	0 – 4 – 14
Soil moisture regime	subhygric to hygric
Soil drainage	imperfect
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	1 – 7 – 15
Soil class	Brunisols (Eutric, Dystric), Gleysols

**SbL31 Vegetation summary (%)**

Trees	0 – 37 – 80	Shrubs	30 – 75 – 99	Ground shrubs	1 – 11 – 22
Graminoids and Forbs	0.5 – 9 – 35	Bryophytes	85 – 90 – 99	Lichens	0.5 – 10 – 30

Layer	Scientific name	SbL31	Common name
		n = 14	
Trees	<i>Larix laricina</i>	■■■	larch
	<i>Picea mariana</i>	■■■■■	black spruce
Shrubs	<i>Betula glandulosa</i>	■■■■■	shrub birch
	<i>Larix laricina</i>	■■	larch
	<i>Picea mariana</i>	■■■	black spruce
	<i>Rhododendron groenlandicum</i>	■■■■■	common Labrador tea
	<i>Rosa acicularis</i>	■	prickly rose
	<i>Salix myrtilifolia</i>	■■■■■	blueberry willow
	<i>Salix</i> spp.	■■■	willows
	<i>Vaccinium uliginosum</i>	■■■	blueberry
Ground shrubs	<i>Arctous rubra</i>	■■	red bearberry
	<i>Empetrum nigrum</i>	■	crowberry
	<i>Vaccinium vitis-idaea</i>	■■■	lowbush cranberry
Graminoids	Poaceae	■■	grass family
Forbs	<i>Equisetum scirpoides</i>	■■■	dwarf scouring-rush
	<i>Geocaulon lividum</i>	■	bastard toadflax
Bryophytes	<i>Hylocomium splendens</i>	■■■■■	step moss
	<i>Pleurozium schreberi</i>	■■■■■	red-stemmed feathermoss
Lichens	<i>Cladina</i> spp.	■■	reindeer lichens
	<i>Peltigera</i> spp.	■■■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

SbL44 Black spruce – Larch / Labrador tea / Peat moss

SbL44 is a black spruce – larch bog with Labrador teas, cloudberry and high peat moss cover that occurs in the BOL and SUW. It comprises the SbL – Peat Moss Bog ecosite (B05).

Vegetation: Stands have a tree canopy of black spruce (*Picea mariana*) and larch (*Larix laricina*). The shrub layer is well developed to very well developed, with tree regeneration and Labrador teas (*Rhododendron groenlandicum*, *R. tomentosum*). Lowbush cranberry (*Vaccinium vitis-idaea*), cloudberry (*Rubus chamaemorus*), and bog cranberry (*V. oxycoccus*) are prominent in the understorey. Peat mosses (*Sphagnum* spp.) dominate the moss cover. Some feathermosses (*Hylocomium splendens*, *Pleurozium schreberi*) and brown mosses (*Aulacomnium palustre*, *Tomentypnum nitens*) are usually present.

Environment: This association occurs on wet, poor to very poorly drained level sites that are capped by 30 cm or more of fibric or mesic peat. Soil classification information is limited, but Cryosols occur on the subarctic sites (SUW). The forest floor often has a low cover of woody debris.

Dynamics: Stands are open to closed. Stands on similar sites can be primarily black spruce (Sb44); dominance after disturbance depends on local seed sources.

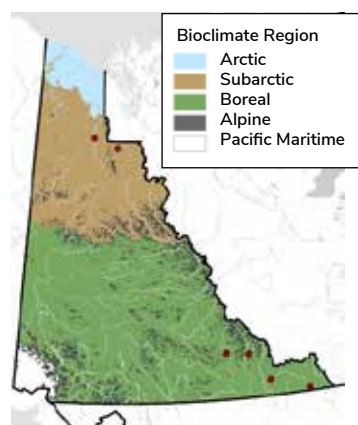
Comments

- Key characteristics: black spruce – larch bog; Labrador teas; peat mosses
- CNVC association not yet determined; likely a component of CNVC00314 Black Spruce / Shrub Birch / Lowbush Cranberry / Peat Moss



SbL44 Environment table

Zone	BOL, SUW
Elevation (m)	300 – 620 – 900
Aspect	neutral
Slope (%)	0 – 2 – 5
Soil moisture regime	hygric, subhydic
Soil drainage	poor to very poor
Permafrost presence/depth (cm)	common / >30 cm
Unvegetated cover (%)	0 – 3 – 7
Soil class	Cryosols (unconfirmed on BOL sites)

**SbL44** Vegetation summary (%)

Trees	6 – 16 – 35	Shrubs	38 – 62 – 99	Ground shrubs	2 – 28 – 99
Graminoids and Forbs	0 – 3 – 10	Bryophytes	45 – 76 – 90	Lichens	2 – 11 – 22

Layer	Scientific name	SbL44	Common name
		n = 6	
Trees	<i>Larix laricina</i>	■■■■	larch
	<i>Picea mariana</i>	■■■■■	black spruce
Shrubs	<i>Larix laricina</i>	■■	larch
	<i>Picea mariana</i>	■■■■■	black spruce
	<i>Betula glandulosa</i>	■■■■■	shrub birch
	<i>Rhododendron</i> spp.	■■■■■	Labrador teas
	<i>Salix</i> spp.	■	willows
	<i>Vaccinium uliginosum</i>	■■	blueberry
Ground shrubs	<i>Rubus chamaemorus</i>	■■■■■	cloudberry
	<i>Vaccinium oxycoccos</i>	■■■	bog cranberry
	<i>Vaccinium vitis-idaea</i>	■■■	lowbush cranberry
Bryophytes	<i>Hylocomium</i> / <i>Pleurozium</i>	■■■■■	feathermosses
	<i>Sphagnum</i> spp.	■■■■■	peat mosses
Lichens	<i>Cladina</i> spp.	■■■	reindeer lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

SbL45 Black spruce – Larch / Leatherleaf / Peat moss

SbL45 is a black spruce – larch bog with leatherleaf, bog rosemary and high peat moss cover that occurs in the BOL and sometimes in the SUW. It comprises the SbL – Leatherleaf – Peat Moss Bog ecosite (B02).

Vegetation: Stands have a tree canopy of black spruce (*Picea mariana*) and larch (*Larix laricina*), or sometimes a larch canopy. The trees are often stunted and only in the shrub layer. Leatherleaf (*Chamaedaphne calyculata*) characterizes this bog association. Bog rosemary (*Andromeda polifolia*) and bog cranberry (*Vaccinium oxycoccus*) are prominent ground shrubs. Peat mosses (*Sphagnum* spp.) strongly dominate the moss cover.

Environment: This association occurs on wet, poor to very poorly drained level sites that are capped by 40 cm or more of fibric (and mesic) peat. Soils are classified as Mesisols and Organic Cryosols, but data are limited. It is likely that soils have permafrost, at least at depth. The forest floor may have some cover of woody debris or puddles of water.

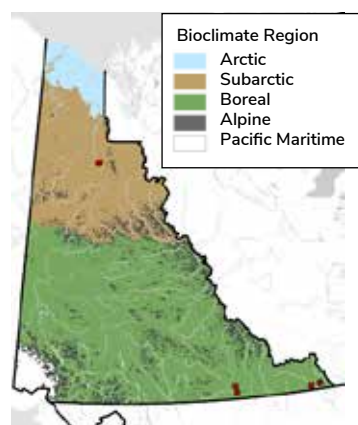
Dynamics: Stands are generally open. Stands on similar sites can be a combination of black and white spruce (SbSw54); dominance after disturbance depends on local seed sources.

**Comments**

- Key characteristics: black spruce – larch bog; leatherleaf; peat mosses of very high cover
- CNVC association not yet determined

SbL45 Environment table

Zone	BOL (SUW)
Elevation (m)	450 – 615 – 825
Aspect	neutral
Slope (%)	0 – 1 – 3
Soil moisture regime	hygric, subhydic
Soil drainage	poor to very poor
Permafrost presence/depth (cm)	likely present
Unvegetated cover (%)	0 – 2 – 5
Soil class	Cryosols (unconfirmed on BOL sites)

**SbL45 Vegetation summary (%)**

Trees	0 – 15 – 70	Shrubs	25 – 43 – 75	Ground shrubs	6 – 26 – 85
Graminoids and Forbs	1 – 12 – 30	Bryophytes	75 – 88 – 99	Lichens	0 – 5 – 20

Layer	Scientific name	SbL45	Common name
		n = 6	
Trees	<i>Larix laricina</i>	■ ■ ■	larch
	<i>Picea mariana</i>	■ ■ ■ ■	black spruce
Shrubs	<i>Larix laricina</i>	■ ■ ■	larch
	<i>Picea mariana</i>	■ ■ ■	black spruce
	<i>Betula glandulosa</i>	■ ■ ■	shrub birch
	<i>Chamaedaphne calyculata</i>	■ ■ ■ ■	leatherleaf
	<i>Rhododendron</i> spp.	■ ■ ■	Labrador teas
Ground shrubs	<i>Andromeda polifolia</i>	■ ■ ■ ■	bog rosemary
	<i>Rubus chamaemorus</i>	■ ■ ■	cloudberry
	<i>Vaccinium oxycoccos</i>	■ ■ ■	bog cranberry
Graminoids	<i>Carex aquatilis</i>	■ ■ ■	water sedge
Forbs	<i>Maianthemum trifolium</i>	■ ■ ■	three-leaved false Solomon's-seal
Bryophytes	<i>Sphagnum</i> spp.	■ ■ ■ ■ ■	peat mosses

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ ■ 1 – 3	■ ■ ■ 3 – 10	■ ■ ■ ■ 10 – 25	■ ■ ■ ■ ■ >25

SbL50 Black spruce – Larch / Shrub birch / Water sedge / Glow moss – Peat moss

SbL50 is a black spruce – larch, white spruce – larch, or larch fen, with shrub birch, water sedge and high brown moss cover, that occurs in the BOL and sometimes in the SUW. It is a component of the SbL – Water Sedge Fen ecosite (F14).

Vegetation: Stands have a tree canopy of black spruce (*Picea mariana*) and larch (*Larix laricina*), larch and white spruce (*P. glauca*) or sometimes, larch. Cover of trees in the shrub layer often exceeds that in the tree layer. Shrub birch (*Betula glandulosa*), Labrador teas (*Rhododendron groenlandicum*, *R. tomentosum*) and willows (*Salix* spp.) characterize the shrub layer. Water sedge (*Carex aquatilis*) characterizes the association, although sometimes other wetland sedges dominate the sedge cover. Brown mosses (*Aulacomnium palustre*, *Tomentypnum nitens*, *Drepanocladus* spp.) generally dominate the mosses, although peat moss (*Sphagnum* spp.) cover can be high.



Environment: This association occurs on wet, poorly drained to very poorly drained level to gently sloping sites that are capped by 30 cm or more of fibric or mesic peat. Soils are classified as Mesisols and Organic Cryosols, although data are limited. Some soils have permafrost, at least at depth. The forest floor has some cover of woody debris or puddles of standing water.

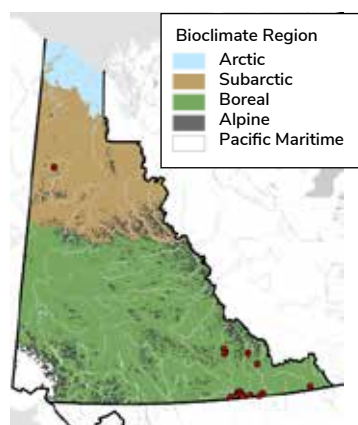
Dynamics: Stands are generally open. Stands on similar sites can be of black spruce (Sb54), white spruce (Sw50) or a combination of black spruce and white spruce (SbSw56); dominance after disturbance depends on local seed sources.

Comments

- Key characteristics: black spruce – larch fen; water sedge (or other wetland sedges); brown mosses $\geq 20\%$; peat mosses present
- Component of CNVC00116 Tamarack – Black Spruce / Shrub Birches / Golden Fuzzy Fen Moss

SbL50 Environment table

Zone	BOL (SUW)
Elevation (m)	270 – 680 – 820
Aspect	neutral, variable
Slope (%)	0 – 3 – 15
Soil moisture regime	hygric, subhydryc
Soil drainage	poor to very poor
Permafrost presence/depth (cm)	occasional
Unvegetated cover (%)	0.5 – 3 – 10
Soil class	Cryosols, Mesisols (limited data)

**SbL50 Vegetation summary (%)**

Trees	0 – 13 – 35	Shrubs	8 – 41 – 98	Ground shrubs	0 – 9 – 50
Graminoids and Forbs	5 – 36 – 99	Bryophytes	20 – 80 – 99	Lichens	0 – 3 – 10

Layer	Scientific name	SbL50	Common name
		n = 18	
Trees	<i>Larix laricina</i>	■■■	larch
	<i>Picea mariana</i>	■■■	black spruce
Shrubs	<i>Larix laricina</i>	■■	larch
	<i>Picea mariana</i>	■■	black spruce
	<i>Betula glandulosa</i>	■■■■	shrub birch
	<i>Rhododendron</i> spp.	■■■	Labrador teas
	<i>Salix</i> spp.	■■■	willows
Ground shrubs	<i>Vaccinium vitis-idaea</i>	■■	lowbush cranberry
Graminoids	<i>Carex aquatilis</i>	■■■■	water sedge
Forbs	<i>Pedicularis labradorica</i>	■	Labrador lousewort
Bryophytes	<i>Aulacomnium</i> / <i>Tomentypnum</i>	■■■■■	brown mosses
	<i>Sphagnum</i> spp.	■■■■	peat mosses

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

SbL51 Black spruce – Larch / Labrador tea / Feathermoss – Glow moss

SbL51 is a black spruce – larch swamp, sometimes with white spruce, with Labrador teas, brown moss, peat moss and feathermoss cover, that occurs in the BOL and sometimes in the BOH or SUW. It is a component of the SbL – Brown Moss Swamp ecosite (S14).

No photo
available

Vegetation: SbL51 stands have a tree canopy of black spruce (*Picea mariana*) and larch (*Larix laricina*), often with a white spruce (*P. glauca*) component, or sometimes, a larch canopy. The shrub layer is well developed to very well developed, with tree regeneration, Labrador teas (*Rhododendron groenlandicum*, *R. tomentosum*), willows (*Salix* spp.), blueberry (*Vaccinium uliginosum*) and shrub birch (*Betula glandulosa*). Red bearberry (*Arctous rubra*), crowberry (*Empetrum nigrum*) and lowbush cranberry (*V. vitis-idaea*) are common ground shrubs that can occur with low to moderate cover. Arctic raspberry (*Rubus arcticus*) is found in the graminoid layer, as are various sedges (*Carex* spp.), with low to moderate cover. Horsetails are the most consistent forbs (*Equisetum sylvaticum*, *E. arvense*). A high cover of mosses usually includes peat mosses (*Sphagnum* spp.), feathermosses (*Hylocomium splendens*, *Pleurozium schreberi*) and brown mosses (*Tomentypnum nitens*, *Aulacomnium palustre*).

Environment: This association occurs on wet, poor to very poorly drained level to gently sloping sites that are capped by 30 cm or more of mesic peat. Soils are classified as Gleysols or Turbic Cryosols. Some soils have permafrost. The forest floor has some cover of woody debris or puddles of standing water.

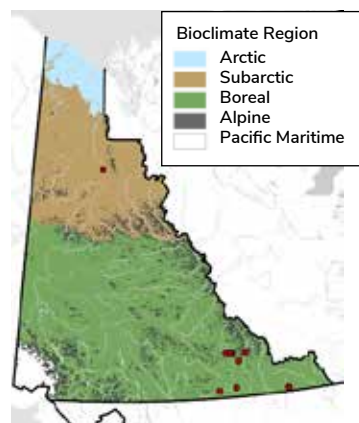
Dynamics: Stands are open to closed. Dominance after disturbance depends on local seed sources.

Comments

- Key characteristics: black spruce – larch swamp; Labrador teas and willows; brown mosses ≥5%; peat mosses usually present
- CNVC association not yet determined

SbL51 Environment table

Zone	BOL (BOH, SUW)
Elevation (m)	205 – 720 – 900
Aspect	neutral, variable
Slope (%)	0 – 5 – 22
Soil moisture regime	hygric, subhydic
Soil drainage	poor to very poor
Permafrost presence/depth (cm)	occasional
Unvegetated cover (%)	0.5 – 3 – 10
Soil class	Gleysols, Cryosols

**SbL51 Vegetation summary (%)**

Trees	0 – 29 – 45	Shrubs	17 – 60 – 99	Ground shrubs	1 – 16 – 35
Graminoids and Forbs	2 – 24 – 60	Bryophytes	40 – 75 – 99	Lichens	0 – 9 – 23

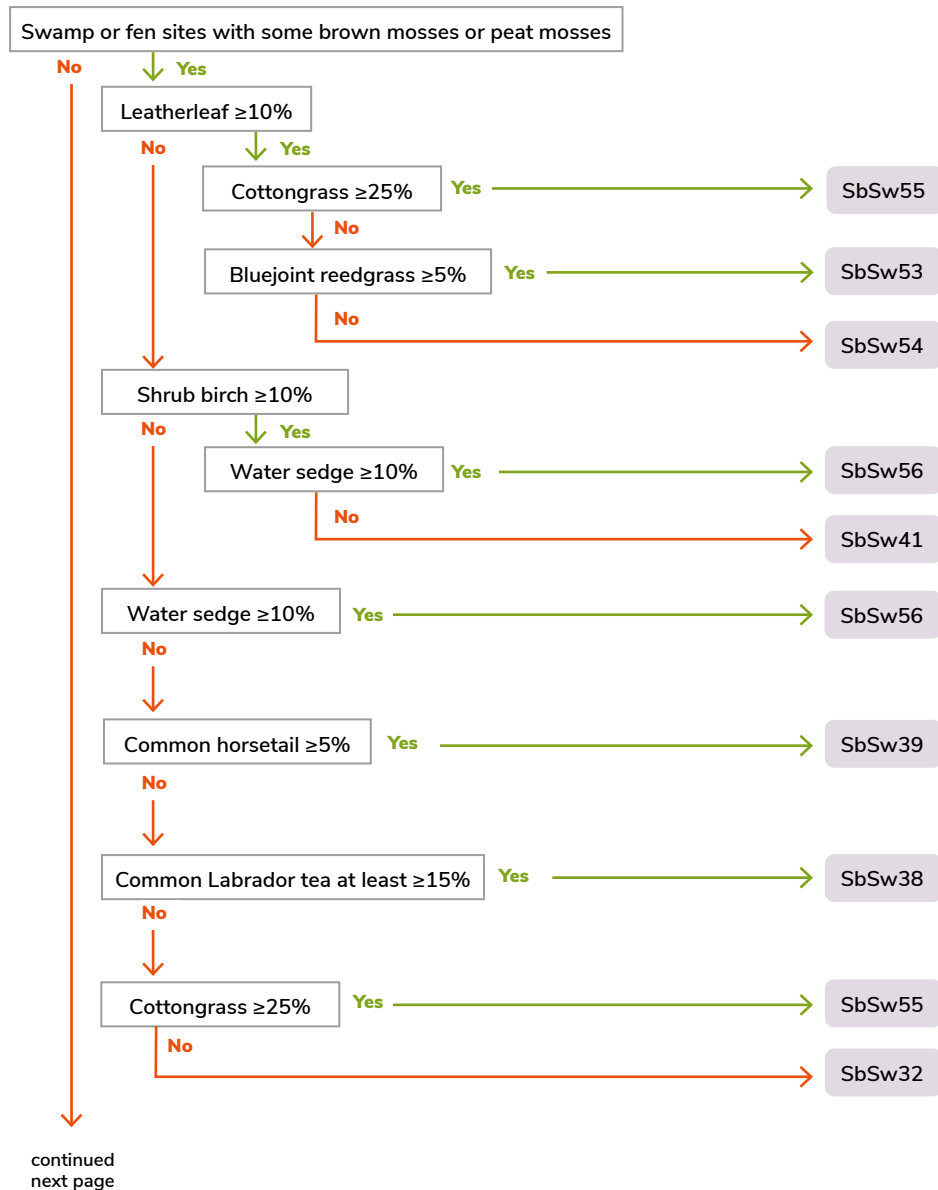
Layer	Scientific name	SbL51	Common name
		n = 13	
Trees	<i>Larix laricina</i>	■■■	larch
	<i>Picea mariana</i>	■■■■	black spruce
Shrubs	<i>Larix laricina</i>	■ ■	larch
	<i>Picea mariana</i>	■■■	black spruce
	<i>Betula glandulosa</i>	■ ■ ■	shrub birch
	<i>Rhododendron</i> spp.	■■■■	Labrador teas
	<i>Salix</i> spp.	■■■	willows
	<i>Vaccinium uliginosum</i>	■■■	blueberry
Ground shrubs	<i>Arctous rubra</i>	■ ■ ■	red bearberry
	<i>Empetrum nigrum</i>	■ ■ ■	crowberry
	Poaceae	■ ■	grass family
	<i>Vaccinium oxycoccos</i>	■	bog cranberry
	<i>Vaccinium vitis-idaea</i>	■■	lowbush cranberry
Graminoids	<i>Rubus arcticus</i>	■ ■	arctic raspberry
Forbs	<i>Equisetum scirpoides</i>	■ ■ ■	dwarf scouring-rush
	<i>Equisetum arvense / sylvaticum</i>	■■■	common / wood horsetail
Bryophytes	<i>Aulacomnium / Tomentypnum</i>	■■■■	brown mosses
	<i>Hylocomium splendens</i>	■ ■ ■ ■	step moss
	<i>Sphagnum</i> spp.	■■■■■	peat mosses
Lichens	<i>Cladina</i> spp.	■ ■ ■	reindeer lichens
	<i>Peltigera</i> spp.	■■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

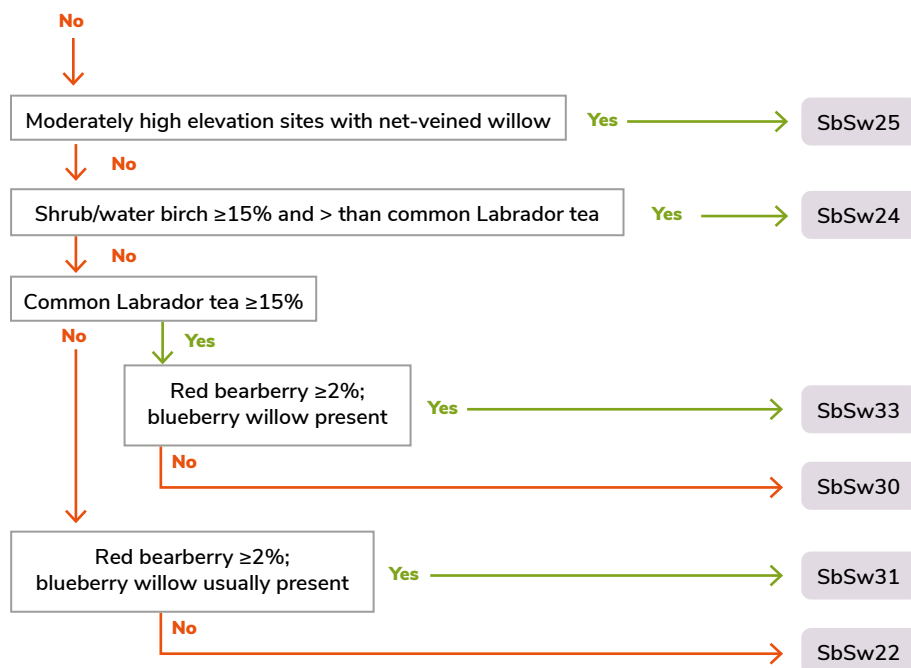
Black spruce – white spruce associations

Black spruce (Sb) and white spruce (Sw) co-dominate, with neither >85% of canopy composition.

Flowchart Black spruce – white spruce-dominated associations



continued from previous page



Summary of features: Black spruce – white spruce associations

Mesic to moist sites

	SbSw22	SbSw24	SbSw25	SbSw30	SbSw31	SbSw33
Zone	BOL (BOH)	BOH	BOH	BOL, BOH	BOL (BOH)	BOL
Geography	south and central	central	central	south and central	south and central	central (south)
Important site features	mesic; permafrost possible	mesic; permafrost likely	mesic to moist; permafrost likely	mesic; permafrost possible	mesic to moist; permafrost likely	moist; permafrost likely
Drainage	well to moderately well	well	moderately well to imperfect	well to moderately well	moderately well to imperfect	imperfect
Tree canopy	black spruce – white spruce	black spruce – white spruce	black spruce – white spruce	black spruce – white spruce	black spruce – white spruce	black spruce – white spruce
Key understorey species	feathermoss	shrub/water birch, feathermoss	net-veined willow, feathermoss	common Labrador tea, feathermoss	blueberry willow, red bearberry, step moss	common Labrador tea, red bearberry, step moss

Wetland swamp sites

	SbSw32	SbSw38	SbSw39	SbSw41	SbSw53	SbSw54
Zone	BOL	BOL	BOL, BOH	BOL, BOH	BOL	BOL, SUW
Geography	south and central	south and central	east-central and southeast	south and central	west-central	central and north
Important site features	swamp; permafrost likely	swamp; permafrost likely	swamp; permafrost possible	swamp; permafrost possible	swamp; permafrost present	swamp; permafrost common
Drainage	imperfect to poor	poor	imperfect to poor	imperfect to very poor	poor	poor
Tree canopy	black spruce – white spruce	black spruce – white spruce	black spruce – white spruce	black spruce or black spruce – white spruce	white spruce or black spruce – white spruce	black spruce or black spruce – white spruce
Key understorey species	blueberry willow, red bearberry, brown moss, step moss	common Labrador tea, red bearberry, brown moss, step moss	willows, horsetails, brown moss	shrub birch, brown moss	leatherleaf, bluejoint reedgrass	leatherleaf, peat moss

Black spruce – white spruce associations

Wetland fen sites

	SbSw55	SbSw56
Zone	BOL	BOL
Geography	west-central	south and central
Important site features	fen, permafrost present	fen, permafrost possible
Drainage	poor to very poor	poor to very poor
Tree canopy	black spruce – white spruce	black spruce – white spruce
Key understorey species	leatherleaf, cottongrass	water sedge, brown moss

Vegetation tables for black spruce – white spruce-dominated associations

Mesic to moist sites

Layer	Scientific name	SbSw22	SbSw24	SbSw25	SbSw30	SbSw31	SbSw33	Common name
	n =	22	8	5	21	23	11	
Trees	<i>Picea glauca</i>	■■■■■	■■■	■■	■■■■	■■■■	■■■■	white spruce
	<i>Picea mariana</i>	■■■■	■■■	■	■■■■	■■■■	■■■■	black spruce
Shrubs	<i>Picea mariana</i>	□□□	□□	■	□□	■	■	black spruce
	<i>Betula glandulosa</i>		■■■■	■■■	□□		□□□	shrub birch
	<i>Betula occidentalis</i>		■					water birch
	<i>Dasiphora fruticosa</i>					□	■	shrubby cinquefoil
	<i>Rhododendron groenlandicum</i>	■	■■■■	■■■	■■■■■	■■■	■■■■■	common Labrador tea
	<i>Rosa acicularis</i>	■	□		□□	□	■	prickly rose
	<i>Salix</i> spp.	■	■■■	■■■	■■■			willows
	<i>Salix myrtillofolia</i>					■■■	■■■■	blueberry willow
	<i>Vaccinium uliginosum</i>		■■■	■■	■	□□	■■■	blueberry
Ground shrubs	<i>Arctostaphylos</i>	□		■■	□	■■■	■■■	red bearberry
	<i>Empetrum nigrum</i>	■	■■■	■■■■	■■■	■	■■■	crowberry
	<i>Salix reticulata</i>			■■				net-veined willow
	<i>Vaccinium vitis-idaea</i>	■■■	■■■■	□□	■■■■	■■■	■■■■	lowbush cranberry
Forbs	<i>Equisetum scirpoides</i>					□	■■■	dwarf scouring-rush
	<i>Geocaulon lividum</i>	■			■	■	■	bastard toadflax
	<i>Mertensia paniculata</i>				□	■	□	tall bluebells
Bryophytes	<i>Hylocomium / Pleurozium</i>	■■■■■	■■■■■	■■■■■	■■■■■	■■■■■	■■■■■	feathermosses
	<i>Polytrichum</i> spp.		■					haircap mosses
Lichens	<i>Cladonia</i> spp.	■■■	■■■■	■■■	■■■	■■■	■■■	reindeer lichens
	<i>Peltigera</i> spp.	■	■		■	■	■	pelt lichens

Note: gold cells highlight key diagnostic species

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

Wetland (swamp and fen) sites

Layer	Scientific name	SbSw32	SbSw38	SbSw39	SbSw41	SbSw53	SbSw54	SbSw55	SbSw56	Common name
	n =	10	19	7	10	5	7	3	5	
Trees	<i>Picea glauca</i>	■	■	■	□	■		□	■	white spruce
	<i>Picea mariana</i>	■	■	■	■	■	■	■	■	black spruce
Shrubs	<i>Picea glauca</i>	□		□		■	■	■	■	white spruce
	<i>Picea mariana</i>	■	□	□	■	□	■	■	■	black spruce
	<i>Betula glandulosa</i>	■		□	■	□	■	■	■	shrub birch
	<i>Chamaedaphne calyculata</i>					■	■	■		leatherleaf
	<i>Dasiphora fruticosa</i>	■	□	□	■		□		■	shrubby cinquefoil
	<i>Rhododendron groenlandicum</i>	■	■	■	■	□	■	■	■	common Labrador tea
	<i>Salix myrtillifolia</i>	■	□	□	□				■	blueberry willow
	<i>Salix</i> spp.	■	■	■	■	■	■	■	■	willows
	<i>Vaccinium uliginosum</i>	■	□	■	■		■	■	■	blueberry
Ground shrubs	<i>Arctous rubra</i>	■	■	□	■		□		■	red bearberry
	<i>Rubus chamaemorus</i>	□	□	□			■			cloudberry
	<i>Vaccinium oxycoccos</i>			□	□	□	■		□	bog cranberry
	<i>Vaccinium vitis-idaea</i>	■	■	■	□		■	□	■	lowbush cranberry
	<i>Empetrum nigrum</i>	■	■	■	■				■	crowberry
Graminoids	<i>Carex aquatilis</i>			□	□	□			■	water sedge
	<i>Carex bigelowii</i> ssp. <i>lugens</i>	■	□			■	□	■		spruce muskeg sedge
	<i>Eriophorum vaginatum</i>					□	□	■		tussock cottongrass
	<i>Calamagrostis canadensis</i>		□			■		□		bluejoint reedgrass
Forbs	<i>Comarum palustre</i>					■		□		marsh-cinquefoil
	<i>Equisetum arvense</i>		■	■	□		□		■	common horsetail
	<i>Equisetum scirpoides</i>	■	□	□	■				■	dwarf scouring-rush
Bryophytes	<i>Aulacomnium</i> / <i>Tomentypnum</i>	■	■	■	■	□	□	□	■	brown mosses
	<i>Sphagnum</i> spp.	■	□	□	■	□	■	■	■	peat mosses
	<i>Hylocomium splendens</i>	■	■	■	■	□	□	■	■	step moss
Lichens	<i>Cladina</i> spp.	■	■	□	■		■		■	reindeer lichens
	<i>Cladonia</i> spp.		■	□	□		□	□	□	clad lichens
	<i>Peltigera</i> spp.	■	■	■	□		□	■	■	pelt lichens

Note: gold cells highlight key diagnostic species

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ 1 – 3	■ 3 – 10	■ 10 – 25	■ >25

Fact sheets: Black spruce – white spruce associations

SbSw22 Black spruce – White spruce / Lowbush cranberry / Feathermoss

SbSw22 is a forest with a combination of black spruce and white spruce and with high feathermoss ground cover that occurs primarily in the BOL and occasionally in the low elevations of the BOH.

Vegetation: Stands of SbSw22 have a tree canopy of black spruce (*Picea mariana*) and white spruce (*P. glauca*), sometimes with a minor component of aspen (*Populus tremuloides*), Alaska birch (*Betula neoalaskana*) or balsam poplar (*P. balsamifera*). The shrub layer, other than tree regeneration, is poorly developed, comprised of common Labrador tea (*Rhododendron groenlandicum*), often with scattered willows (*Salix* spp.) or prickly rose (*Rosa acicularis*). Lowbush cranberry (*Vaccinium vitis-idaea*) is a consistent ground shrub, of low to moderate cover, often with some crowberry (*Empetrum nigrum*). Feathermosses dominate the ground cover, mostly step moss (*Hylocomium splendens*), but can include red-stemmed feathermoss (*Pleurozium schreberi*) or knight's plume (*Ptilium crista-castrensis*). Lichens, mostly reindeer lichens (*Cladina* spp.), often occur with low to moderate cover.



Environment: This association occurs at low to moderate elevations, mostly on level ground or gentle slopes. Sloped sites are often on warm aspects. Soils are well drained to moderately well drained and of varying texture. Parent materials vary, mostly morainal or colluvial, but including glaciofluvial, fluvial or lacustrine. Soils are classified as Brunisols or Cryosols, but data are limited. The forest floor usually has a low cover of woody debris.

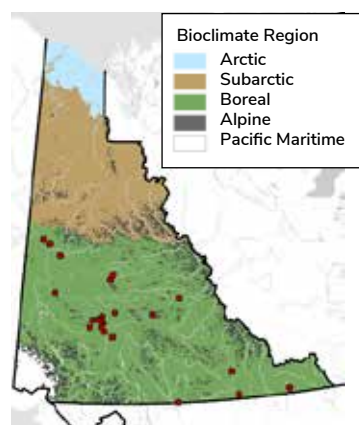
Dynamics: Stands are mostly closed, although higher elevation stands can be open. The stands are a combination of black and white spruce, and although both can occur in the forest regeneration, black spruce is predominant. Stands strongly dominated by black or white spruce can occur on similar site conditions; dominance after disturbance depends on local seed sources.

Comments

- Key characteristics: black spruce and white spruce stand; submesic to mesic upland; low shrub cover; high feathermoss cover
- Component of CNVC00436 Black Spruce – White Spruce / Lowbush Cranberry / Feathermoss

SbSw22 Environment table

Zone	BOL (BOH)
Elevation (m)	330 – 703 – 1170
Aspect	neutral, warm
Slope (%)	0 – 12 – 55
Soil moisture regime	submesic to mesic
Soil drainage	well to moderately well
Permafrost presence/depth (cm)	occasional
Unvegetated cover (%)	1 – 5 – 10
Soil class	Brunisols (Dystric, Eutric) (Turbic Cryosol)

**SbSw22 Vegetation summary (%)**

Trees	10 – 45 – 90	Shrubs	0.1 – 12 – 32	Ground shrubs	0.3 – 10 – 45
Graminoids and Forbs	0 – 5 – 17	Bryophytes	10 – 66 – 99	Lichens	0.3 – 11 – 48

Layer	Scientific name	SbSw22	Common name
		n = 22	
Trees	<i>Picea glauca</i>	■■■■■	white spruce
	<i>Picea mariana</i>	■■■■	black spruce
Shrubs	<i>Rhododendron groenlandicum</i>	■■	common Labrador tea
	<i>Rosa acicularis</i>	■ ■	prickly rose
	<i>Salix</i> spp.	■ ■	willows
Ground shrubs	<i>Empetrum nigrum</i>	■ ■	crowberry
	<i>Vaccinium vitis-idaea</i>	■■■	lowbush cranberry
Forbs	<i>Geocaulon lividum</i>	■ ■	bastard toadflax
Bryophytes	<i>Dicranum</i> spp.	■	heron's-bill mosses
	<i>Hylocomium</i> / <i>Pleurozium</i>	■■■■■	feathermosses
Lichens	<i>Cladina</i> spp.	■■■	reindeer lichens
	<i>Peltigera</i> spp.	■■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

SbSw24 Black spruce – White spruce / Shrub birch / Feathermoss

SbSw24 is a woodland with a combination of black spruce and white spruce and with high shrub birch/water birch, ground shrub and feathermoss cover that occurs in the BOH.

Vegetation: Stands of SbSw24 have an open tree canopy of black spruce (*Picea mariana*) and white spruce (*P. glauca*), sometimes with a minor component of Alaska birch (*Betula neoalaskana*). The shrub layer is well developed, dominated by shrub birch (*Betula glandulosa*) and/or water birch (*B. occidentalis*), usually with moderate to high cover of common Labrador tea (*Rhododendron groenlandicum*) and some blueberry (*Vaccinium uliginosum*). Crowberry (*Empetrum nigrum*) and lowbush cranberry (*Vaccinium vitis-idaea*) characterize the ground shrub layer. Feathermosses (*Hylocomium splendens*, *Pleurozium schreberi*) dominate the ground cover. Reindeer lichens (*Cladina* spp.) are usually present, with moderate to high cover.



Environment: This association occurs at middle to upper, gentle to moderately steep slopes. Soils are well drained, broadly loamy in texture, with moderate volume of coarse fragments. Data on soil types and presence of permafrost are very limited. The forest floor usually has a low cover of woody debris.

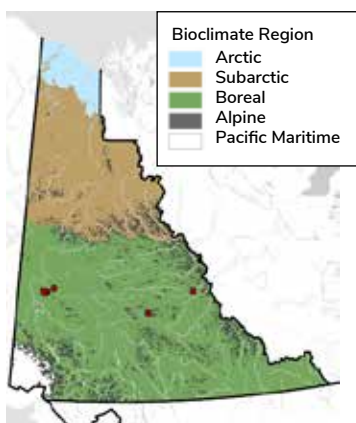
Dynamics: Stands are open and a combination of black and white spruce. Stands strongly dominated by black or white spruce can occur on similar site conditions; dominance after disturbance depends on local seed sources.

Comments

- Key characteristics: open, black spruce and white spruce stand; mesic upland; shrub/water birch $\geq 15\%$ cover and $>$ than cover of common Labrador tea; high feathermoss cover
- CNVC association not yet determined

SbSw24 Environment table

Zone	BOH
Elevation (m)	915 – 1030 – 1145
Aspect	variable
Slope (%)	0 – 16 – 40
Soil moisture regime	mesic
Soil drainage	well
Permafrost presence/depth (cm)	likely (no data)
Unvegetated cover (%)	0 – 1 – 2 (limited data)
Soil class	Cryosols, Brunisols (limited data)

**SbSw24 Vegetation summary (%)**

Trees	4 – 10 – 17	Shrubs	30 – 55 – 75	Ground shrubs	9 – 17 – 30
Graminoids and Forbs	0 – 3 – 6	Bryophytes	25 – 65 – 85	Lichens	7 – 16 – 28

Layer	Scientific name	SbSw24	Common name
		n = 8	
Trees	<i>Picea glauca</i>	■■■	white spruce
	<i>Picea mariana</i>	■■■	black spruce
Shrubs	<i>Betula glandulosa</i>	■■■■	shrub birch
	<i>Betula occidentalis</i>	■■■■	water birch
	<i>Rhododendron groenlandicum</i>	■■■■	common Labrador tea
	<i>Salix</i> spp.	■■■	willows
	<i>Vaccinium uliginosum</i>	■■■	blueberry
Ground shrubs	<i>Empetrum nigrum</i>	■■■	crowberry
	<i>Vaccinium vitis-idaea</i>	■■■■	lowbush cranberry
Graminoids	Poaceae	■■	grass family
Bryophytes	<i>Hylocomium splendens</i>	■■■■	step moss
	<i>Pleurozium schreberi</i>	■■■■■	red-stemmed feathermoss
	<i>Polytrichum</i> spp.	■■	haircap mosses
Lichens	<i>Cladina</i> spp.	■■■■	reindeer lichens
	<i>Peltigera</i> spp.	■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

SbSw25 Black spruce – White spruce / Shrub birch / Red bearberry / Feathermoss

SbSw25 is a woodland with a combination of black spruce and white spruce, and with shrub birch, grey-leaved willow, common Labrador tea, net-veined willow and high feathermoss cover, that occurs in the BOH.

No photo
available

Vegetation: Stands of SbSw25 have an open tree canopy of black spruce (*Picea mariana*) and white spruce (*P. glauca*), with these species usually in the shrub layer as well. The shrub layer is well developed, with shrub birch (*Betula glandulosa*), grey-leaved willow (*Salix glauca*), and common Labrador tea (*Rhododendron groenlandicum*). Crowberry (*Empetrum nigrum*), net-veined willow (*Salix reticulata*) and red bearberry (*Arctous rubra*) are prominent ground shrubs. Feathermosses (*Hylocomium splendens*, *Pleurozium schreberi*) dominate the ground cover. Reindeer lichens (*Cladina* spp.) are often present, with low cover.

Environment: This association occurs at moderately high elevations on middle to upper gentle slopes. Data on soil types and presence of permafrost are absent. The forest floor usually has a low cover of woody debris.

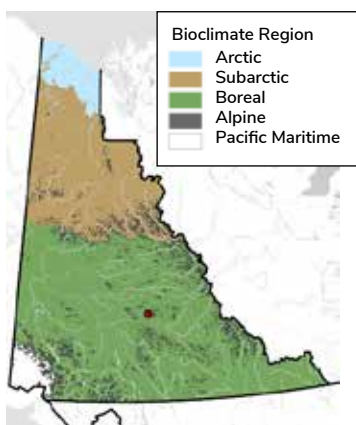
Dynamics: Stands are open and a combination of black spruce and white spruce. Stands strongly dominated by white spruce or white spruce with fir can occur on similar site conditions; dominance after disturbance depends on local seed sources.

Comments

- Key characteristics: open, black spruce and white spruce stand; mesic to moist upland; shrub birch; grey-leaved willow and common Labrador tea present, each with moderate cover (~3–10%); net-veined willow present; high feathermoss cover
- CNVC association not yet determined

SbSw25 Environment table

Zone	BOH
Elevation (m)	1050 – 1110 – 1180
Aspect	variable
Slope (%)	3 – 13 – 20
Soil moisture regime	mesic to subhygric
Soil drainage	moderately well to imperfect
Permafrost presence/depth (cm)	likely (no data)
Unvegetated cover (%)	2 – 5 – 10
Soil class	no data

**SbSw25 Vegetation summary (%)**

Trees	4 – 7 – 20	Shrubs	22 – 25 – 29	Ground shrubs	10 – 25 – 55
Graminoids and Forbs	0 – 0.5 – 1	Bryophytes	20 – 40 – 60	Lichens	1 – 10 – 20

Layer	Scientific name	SbSw25	Common name
		n = 5	
Trees	<i>Picea glauca</i>	■ ■	white spruce
	<i>Picea mariana</i>	■ ■	black spruce
Shrubs	<i>Picea mariana</i>	■ ■	black spruce
	<i>Betula glandulosa</i>	■ ■ ■	shrub birch
	<i>Rhododendron groenlandicum</i>	■ ■ ■	common Labrador tea
	<i>Salix glauca</i>	■ ■ ■	grey-leaved willow
	<i>Vaccinium uliginosum</i>	■ ■	blueberry
Ground shrubs	<i>Arctous rubra</i>	■ ■	red bearberry
	<i>Empetrum nigrum</i>	■ ■ ■ ■	crowberry
	<i>Salix reticulata</i>	■ ■	net-veined willow
Bryophytes	<i>Hylocomium / Pleurozium</i>	■ ■ ■ ■ ■	feathermosses
Lichens	<i>Cladina</i> spp.	■ ■ ■	reindeer lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ ■ 1 – 3	■ ■ ■ 3 – 10	■ ■ ■ ■ 10 – 25	■ ■ ■ ■ ■ >25

SbSw30 Black spruce – White spruce / Labrador tea / Feathermoss

SbSw30 is a woodland or forest with a combination of black spruce and white spruce and with high cover of common Labrador tea and feathermoss that occurs in the BOL and BOH.

Vegetation: Stands of SbSw30 have an open to closed tree canopy of black spruce (*Picea mariana*) and white spruce (*P. glauca*). The shrub layer is well developed and dominated by common Labrador tea (*Rhododendron groenlandicum*). Blueberry (*Vaccinium uliginosum*) is often present. Low to moderate cover of crowberry (*Empetrum nigrum*) and lowbush cranberry (*Vaccinium vitis-idaea*) characterize the ground shrub layer. Feathermosses (*Hylocomium splendens*, *Pleurozium schreberi*) dominate the ground cover. Reindeer lichens (*Cladonia* spp.) are usually present, with low to moderate cover. Pixie cup lichens (*Cladonia* spp.) are sometimes of high cover.



Environment: This association occurs at low to moderate elevations on level sites or gentle, sometimes moderately steep, slopes. Soils are well drained to moderately well drained, broadly loamy in texture, and developing on morainal, eolian, lacustrine or colluvial parent materials. Soils are mostly Brunisols, although data are limited. Permafrost may occur on some sites. The forest floor usually has a low cover of woody debris.

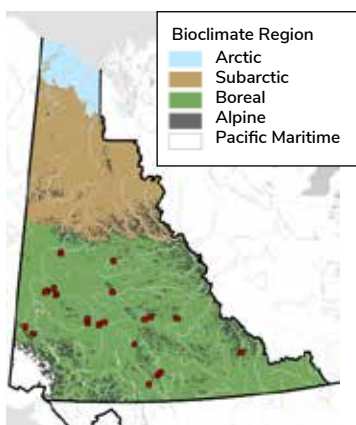
Dynamics: Stands are open and a combination of black spruce and white spruce. Stands strongly dominated by black spruce or white spruce can occur on similar site conditions (Sb23 and Sw29); dominance after disturbance depends on local seed sources.

Comments

- Key characteristics: open or closed, black spruce and white spruce stand; mesic upland; common Labrador tea $\geq 15\%$ cover; high feathermoss cover
- Component of CNVC00438 Black Spruce (White Spruce) / Labrador Tea / Feathermoss

SbSw30 Environment table

Zone	BOL, BOH
Elevation (m)	515 – 840 – 1180
Aspect	variable
Slope (%)	0 – 9 – 40
Soil moisture regime	mesic (subhygric)
Soil drainage	well to moderately well
Permafrost presence/depth (cm)	occasional
Unvegetated cover (%)	0 – 3 – 5
Soil class	Brunisols (Cryosols)

**SbSw30 Vegetation summary (%)**

Trees	6 – 35 – 75	Shrubs	20 – 55 – 99	Ground shrubs	1 – 15 – 40
Graminoids and Forbs	0 – 7 – 23	Bryophytes	25 – 65 – 90	Lichens	5 – 17 – 40

Layer	Scientific name	SbSw30	Common name
		n = 21	
Trees	<i>Picea glauca</i>	■■■■■	white spruce
	<i>Picea mariana</i>	■■■■■	black spruce
Shrubs	<i>Rhododendron groenlandicum</i>	■■■■■	common Labrador tea
	<i>Salix</i> spp.	■■■	willows
	<i>Vaccinium uliginosum</i>	■ ■	blueberry
Ground shrubs	<i>Empetrum nigrum</i>	■■■	crowberry
	<i>Vaccinium vitis-idaea</i>	■■■■■	lowbush cranberry
Forbs	<i>Geocaulon lividum</i>	■ ■	bastard toadflax
Bryophytes	<i>Hylocomium / Pleurozium</i>	■■■■■	feathermosses
Lichens	<i>Cladina</i> spp.	■■■	reindeer lichens
	<i>Peltigera</i> spp.	■■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

SbSw31 Black spruce – White spruce / Blueberry willow / Feathermoss

SbSw31 is a woodland or forest with a combination of black spruce and white spruce, characterized by blueberry willow and red bearberry with a feather-moss ground cover, that occurs on cool sites at low to moderate elevations of the BOL and sometimes the BOH.

Vegetation: Stands of SbSw31 have an open to closed tree canopy of black spruce (*Picea mariana*) and white spruce (*P. glauca*). The shrub layer is well developed, with regenerating black spruce and white spruce, common Labrador tea (*Rhododendron groenlandicum*) and willows (*Salix* spp.), usually blueberry willow (*S. myrtillofolia*). Red bearberry (*Arctous rubra*), lowbush cranberry (*Vaccinium vitis-idaea*), crowberry (*Empetrum nigrum*), dwarf scouring-rush (*Equisetum scirpoides*) and bastard toadflax (*Geocaulon lividum*) are common in the understorey. Step moss (*Hylocomium splendens*) dominates the moss cover. Other mosses can occur, including red-stemmed feathermoss (*Pleurozium schreberi*) and minor cover of brown mosses (*Aulacomnium palustre*, *Tomentypnum nitens*) or peat mosses (*Sphagnum* spp.). Low to moderate cover of reindeer lichens (*Cladina mitis*, *C. rangiferina*, *C. stellaris*) also usually occurs.

Environment: This association occurs mostly on mesic to subhygric, moderately well drained to imperfectly drained sites, that are mostly on level sites or gentle slopes. Parent materials are usually fluvial or shallow organic, but can be morainal, lacustrine or glaciofluvial. Permafrost frequently occurs, at depths of 40 cm or more. Soil types include Cryosols (Turbic, Organic, Static) and Brunisols (Eutric). The forest floor has a low to moderate cover of woody debris.

Dynamics: Stands are of varying density, with open stands having more spruce in the shrub layer. Stands strongly dominated by black or white spruce can occur on similar sites conditions (Sb32 and Sw31); dominance after disturbance depends on local seed sources.

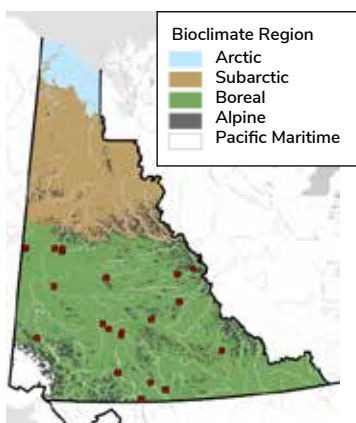
Comments

- Key characteristics: open or closed, black spruce and white spruce stand; mesic to moist upland; common Labrador tea <15% cover; red bearberry present; blueberry willow usually present; high step moss cover
- Component of CNVC00439 Black Spruce – White Spruce / Blueberry Willow / Scouring-rush / Step Moss



SbSw31 Environment table

Zone	BOL (BOH)
Elevation (m)	460 – 730 – 1170
Aspect	variable
Slope (%)	0 – 9 – 40
Soil moisture regime	mesic to subhygric
Soil drainage	moderately well to imperfect
Permafrost presence/depth (cm)	frequent
Unvegetated cover (%)	1 – 4 – 15
Soil class	Cryosols, Brunisols

**SbSw31 Vegetation summary (%)**

Trees	10 – 41 – 80	Shrubs	5 – 25 – 60	Ground shrubs	1 – 17 – 50
Graminoids and Forbs	0.2 – 6 – 20	Bryophytes	30 – 73 – 99	Lichens	0.1 – 11 – 40

Layer	Scientific name	SbSw31	Common name
		n = 23	
Trees	<i>Picea glauca</i>	■■■■■	white spruce
	<i>Picea mariana</i>	■■■■■	black spruce
Shrubs	<i>Picea mariana</i>	■■■	black spruce
	<i>Rhododendron groenlandicum</i>	■■■	common Labrador tea
	<i>Salix myrtillifolia</i>	■■■	blueberry willow
Ground shrubs	<i>Arctous rubra</i>	■■■	red bearberry
	<i>Empetrum nigrum</i>	■■	crowberry
	<i>Vaccinium vitis-idaea</i>	■■■	lowbush cranberry
Forbs	<i>Geocaulon lividum</i>	■■	bastard toadflax
	<i>Mertensia paniculata</i>	■	tall bluebells
	<i>Equisetum scirpoides</i>	■	dwarf scouring-rush
Bryophytes	<i>Hylocomium splendens</i>	■■■■■	step moss
Lichens	<i>Cladina</i> spp.	■■■	reindeer lichens
	<i>Peltigera</i> spp.	■■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

SbSw32 Black spruce (White spruce) / Red bearberry / Feathermoss – Brown moss

SbSw32 is a swamp with black spruce or with black spruce and white spruce, characterized by an understory of blueberry willow and red bearberry, and with a feathermoss – brown moss ground cover, that occurs in the BOL. This association is a component of the SbSw – Red Bearberry – Brown Moss Swamp ecosite (S08).

Vegetation: Stands of SbSw32 are open, with a tree canopy of black spruce (*Picea mariana*) or a combination of black spruce and white spruce (*P. glauca*), often with most of the tree cover in the shrub layer. Other than tree species, the shrub layer is moderately well developed, with common Labrador tea (*Rhododendron groenlandicum*), blueberry willow (*Salix myrtillifolia*), and often other willows, mostly grey-leaved willow (*S. glauca*). Common ground shrubs are red bearberry (*Arctous rubra*), lowbush cranberry (*Vaccinium vitis-idaea*) and crowberry (*Empetrum nigrum*). Graminoids include spruce muskeg sedge (*Carex bigelowii* ssp. *lugens*). Common forbs include dwarf scouring-rush (*Equisetum scirpoides*) and arctic sweet coltsfoot (*Petasites frigidus*). Step moss (*Hylocomium splendens*) usually dominates the moss cover, although brown mosses (mostly *Tomentypnum nitens*, *Aulacomnium palustre*) occur with moderately high to high cover.



Environment: This association occurs mostly on hygric, imperfect to poorly drained sites that are on level sites or gentle lower/toe slopes. Parent materials vary, but are capped by a mesic to humic peat up to 25 cm deep. Permafrost frequently occurs, at depths of 40 cm or more. Soil types include Cryosols (Turbic, Organic), Gleysols and gleyed Cumulic Regosols. The forest floor often has a low cover of woody debris.

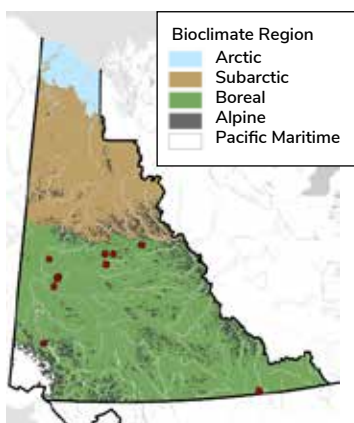
Dynamics: Stands are generally open, of low stature, with black spruce or both white and black spruce. Stands strongly dominated by white spruce are included in Sw32. Tree species dominance after disturbance depends on local seed sources.

Comments

- Key characteristics: black spruce or black spruce and white spruce swamp; blueberry willow and red bearberry present, usually with high step moss cover; brown moss cover $\geq 15\%$
- Component of CNVC00114 Black Spruce (White Spruce) / Labrador tea / Lowbush Cranberry – Crowberry / Feathermoss – Brown Moss

SbSw32 Environment table

Zone	BOL
Elevation (m)	395 – 625 – 810
Aspect	neutral, variable
Slope (%)	0 – 5 – 12
Soil moisture regime	hygic (subhygic, subhydic)
Soil drainage	imperfect to poor
Permafrost presence/depth (cm)	frequent
Unvegetated cover (%)	1 – 3 – 5
Soil class	Cryosols (Gleysols)

**SbSw32 Vegetation summary (%)**

Trees	10 – 41 – 80	Shrubs	5 – 25 – 60	Ground shrubs	1 – 17 – 50
Graminoids and Forbs	0.2 – 6 – 20	Bryophytes	30 – 73 – 99	Lichens	0.1 – 11 – 40

Layer	Scientific name	SbSw32	Common name
		n = 10	
Trees	<i>Picea glauca</i>	■ ■	white spruce
	<i>Picea mariana</i>	■ ■ ■	black spruce
Shrubs	<i>Picea mariana</i>	■ ■ ■ ■	black spruce
	<i>Betula glandulosa</i>	■ ■	shrub birch
	<i>Rhododendron groenlandicum</i>	■ ■ ■	common Labrador tea
	<i>Salix myrtillifolia</i>	■ ■	blueberry willow
	<i>Salix</i> spp.	■ ■ ■ ■	willows
	<i>Vaccinium uliginosum</i>	■ ■ ■	blueberry
Ground shrubs	<i>Arctous rubra</i>	■ ■ ■	red bearberry
	<i>Vaccinium vitis-idaea</i>	■ ■ ■	lowbush cranberry
Graminoids	<i>Carex bigelowii</i> ssp. <i>lugens</i>	■ ■ ■	spruce muskeg sedge
	Poaceae	■ ■	grass family
Forbs	<i>Equisetum scirpoides</i>	■ ■	dwarf scouring-rush
	<i>Petasites frigidus</i>	■	arctic sweet coltsfoot
Bryophytes	<i>Aulacomnium</i> / <i>Tomentypnum</i>	■ ■ ■ ■	brown mosses
	<i>Hylocomium splendens</i>	■ ■ ■ ■ ■	step moss
	<i>Sphagnum</i> spp.	■ ■	peat mosses
Lichens	<i>Cladina</i> spp.	■ ■ ■	reindeer lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ ■ 1 – 3	■ ■ ■ 3 – 10	■ ■ ■ ■ 10 – 25	■ ■ ■ ■ ■ >25

SbSw33 Black spruce – White spruce / Labrador tea – Blueberry willow / Feathermoss

SbSw33 is a woodland or forest with a combination of black spruce and white spruce, characterized by common Labrador tea, blueberry willow, and red bearberry, and with a feathermoss ground cover, that occurs on cool sites at low to moderate elevations of the BOL.

Vegetation: Stands of SbSw33 have an open to moderately closed tree canopy of black spruce (*Picea mariana*) and white spruce (*P. glauca*). The shrub layer is well developed, with regenerating black spruce and white spruce, common Labrador tea (*Rhododendron groenlandicum*) and willows (*Salix* spp.), usually blueberry willow (*S. myrtilifolia*). Red bearberry (*Arctous rubra*), lowbush cranberry (*Vaccinium vitis-idaea*), crowberry (*Empetrum nigrum*), dwarf scouring-rush (*Equisetum scirpoides*) and bastard toadflax (*Geocaulon lividum*) are common in the understory. Step moss (*Hylocomium splendens*) dominates the moss cover. Other mosses can occur, including red-stemmed feathermoss (*Pleurozium schreberi*) and minor cover of brown mosses (*Aulacomnium palustre*, *Tomentypnum nitens*) or peat mosses (*Sphagnum* spp.). Low to moderate cover of reindeer lichens (*Cladina mitis*, *C. rangiferina*, *C. stellaris*) also usually occurs.

Environment: This association occurs on subhygric, imperfectly drained sites that are mostly on level to gentle slopes. Parent materials are usually morainal or organic, but can be colluvial. Permafrost frequently occurs, at depths of 40 cm or more. Soil types include Cryosols (Turbic, Organic) and Brunisols (Eutric); however, data are limited. The forest floor has a low cover of woody debris.

Dynamics: Stands are of varying density, with open stands having more spruce in the shrub layer. Stands strongly dominated by black spruce (Sb33) can occur on similar site conditions; dominance after disturbance depends on local seed sources. SbSw31 can occur on similar sites, but stands have lower cover of common Labrador tea.

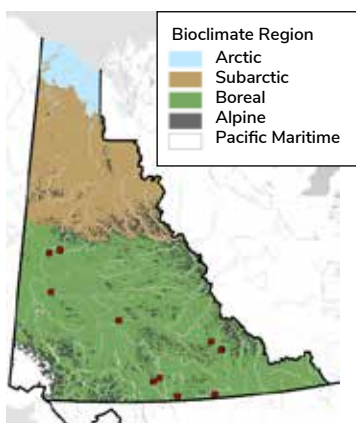
Comments

- Key characteristics: open or closed, black spruce and white spruce stand; moist upland; common Labrador tea $\geq 15\%$ cover; blueberry willow and red bearberry present; high step moss cover
- Component of CNVC00439 Black Spruce – White Spruce) / Blueberry Willow / Scouring-rush / Step Moss



SbSw33 Environment table

Zone	BOL
Elevation (m)	450 – 680 – 915
Aspect	variable
Slope (%)	0 – 12 – 47
Soil moisture regime	subhygric
Soil drainage	imperfect
Permafrost presence/depth (cm)	frequent
Unvegetated cover (%)	1 – 4 – 7
Soil class	Cryosols, Brunisols

**SbSw33 Vegetation summary (%)**

Trees	0 – 30 – 50	Shrubs	30 – 75 – 99	Ground shrubs	5 – 25 – 60
Graminoids and Forbs	0.2 – 10 – 32	Bryophytes	40 – 70 – 99	Lichens	5 – 11 – 25

Layer	Scientific name	SbSw33	Common name
		n = 11	
Trees	<i>Picea glauca</i>	■■■■■	white spruce
	<i>Picea mariana</i>	■■■■■	black spruce
Shrubs	<i>Picea mariana</i>	■■■	black spruce
	<i>Dasiphora fruticosa</i>	■■	shrubby cinquefoil
	<i>Rhododendron groenlandicum</i>	■■■■■	common Labrador tea
	<i>Rosa acicularis</i>	■	prickly rose
	<i>Salix myrtillifolia</i>	■■■■■	blueberry willow
	<i>Vaccinium uliginosum</i>	■■■	blueberry
Ground shrubs	<i>Arctous rubra</i>	■■■	red bearberry
	<i>Empetrum nigrum</i>	■■■	crowberry
	<i>Vaccinium vitis-idaea</i>	■■■■■	lowbush cranberry
Forbs	<i>Equisetum scirpoides</i>	■■■	dwarf scouring-rush
	<i>Geocaulon lividum</i>	■■	bastard toadflax
Bryophytes	<i>Hylocomium splendens</i>	■■■■■	step moss
Lichens	<i>Cladina</i> spp.	■■■	reindeer lichens
	<i>Peltigera</i> spp.	■■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

SbSw38 Black spruce (White spruce) / Labrador tea / Red bearberry / Feathermoss – Brown moss

SbSw38 is a swamp with black spruce or with black spruce and white spruce, characterized by an understorey of common Labrador tea and red bearberry, and with a feathermoss – brown moss ground cover, that occurs in the BOL. This association is a component of the SbSw – Red Bearberry – Brown Moss Swamp ecosite (S08).

Vegetation: Stands of SbSw38 vary in density, with a tree canopy of black spruce (*Picea mariana*) or black spruce and white spruce (*P. glauca*). Tree regeneration is mostly black spruce and occurs on sites with a more open canopy. Common Labrador tea (*Rhododendron groenlandicum*) dominates the shrub layer. Blueberry willow (*Salix myrtillofolia*) and/or grey-leaved willow (*S. glauca*) are present. Ground shrubs dominate the low vegetation, with red bearberry (*Arctous rubra*), lowbush cranberry (*Vaccinium vitis-idaea*) and crowberry (*Empetrum nigrum*). Step moss (*Hylocomium splendens*) usually dominates the moss cover, although brown mosses (mostly *Tomentypnum nitens*, *Aulacomnium palustre*) occur with moderate to high cover.

Environment: This association occurs mostly on hygric, poorly drained sites that are level or gentle lower/toe slopes. Parent materials vary, but are capped by a mesic to humic peat, mostly around 25 cm deep. Permafrost frequently occurs, at around 30 cm depth. Soil types include Cryosols (Turbic, Organic) and Gleysols. The forest floor often has a low cover of woody debris.

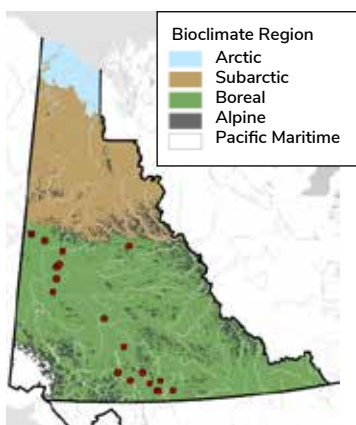
Dynamics: Stands are open or closed and of low stature, with black spruce or both white and black spruce. Stands on similar sites strongly dominated by white spruce are included in Sw32, although the common Labrador tea cover is lower. Tree species dominance after disturbance depends on local seed sources.

**Comments**

- Key characteristics: black spruce or black spruce and white spruce swamp; common Labrador tea $\geq 15\%$ and red bearberry present; moderate to high step moss cover; brown moss cover $\geq 15\%$ or, if less, then common Labrador tea cover $\geq 50\%$
- Component of CNVC00114 Black Spruce (White Spruce) / Labrador tea / Lowbush Cranberry – Crowberry / Feathermoss – Brown Moss

SbSw38 Environment table

Zone	BOL
Elevation (m)	310 – 610 – 915
Aspect	neutral (variable)
Slope (%)	0 – 3 – 14
Soil moisture regime	hygric
Soil drainage	poor
Permafrost presence/depth (cm)	frequent / 30 cm
Unvegetated cover (%)	1 – 2 – 3
Soil class	Cryosols, Gleysols

**SbSw38 Vegetation summary (%)**

Trees	1 – 30 – 80	Shrubs	20 – 58 – 99	Ground shrubs	3 – 21 – 50
Graminoids and Forbs	0.2 – 9 – 20	Bryophytes	20 – 70 – 95	Lichens	0.5 – 14 – 30

Layer	Scientific name	SbSw38	Common name
		n = 19	
Trees	<i>Picea glauca</i>	■ ■ ■	white spruce
	<i>Picea mariana</i>	■ ■ ■ ■	black spruce
Shrubs	<i>Rhododendron groenlandicum</i>	■ ■ ■ ■ ■	common Labrador tea
	<i>Salix glauca</i>	■ ■	grey-leaved willow
	<i>Salix myrtilifolia</i>	■ ■ ■	blueberry willow
Ground shrubs	<i>Arctous rubra</i>	■ ■ ■	red bearberry
	<i>Empetrum nigrum</i>	■ ■ ■	crowberry
	<i>Vaccinium vitis-idaea</i>	■ ■ ■	lowbush cranberry
Forbs	<i>Equisetum arvense</i>	■ ■	common horsetail
Bryophytes	<i>Aulacomnium /Tomentypnum</i>	■ ■ ■ ■	brown mosses
	<i>Dicranum</i> spp.	■ ■ ■	heron's-bill mosses
	<i>Hylocomium splendens</i>	■ ■ ■ ■ ■	step moss
Lichens	<i>Cladina</i> spp.	■ ■ ■ ■	reindeer lichens
	<i>Cladonia</i> spp.	■	clad lichens
	<i>Peltigera</i> spp.	■ ■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ ■ 1 – 3	■ ■ ■ 3 – 10	■ ■ ■ ■ 10 – 25	■ ■ ■ ■ ■ >25

SbSw39 Black spruce – white spruce / Willow / Horsetail / Brown moss

SbSw39 is a swamp with a combination of black spruce and white spruce, characterized by an understorey with a moderate to high cover of common horsetail, usually with a high cover of willows, that occurs in the BOL and BOH. This association is a component of the Sw – Willow – Horsetail Swamp ecosite (S13).

Vegetation: SbSw39 stands vary in density, with a tree canopy of black spruce (*Picea mariana*) and white spruce (*P. glauca*). Tree regeneration occurs on sites with a more open canopy. Willows (*Salix* spp.) dominate the shrub layer, which is moderately developed to well developed. Common Labrador tea (*Rhododendron groenlandicum*) and blueberry (*Vaccinium uliginosum*) are usually present. Common horsetail (*Equisetum arvense*) characterizes the understorey; cover varies from moderate to high. Step moss (*Hylocomium splendens*) usually dominates the moss cover, although brown mosses (mostly *Tomentypnum nitens*, *Aulacomnium palustre*) can also occur with moderately high to high cover.

Environment: This association occurs mostly on hygric, imperfect to poorly drained level sites. Parent materials vary, but are capped by a peaty layer of variable thickness. Permafrost frequently occurs in the central Yukon and higher-elevation sites, but is lacking in the south. Soil types include Gleysols, Cryosols or Organic soils. The forest floor often has a low cover of woody debris.

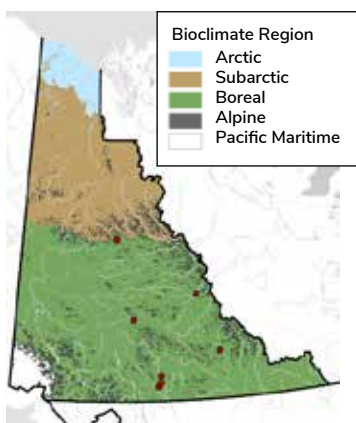
Dynamics: Stands are open or closed and can be quite dense, with black spruce and white spruce. Stands on similar sites strongly dominated by white spruce are included in Sw39. Tree species dominance after disturbance depends on local seed sources.

**Comments**

- Key characteristics: white spruce and black spruce swamp; willows $\geq 15\%$; common horsetail $\geq 5\%$; moderate to high cover of step moss; brown moss cover $\geq 10\%$
- CNVC association not yet determined

SbSw39 Environment table

Zone	BOL, BOH
Elevation (m)	640 – 900 – 1130
Aspect	neutral
Slope (%)	0 – 1 – 3
Soil moisture regime	hygric
Soil drainage	imperfect to poor
Permafrost presence/depth (cm)	frequent
Unvegetated cover (%)	1 – 3 – 4
Soil class	Organic, Gleysols, Cryosols

**SbSw39 Vegetation summary (%)**

Trees	5 – 50 – 99	Shrubs	6 – 62 – 99	Ground shrubs	0 – 6 – 40
Graminoids and Forbs	10 – 33 – 70	Bryophytes	35 – 77 – 99	Lichens	0.1 – 3 – 6

Layer	Scientific name	SbSw39	Common name
		n = 7	
Trees	<i>Picea glauca</i>	■■■■■	white spruce
	<i>Picea mariana</i>	■■■■	black spruce
Shrubs	<i>Rhododendron groenlandicum</i>	■■■■	common Labrador tea
	<i>Salix</i> spp.	■■■■■	willows
	<i>Vaccinium uliginosum</i>	■■	blueberry
Ground shrubs	<i>Empetrum nigrum</i>	■ ■	crowberry
	<i>Vaccinium vitis-idaea</i>	■ ■	lowbush cranberry
Forbs	<i>Equisetum arvense</i>	■■■■	common horsetail
	<i>Geocaulon lividum</i>	■ ■	bastard toadflax
Bryophytes	<i>Hylocomium splendens</i>	■■■■■	step moss
	<i>Aulacomnium / Tomentypnum</i>	■■■■	brown mosses
Lichens	<i>Peltigera</i> spp.	■■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

SbSw41 Black spruce – White spruce / Shrub birch / Feathermoss – Brown moss

SbSw41 is a swamp with black spruce or with black spruce and white spruce characterized by an understorey of shrub birch, common Labrador tea, red bearberry and brown mosses that occurs in the BOL and BOH. This association is a component of the SbSw – Shrub Birch – Feathermoss – Brown moss Swamp ecosite (S10).

Vegetation: Stands of SbSw41 are open, with a tree canopy of black spruce (*Picea mariana*) or of black spruce and white spruce (*P. glauca*). Tree regeneration is mostly black spruce and occurs on sites with a more open canopy. Shrub birch (*Betula glandulosa*) of moderately high to high cover characterizes the shrub layer. Common Labrador tea (*Rhododendron groenlandicum*) occurs as well and can dominate the shrub layer. Willows (*Salix* spp.) are also present, with blueberry willow (*Salix myrtilifolia*) commonly occurring. Red bearberry (*Arctous rubra*) and crowberry (*Empetrum nigrum*) are common ground shrubs. Step moss (*Hylocomium splendens*) and brown mosses (mostly *Tomentypnum nitens*, *Aulacomnium palustre*) dominate the bryophyte layer. Peat mosses (*Sphagnum* spp.) often occur.



Environment: This association occurs mostly on wet, imperfectly to very poorly drained sites that are either level or on gentle, cool-aspect slopes. Parent materials vary and are capped by a peaty layer of variable thickness. Permafrost frequently occurs at depth. Soil types include Cryosols (Turbic, Organic) or Gleysols. The forest floor often has a low cover of woody debris.

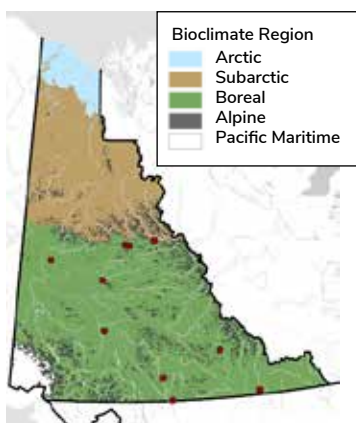
Dynamics: Stands are open and of low stature, with black spruce or both white and black spruce. Black spruce regenerates well on these cool sites. Stands on similar sites strongly dominated by white spruce are included in Sw41. Tree species dominance after disturbance depends on local seed sources.

Comments

- Key characteristics: black spruce or black spruce and white spruce swamp; shrub birch $\geq 10\%$, common Labrador tea and red bearberry usually present; brown moss cover $\geq 10\%$
- CNVC association not yet determined

SbSw41 Environment table

Zone	BOL, BOH
Elevation (m)	310 – 610 – 915
Aspect	neutral (cool)
Slope (%)	0 – 5 – 13
Soil moisture regime	hygric to subhydryc
Soil drainage	imperfect to very poor
Permafrost presence/depth (cm)	frequent
Unvegetated cover (%)	1 – 5 – 10
Soil class	Cryosols, Gleysols

**SbSw41 Vegetation summary (%)**

Trees	1 – 11 – 40	Shrubs	35 – 64 – 99	Ground shrubs	1 – 14 – 55
Graminoids and Forbs	2 – 8 – 20	Bryophytes	40 – 75 – 99	Lichens	1 – 10 – 25

Layer	Scientific name	SbSw41	Common name
		n = 10	
Trees	<i>Picea mariana</i>	■■■	black spruce
	<i>Picea glauca</i>	□□□	white spruce
Shrubs	<i>Picea mariana</i>	■■■	black spruce
	<i>Betula glandulosa</i>	■■■■	shrub birch
	<i>Dasiphora fruticosa</i>	■ ■	shrubby cinquefoil
	<i>Rhododendron groenlandicum</i>	■■■■	common Labrador tea
	<i>Salix</i> spp.	■■■	willows
	<i>Vaccinium uliginosum</i>	■■■	blueberry
Ground shrubs	<i>Arctous rubra</i>	■■■	red bearberry
	<i>Empetrum nigrum</i>	■■	crowberry
	<i>Rubus arcticus</i>	■	arctic raspberry
Forbs	<i>Equisetum scirpoides</i>	■	dwarf scouring-rush
Bryophytes	<i>Aulacomnium / Tomentypnum</i>	■■■■■	brown mosses
	<i>Hylocomium splendens</i>	■■■■	step moss
	<i>Sphagnum</i> spp.	■ ■ ■	peat mosses
Lichens	<i>Cladina</i> spp.	■■■	reindeer lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

SbSw53 Black spruce – White spruce / Leatherleaf / Bluejoint reedgrass

SbSw53 is a swamp with white spruce or with black spruce and white spruce characterized by leatherleaf and bluejoint reedgrass that occurs in the BOL. This association is a component of the SbSw – Leatherleaf – Peat Moss Swamp ecosite (S11).

Vegetation: Stands of SbSw53 are open or closed, with a tree canopy of white spruce (*Picea glauca*) or of black spruce (*P. mariana*) and white spruce, usually with most of the tree cover in the shrub layer. Other than tree species, the shrub layer is well developed, with leatherleaf (*Chamaedaphne calyculata*) and some willow (*Salix* spp.) cover. Bluejoint reedgrass (*Calamagrostis canadensis*) dominates the graminoid layer, often with some marsh-cinquefoil (*Comarum palustre*) in the forb layer. Moss cover is sparse in the grassy understorey.

Environment: This association occurs mostly on hygric to subhygric poorly drained level sites. Parent materials are fluvial with a peaty surface layer. Permafrost occurs, generally at depths of 40 cm or more. Soils are Cryosols (Turbic, Organic). The forest floor often has a low cover of woody debris.

Dynamics: Stands are generally open, of low stature, with white spruce or both white and black spruce. The reedgrass may be the result of past disturbances. Tree species dominance after disturbance depends on local seed sources.

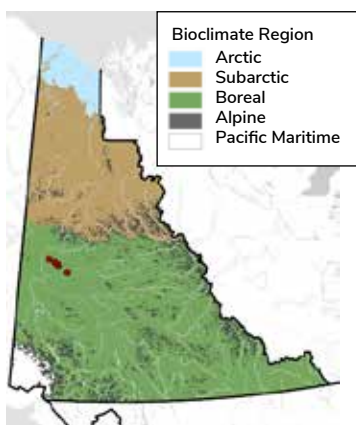
Comments

- Key characteristics: white spruce or black spruce and white spruce swamp; leatherleaf $\geq 10\%$; bluejoint reedgrass $\geq 5\%$
- CNVC association not yet determined



SbSw53 Environment table

Zone	BOL
Elevation (m)	410 – 440 – 500
Aspect	neutral
Slope (%)	0 – 0 – 2
Soil moisture regime	hygic to subhydryc
Soil drainage	poor
Permafrost presence/depth (cm)	present
Unvegetated cover (%)	no data
Soil class	Cryosols

**SbSw53 Vegetation summary (%)**

Trees	0 – 14 – 70	Shrubs	30 – 75 – 99	Ground shrubs	0 – 3 – 15
Graminoids and Forbs	9 – 35 – 99	Bryophytes	0 – 5 – 10	Lichens	0 – 0 – 0

Layer	Scientific name	SbSw53	Common name
		n = 5	
Trees	<i>Picea mariana</i>	■ ■ ■	black spruce
	<i>Picea glauca</i>	■ ■ ■ ■	white spruce
Shrubs	<i>Picea glauca</i>	■ ■ ■ ■	white spruce
	<i>Chamaedaphne calyculata</i>	■ ■ ■ ■ ■	leatherleaf
	<i>Salix</i> spp.	■ ■	willows
Graminoids	<i>Carex bigelowii</i> ssp. <i>lugens</i>	■ ■	spruce muskeg sedge
	<i>Calamagrostis canadensis</i>	■ ■ ■ ■ ■	bluejoint reedgrass
Forbs	<i>Comarum palustre</i>	■ ■	marsh-cinquefoil
Bryophytes	<i>Aulacomnium</i> / <i>Tomentypnum</i>	□ □	brown mosses
	<i>Hylocomium splendens</i>	□	step moss
	<i>Sphagnum</i> spp.	□ □	peat mosses

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ ■ 1 – 3	■ ■ ■ 3 – 10	■ ■ ■ ■ 10 – 25	■ ■ ■ ■ ■ >25

SbSw54 Black spruce – White spruce / Leatherleaf / Peat moss

SbSw54 is a swamp with black spruce or with black spruce and white spruce characterized by leatherleaf and peat moss that occurs in the BOL and SUW. This association is a component of the SbSw – Leatherleaf – Peat Moss Swamp ecosite (S11).

No photo
available

Vegetation: Stands of SbSw54 are open to moderately closed, with a tree canopy of black spruce (*Picea mariana*) or of black spruce and white spruce (*P. glauca*), usually with most of the tree cover in the shrub layer. Other than tree species, the shrub layer is well developed, with leatherleaf (*Chamaedaphne calyculata*), common Labrador tea (*Rhododendron groenlandicum*) and willows (*Salix* spp.). Other shrubs that can be of moderate to high cover include shrub birch (*Betula glandulosa*), blueberry (*Vaccinium uliginosum*) and green alder (*Alnus alnobetula*). The forb layer is lightly developed. Moss cover is moderate to very high and comprised of peat mosses (*Sphagnum* spp.), feathermosses (*Hylocomium*, *Pleurozium*), and brown mosses (*Aulacomnium palustre*, *Tomentypnum nitens*).

Environment: This association occurs on hygric to subhydric, poorly drained sites that are either level or on gentle to moderate lower or toe slopes. Parent materials vary, with a peaty surface layer. Soil data are limited, but it is likely that permafrost is present and soil types would be Cryosols (Turbic). The forest floor often has a low cover of woody debris.

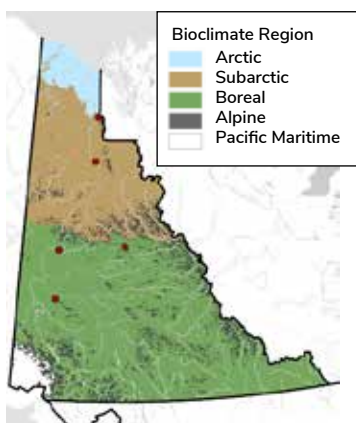
Dynamics: Stands are generally open, of low stature, with black spruce or both white and black spruce. Tree species dominance after disturbance depends on local seed sources.

Comments

- Key characteristics: black spruce or black spruce and white spruce swamp; leatherleaf $\geq 10\%$; bluejoint reedgrass $< 5\%$; moss cover $> 10\%$, usually $> 25\%$, of which peat moss $\geq 5\%$
- CNVC association not yet determined

SbSw54 Environment table

Zone	BOL, SUW
Elevation (m)	340 – 570 – 810
Aspect	neutral, variable
Slope (%)	0 – 15 – 42
Soil moisture regime	hygric to subhydryc
Soil drainage	poor
Permafrost presence/depth (cm)	present
Unvegetated cover (%)	1 – 5 – 10
Soil class	Cryosols

**SbSw54 Vegetation summary (%)**

Trees	0 – 8 – 15	Shrubs	55 – 86 – 99	Ground shrubs	0.2 – 13 – 30
Graminoids and Forbs	0 – 10 – 30	Bryophytes	15 – 62 – 99	Lichens	2 – 29 – 80

Layer	Scientific name	SbSw54	Common name
		n = 7	
Trees	<i>Picea mariana</i>	■■■	black spruce
Shrubs	<i>Picea glauca</i>	■ ■	white spruce
	<i>Picea mariana</i>	■■■■	black spruce
	<i>Betula glandulosa</i>	■ ■ ■	shrub birch
	<i>Chamaedaphne calyculata</i>	■■■■	leatherleaf
	<i>Rhododendron groenlandicum</i>	■■■■	common Labrador tea
	<i>Salix</i> spp.	■■■■	willows
	<i>Vaccinium uliginosum</i>	■ ■ ■	blueberry
Ground shrubs	<i>Rubus chamaemorus</i>	■ ■	cloudberry
	<i>Vaccinium oxycoccos</i>	■ ■	bog cranberry
	<i>Vaccinium vitis-idaea</i>	■ ■ ■	lowbush cranberry
Bryophytes	<i>Sphagnum</i> spp.	■■■■	peat mosses
Lichens	<i>Cladina</i> spp.	■ ■ ■ ■	reindeer lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ ■ 1 – 3	■ ■ ■ 3 – 10	■ ■ ■ ■ 10 – 25	■ ■ ■ ■ ■ >25

SbSw55 Black spruce – White spruce / Leatherleaf / Tussock cottongrass

SbSw55 is a fen with a combination of black spruce and white spruce and characterized by leatherleaf and tussock cottongrass that occurs in the BOL. This association is a component of the Sb – Tussock Sedge Fen ecosite (F05).

Vegetation: Stands of SbSw55 are open to moderately closed, with black spruce (*Picea mariana*) and white spruce (*P. glauca*) in the combined tree and shrub layers. The shrub layer is well developed, with leatherleaf (*Chamaedaphne calyculata*), common Labrador tea (*Rhododendron groenlandicum*), blueberry (*Vaccinium uliginosum*), willows (*Salix* spp.) and shrub birch (*Betula glandulosa*). The graminoid layer is characterized by cottongrass, mostly tussock cottongrass (*Eriophorum vaginatum*) and spruce muskeg sedge (*Carex bigelowii* ssp. *lugens*). Bryophyte cover varies, mostly feathermosses (*Hylocomium*, *Pleurozium*), with some peat moss (*Sphagnum* spp.).



Environment: This association occurs on hygric to subhygric, poorly to very poorly drained level sites. Parent materials are organic or fluvial, with an organic peaty surface layer of at least 30 cm. Soils are Fibrisols or perhaps Mesisols; data are limited.

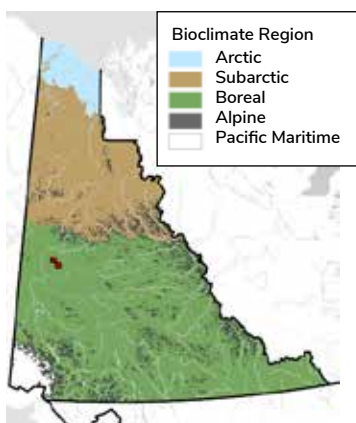
Dynamics: Stands are generally open, of low stature, with black spruce and white spruce. Tree species dominance after disturbance depends on local seed sources.

Comments

- Key characteristics: black spruce and white spruce swamp; leatherleaf $\geq 10\%$; cottongrass $\geq 25\%$
- CNVC association not yet determined

SbSw55 Environment table

Zone	BOL
Elevation (m)	430 – 455 – 500
Aspect	neutral
Slope (%)	0 – 1 – 2
Soil moisture regime	subhydic (hygric)
Soil drainage	poor to very poor
Permafrost presence/depth (cm)	present
Unvegetated cover (%)	no data
Soil class	Fibrisols

**SbSw55 Vegetation summary (%)**

Trees	0 – 13 – 25	Shrubs	99 – 99 – 99	Ground shrubs	0 – 8 – 15
Graminoids and Forbs	40 – 54 – 60	Bryophytes	1 – 28 – 55	Lichens	0 – 11 – 22

Layer	Scientific name	SbSw55	Common name
		n = 3	
Trees	<i>Picea mariana</i>	■ ■ ■ ■	black spruce
	<i>Picea glauca</i>	■ ■ ■ ■ ■	white spruce
Shrubs	<i>Picea mariana</i>	■ ■ ■ ■ ■	black spruce
	<i>Betula glandulosa</i>	■ ■ ■ ■ ■	shrub birch
	<i>Chamaedaphne calyculata</i>	■ ■ ■ ■ ■	leatherleaf
	<i>Rhododendron groenlandicum</i>	■ ■ ■ ■ ■	common Labrador tea
	<i>Salix</i> spp.	■ ■ ■ ■ ■	willows
	<i>Vaccinium uliginosum</i>	■ ■ ■ ■ ■	blueberry
Graminoids	<i>Carex bigelowii</i> ssp. <i>lugens</i>	■ ■ ■ ■ ■	spruce muskeg sedge
	<i>Eriophorum vaginatum</i>	■ ■ ■ ■ ■	tussock cottongrass
Bryophytes	<i>Hylocomium</i> / <i>Pleurozium</i>	■ ■ ■ ■ ■	feathermosses
	<i>Sphagnum</i> spp.	■ ■	peat mosses
Lichens	<i>Peltigera</i> spp.	■ ■ ■ ■ ■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ ■ 1 – 3	■ ■ ■ 3 – 10	■ ■ ■ ■ 10 – 25	■ ■ ■ ■ ■ >25

SbSw56 Black spruce – White spruce / Water sedge / Brown moss

SbSw56 is a fen with a combination of black spruce and white spruce characterized by blueberry willow, red bearberry, water sedge and brown mosses that occurs in the BOL. This association comprises part of the SbSw – Water Sedge Fen ecosite (F04).

Vegetation: SbSw56 stands have an open to moderately closed tree canopy of black spruce (*Picea mariana*) and white spruce (*P. glauca*), often with much of the spruce in the shrub layer. The shrub layer is also well developed, with blueberry willow (*S. myrtillofolia*), common Labrador tea (*Rhododendron groenlandicum*), shrubby cinquefoil (*Dasiphora fruticosa*) and shrub birch (*Betula glandulosa*). Common ground shrubs are red bearberry (*Arctous rubra*), crowberry (*Empetrum nigrum*) and lowbush cranberry (*Vaccinium vitis-idaea*). Water sedge (*Carex aquatilis*) characterizes the understorey. Forbs include common horsetail (*Equisetum arvense*). Brown mosses are of moderately high to high cover, mostly glow moss (*Aulacomnium palustre*) and golden fuzzy fen moss (*Tomentypnum nitens*).



Environment: This association occurs on level sites with poor to very poor soil drainage. Parent materials are deep peat or organic veneers over mineral soil (fluvial, morainal). Soils are often organic and classified as Mesisols. Permafrost is absent. The forest floor sometimes has a low cover of woody debris and small pools of standing water.

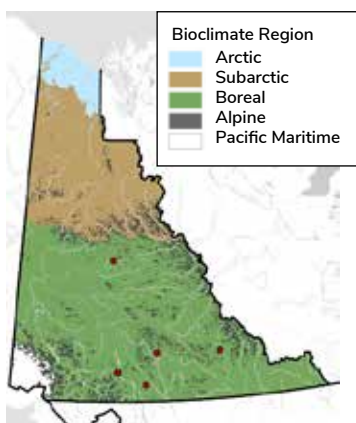
Dynamics: Stands are dominated by black spruce and white spruce of varying density. White spruce can also strongly dominate on similar sites (see Sw50, Sw51). Dominance after disturbance depends on local seed sources.

Comments

- Key characteristics: black spruce and white spruce fen; water sedge $\geq 10\%$; red bearberry $\geq 5\%$; brown mosses usually of high cover
- Component of CNVC00355 White Spruce / Shrub Birch / Water Sedge

SbSw56 Environment table

Zone	BOL
Elevation (m)	650 – 800 – 900
Aspect	neutral
Slope (%)	0 – 2 – 5
Soil moisture regime	subhydic (hygric)
Soil drainage	poor to very poor
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	2 – 6 – 10
Soil class	Mesisols

**SbSw56 Vegetation summary (%)**

Trees	5 – 13 – 35	Shrubs	30 – 55 – 80	Ground shrubs	5 – 20 – 35
Graminoids and Forbs	18 – 30 – 40	Bryophytes	35 – 75 – 96	Lichens	0 – 16 – 40

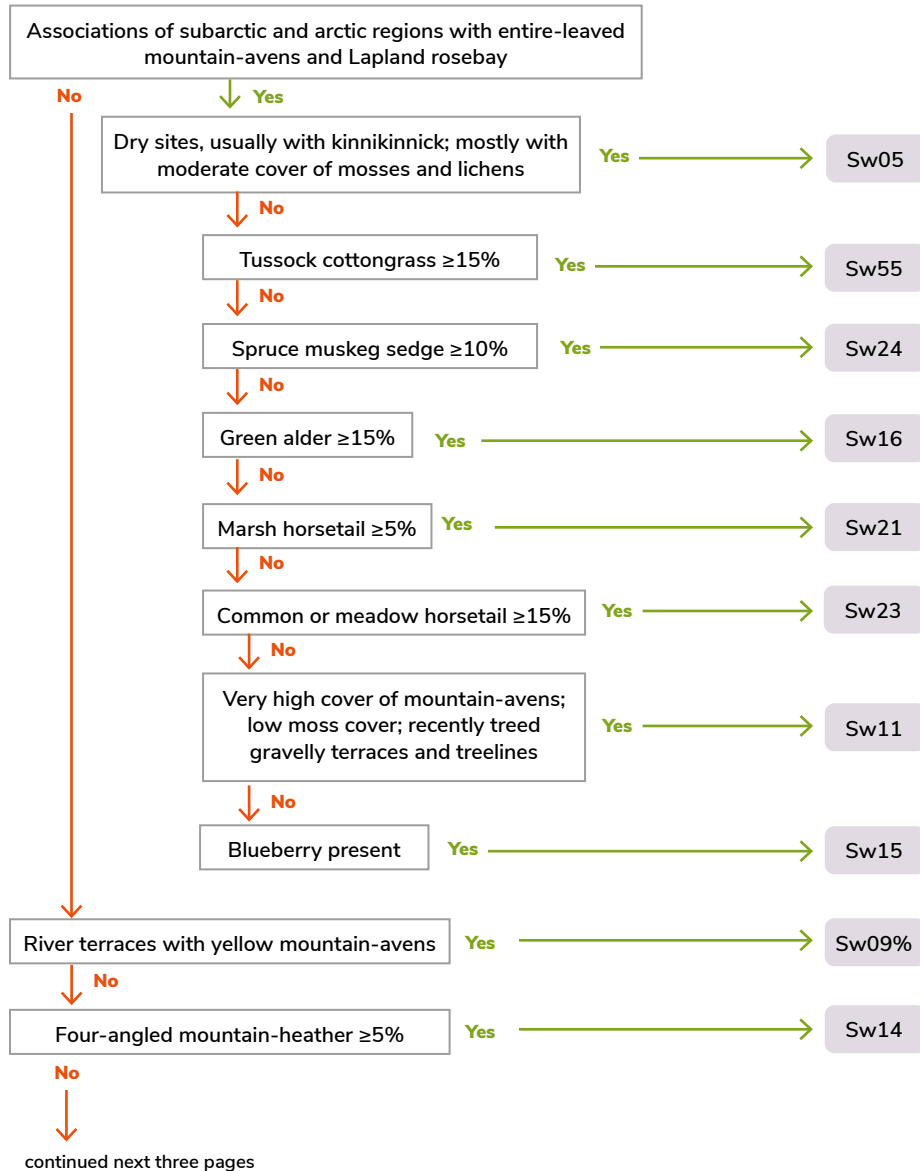
Layer	Scientific name	SbSw56	Common name
		n = 5	
Trees	<i>Picea glauca</i>	■■■	white spruce
	<i>Picea mariana</i>	■■■	black spruce
Shrubs	<i>Picea glauca</i>	■■■	white spruce
	<i>Picea mariana</i>	■■■	black spruce
	<i>Betula glandulosa</i>	■■■■	shrub birch
	<i>Dasiphora fruticosa</i>	■■	shrubby cinquefoil
	<i>Rhododendron groenlandicum</i>	■■■■	common Labrador tea
	<i>Salix myrtillofolia</i>	■■■■	blueberry willow
	<i>Salix</i> spp.	■■■	willows
	<i>Vaccinium uliginosum</i>	■■	blueberry
Ground shrubs	<i>Arctous rubra</i>	■■■	red bearberry
	<i>Empetrum nigrum</i>	■■■	crowberry
	<i>Vaccinium vitis-idaea</i>	■■	lowbush cranberry
Graminoids	<i>Carex aquatilis</i>	■■■■	water sedge
Forbs	<i>Equisetum arvense</i>	■■■	common horsetail
	<i>Equisetum scirpoides</i>	■■	dwarf scouring-rush
Bryophytes	<i>Aulacomnium / Tomentypnum</i>	■■■■	brown mosses
	<i>Drepanocladus</i> spp.	■■	hook mosses
	<i>Hylocomium splendens</i>	■■■■	step moss
	<i>Peltigera</i> spp.	■■■	pelt lichens
	<i>Sphagnum</i> spp.	■■■	peat mosses
Lichens	<i>Cladina</i> spp.	■■■	reindeer lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

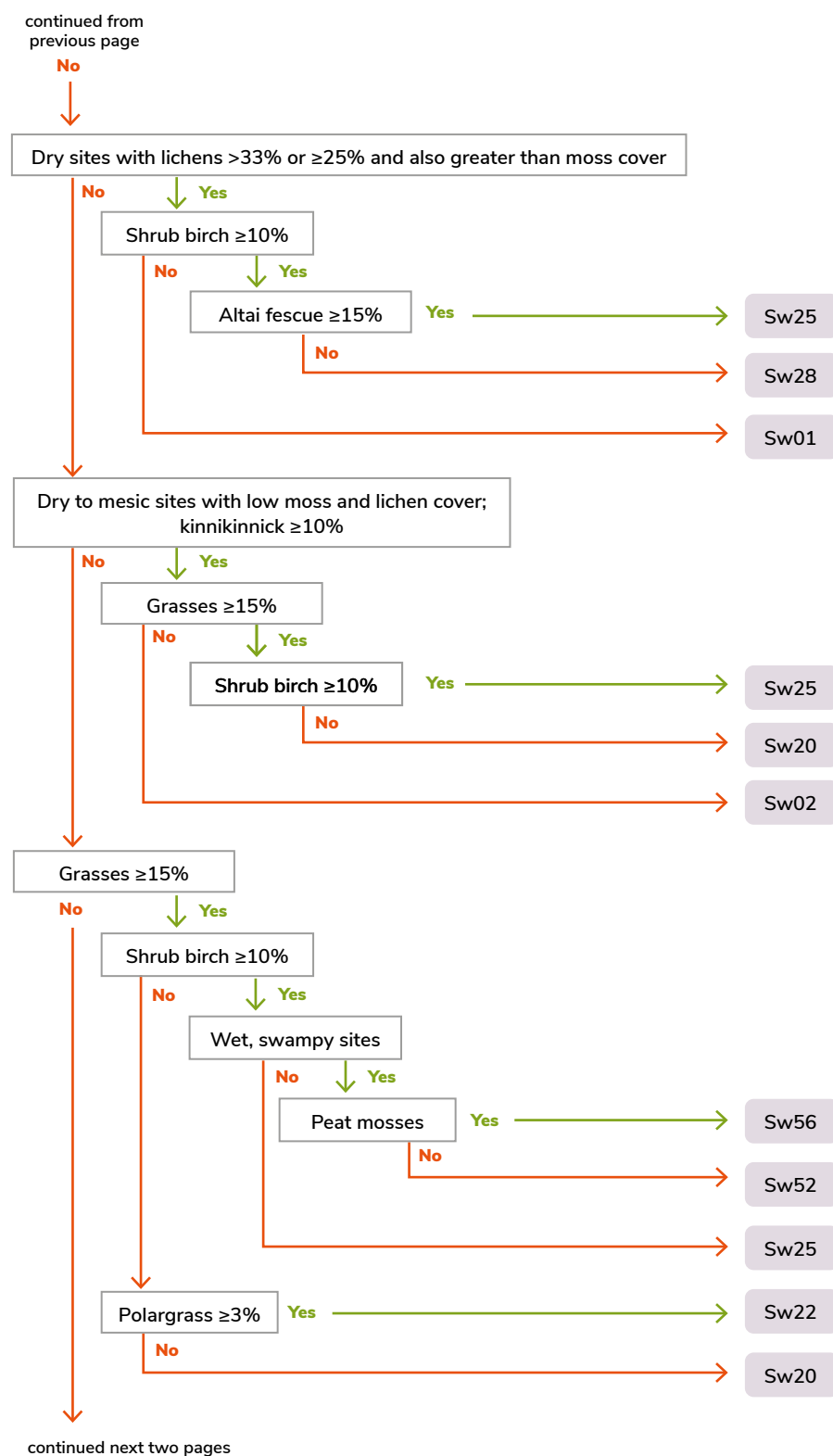
White spruce-dominated associations

White spruce (Sw) strongly dominates the canopy (>85% of canopy composition).

Flowchart White spruce-dominated associations

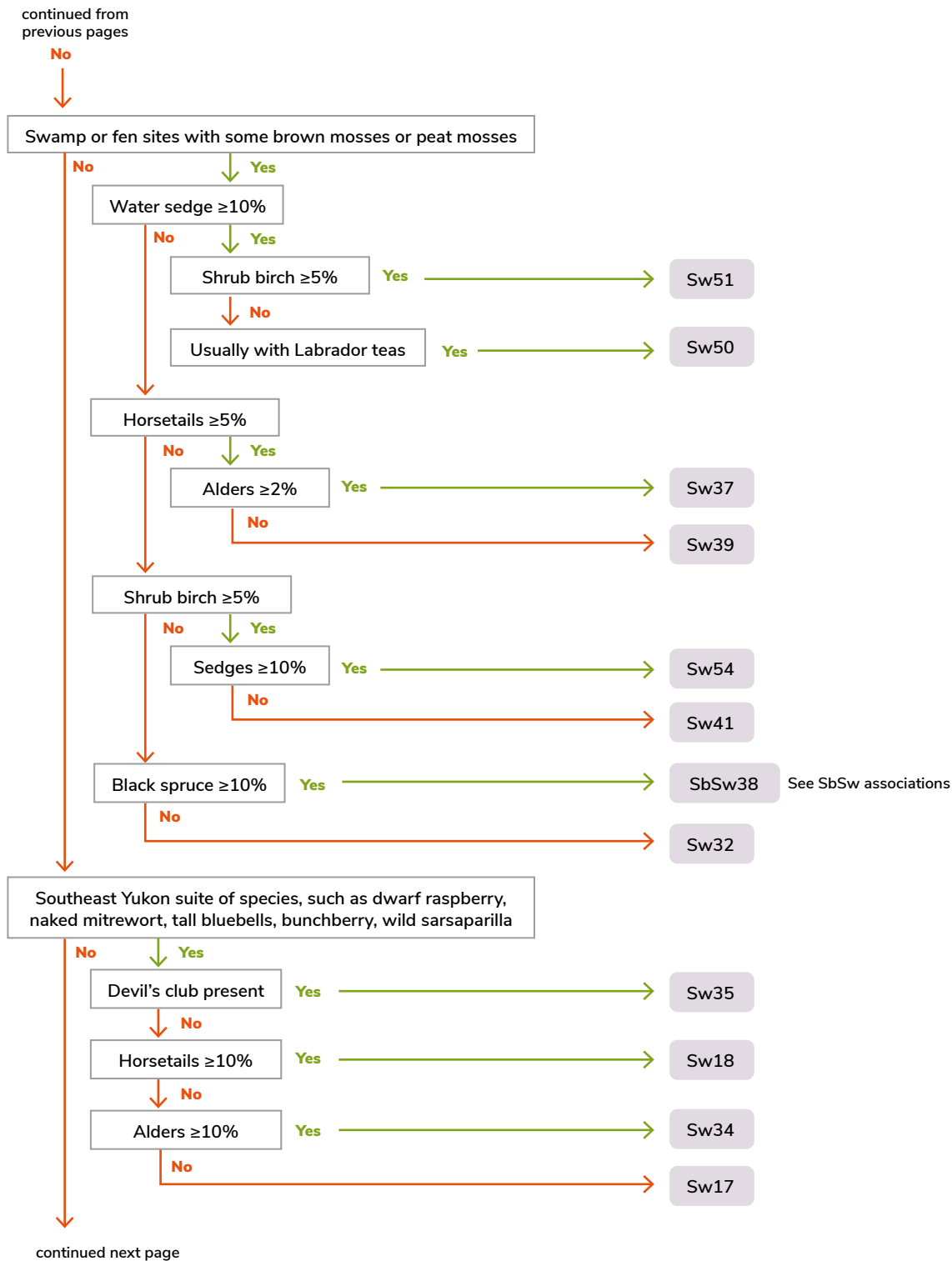


Flowchart for White spruce-dominated associations, con'd

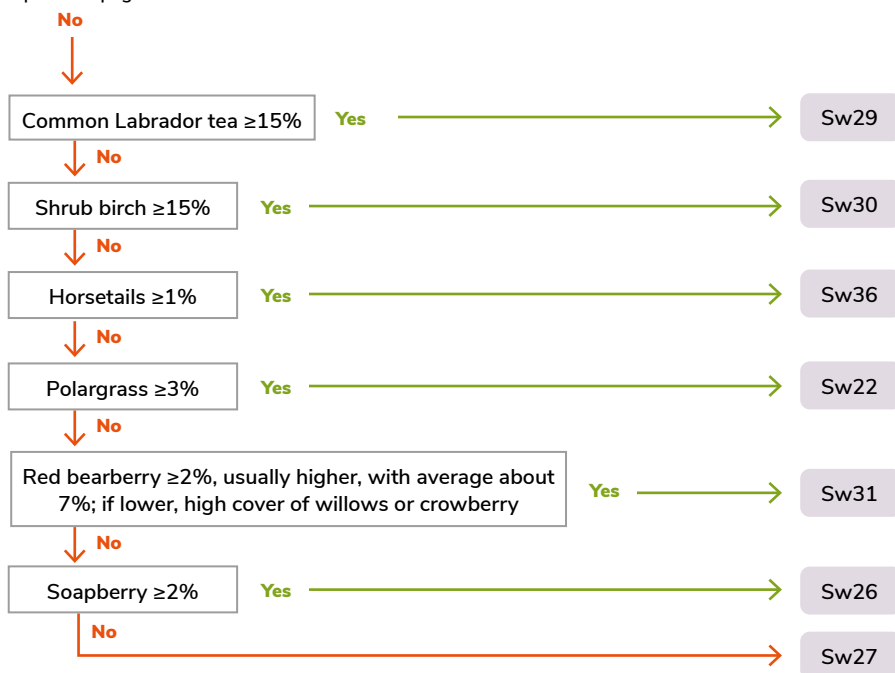


White spruce-dominated associations

Flowchart: White spruce-dominated (continued)



Flowchart: White spruce-dominated (continued)

continued from
previous pages

Summary of features: white spruce associations**Subarctic woodlands with entire-leaved mountain-avens and Lapland rosebay**

	Sw05	Sw11	Sw15	Sw16	Sw21	Sw23	Sw24	Sw55
Zone	SUW (ARDS, ARLS)	SUW (ARDS, ARLS)	SUW, ARDS, ARLS	SUW	SUW	SUW (ARLS)	SUW	SUW
Geography	north	north	north	north	north	north	north	north
Important site features	dry; warm-aspect slopes	dry to mesic; gravelly terraces	mesic; level to gentle slopes	mesic; lower slopes	subhygric to hygric; long, gentle slopes	subhygric; level to gentle slopes	subhygric to hygric; level to moderate slopes	subhygric; level to gentle slopes
Drainage	well to moderately well	rapid	well to moderately well	moderately well	imperfect	moderately well to imperfect	moderately well to poor	imperfect
Tree canopy	white spruce	white spruce	white spruce	white spruce	white spruce	white spruce	white spruce	white spruce
Key understorey species	mountain-avens, Lapland rosebay, kinnikinnick, bearberry	mountain-avens	blueberry, mountain-avens, bearberry, Lapland rosebay	green alder, blueberry, mountain-avens, Lapland rosebay	marsh horsetail, mountain-avens, Lapland rosebay, net-veined willow	horsetails, mountain-avens, Lapland rosebay	spruce muskeg sedge, mountain-avens, Lapland rosebay	tussock cottongrass, mountain-avens, Lapland rosebay

Dry sites with kinnikinnick, reindeer lichens or yellow mountain-avens

	Sw01	Sw02	Sw09%	Sw20	Sw28
Zone	BOL (BOH)	BOL (BOH)	BOL	BOL	SUW, BOH (BOL)
Geography	southwest	southwest	southwest	southwest (south-central)	all
Important site features	dry	dry	dry, gravelly along rivers	submesic	dry to mesic
Drainage	rapid to well	rapid	well	rapid to moderately well	well to moderately well
Tree canopy	white spruce	white spruce	white spruce	white spruce	white spruce
Key understorey species	Iceland, clad and reindeer lichens	kinnikinnick	yellow mountain-avens	grasses, kinnikinnick	shrub birch, reindeer lichens

High-bench horsetail sites and forests of southeast Yukon with dwarf raspberry, mitrewort, bunchberry and wild sarsaparilla

	Sw17	Sw18	Sw34	Sw35	Sw36
Zone	BOL; subzone BOLlr	BOL; subzone BOLlr	BOL	BOL; subzone BOLlr	BOL (BOH)
Geography	southeast	southeast	southeast	southeast	southwest and south-central
Important site features	mesic	subhygric; high fluvial benches	mesic to subhygric; high fluvial benches or gentle slopes	subhygric to hygric; level sites or gentle slopes	subhygric; high fluvial benches
Drainage	moderately well	moderately well to imperfect	moderately well to imperfect	imperfect	well to moderately well (imperfect)
Tree canopy	white spruce	white spruce	white spruce	white spruce	white spruce
Key understorey species	highbush cranberry, prickly rose, bunchberry, dwarf raspberry	horsetails, dwarf raspberry, naked mitrewort, tall bluebells, bunchberry	green or river alder, dwarf raspberry, naked mitrewort, tall bluebells, bunchberry	devil's club, moschatel, naked mitrewort, tall bluebells, bunchberry	horsetails

Mesic and subhygric sites

	Sw14	Sw22	Sw25	Sw26	Sw27	Sw29	Sw30	Sw31
Zone	BOH	BOH (SUS)	BOL, BOH	BOL (BOH)	BOL (BOH)	BOL, BOH	BOH (BOL)	BOH (BOL)
Geography	central	west-central and east-central	southeast and south-central	west-central, southwest and south-central	south and central	west-central, southwest, central and south-central	south and central	south and central
Important site features	mesic to subhygric, cool aspects	subhygric, near streams	mesic (subhygric), cool	mesic	submesic to mesic	mesic to subhygric	mesic to subhygric	mesic to subhygric
Drainage	moderately well to imperfect	moderately well to imperfect	well to moderately well (imperfect)	well to moderately well	well to moderately well	well to moderately well (imperfect)	well to moderately well (imperfect)	moderately well to imperfect
Tree canopy	white spruce	white spruce	white spruce	white spruce	white spruce	white spruce	white spruce	white spruce
Key understorey species	four-angled mountain-heather	willows, polargrass	shrub birch, willow, Altai fescue	soapberry, step moss	step moss (wiry fern moss)	common Labrador tea, step moss	shrub birch, feathermoss	red bearberry, feathermoss

White spruce-dominated associations

Wetlands – swamps, bogs and fens

	Sw32	Sw37	Sw39	Sw41	Sw50	Sw51	Sw52	Sw54	Sw56
Zone	BOL	BOL, SUW	BOL (BOH, SUW)	BOL, BOH	BOL (BOH)	BOL (BOH)	BOL	BOH (BOL)	BOH (BOL)
Geography	central and southwest	all	all	south and central	south-central and central	south and central	central	central (southwest)	south-central and central
Important site features	swamps or bogs	swamps	swamps	swamps	swamps or fens	swamps	swamps	swamps	swamps
Drainage	poor (imperfect)	imperfect (poor, very poor)	imperfect to poor	imperfect to very poor	poor to very poor	poor to very poor	poor to very poor	imperfect to poor	imperfect to poor
Tree canopy	white spruce	white spruce	white spruce	white spruce	white spruce	white spruce	white spruce	white spruce	white spruce
Key understorey species	willow, red bearberry, feather-mosses, brown mosses	alder, horsetail, feather-mosses, brown mosses	willows, horsetails, feather-mosses, brown mosses	shrub birch, willows, feather-mosses, brown mosses	water sedge, brown mosses	shrub birch, water sedge, brown mosses	shrub birch, bluejoint reedgrass, brown mosses	shrub birch, sedges, golden fuzzy fen moss	shrub birch, grasses, peat mosses

Vegetation tables for white spruce-dominated associations

Subarctic woodlands with entire-leaved mountain-avens and Lapland rosebay

Layer	Scientific name	Sw05	Sw11	Sw15	Sw16	Sw21	Sw23	Sw24	Sw55	Common name
	n =	36	4	45	11	7	23	18	8	
Trees	<i>Picea glauca</i>	■■■■	■■■	■■■■	■■■■	■■■	■■■■	■■■■	■■■■	white spruce
Shrubs	<i>Picea glauca</i>	■■■■	■■■	□□□	□□□	■■■■	□□	■■■		white spruce
	<i>Alnus alnobetula</i>		□		■■■■					green alder
	<i>Betula glandulosa</i>	■■■	■■■	□□□	□□□	□□		■■■	□	shrub birch
	<i>Dasiphora fruticosa</i>	■■■	■■	■	■■■	□	■	■■	□	shrubby cinquefoil
	<i>Juniperus communis</i>	■■								common juniper
	<i>Salix</i> spp.	■■■	■■■	■■■	■■■	■■■	■■■■	■■■■	■■■	willows
	<i>Shepherdia canadensis</i>	■■	■■	□						soapberry
	<i>Vaccinium uliginosum</i>	■■■	□□	■■■■	■■■■	□	■■■	■■■	■■■	blueberry
	<i>Arctostaphylos uva-ursi</i>	■■■	□□							kinnikinnick
Ground shrubs	<i>Arctous alpinus / rubra</i>	■■■	■■■	■■■	■■■	■■■	■■■	■■■	■■	alpine / red bearberry
	<i>Cassiope tetragona</i>	■■	■■	■■■	■■■	□□□	■■■	■■■	□	four-angled mountain-heather
	<i>Dryas integrifolia</i>	■■■■■	■■■■■	■■■■	■■■■■	■■■■	■■■■	■■■■	■■■	entire-leaved mountain-avens
	<i>Empetrum nigrum</i>	■■	■	□□	■■				□	crowberry
	<i>Rhododendron lapponicum</i>	■■■	■■■	■■■	■■■	■■■	■■■	■■■	■■■	Lapland rosebay
	<i>Salix reticulata</i>	□□	□□	■■■	□□	■■■	■■	■■■	■■	net-veined willow
	<i>Salix reticulata</i>	□□	□□	■■■	□□	■■■	■■	■■■	■■	net-veined willow
Graminoids	<i>Carex bigelowii</i> ssp. <i>lugens</i>					■■■	□□	■■■■	■■■	spruce muskeg sedge
	<i>Carex membranacea</i>					■■			□□	fragile sedge
	<i>Carex scirpoidea</i>	■■	□	□□	■■■	□				single-spike sedge
	<i>Eriophorum vaginatum</i>					■■			■■■■■	tussock cottongrass
	Poaceae	■■	□	□	■■	■■	■	□	■	grass family
Forbs	<i>Equisetum arvense / pratense</i>					□□	■■■■	□□□	■■■	horsetails
	<i>Equisetum palustre</i>					■■■■				marsh horsetail
	<i>Hedysarum alpinum</i>	■■	□	■■	□	□	□	■■	■	alpine hedysarum
Bryophytes	Bryophyta	□□□	□□	■■■■	■■■■	■■■■■	■■■■■	■■■■	■■■■	mosses
Lichens	<i>Flavocetraria</i> spp.	□□		□□	□	■■■		□□	□□□	snow lichens

Note: gold cells highlight key diagnostic species

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

White spruce-dominated associations

Dry sites with kinnikinnick, reindeer lichens or yellow mountain-avens

Layer	Scientific name	Sw01	Sw02	Sw09%	Sw20	Sw28	Common name
	n =	22	4	1	10	30	
Trees	<i>Picea glauca</i>	■■■■■	■■■■■	■■■■■	■■■■■	■■■■■	white spruce
	<i>Pinus contorta</i>		■				lodgepole pine
	<i>Populus tremuloides</i>		■		■		trembling aspen
Shrubs	<i>Picea glauca</i>	■				■	white spruce
	<i>Alnus</i> spp.			■■■■■			alders
	<i>Betula glandulosa</i>					■■■■■	shrub birch
	<i>Rhododendron</i> spp.		□			■	Labrador teas
	<i>Rosa acicularis</i>	□□	■		□□		prickly rose
	<i>Salix</i> spp.	■	■		■	■	willows
	<i>Shepherdia canadensis</i>	■	■				soapberry
	<i>Vaccinium uliginosum</i>					■	blueberry
Ground shrubs	<i>Arctostaphylos uva-ursi</i>	■	■■■■■		■■■■■		kinnikinnick
	<i>Arctous rubra</i>			■		□□	red bearberry
	<i>Dryas drummondii</i>			■■■■■			yellow mountain-avens
	<i>Empetrum nigrum</i>					■	crowberry
	<i>Linnaea borealis</i>	□□	■		□		twinline
	<i>Vaccinium vitis-idaea</i>	□□	□□□		□□	■	lowbush cranberry
Graminoids	Poaceae	■	■		■■■■■	□□	grass family
Forbs	<i>Chamaenerion angustifolium</i>	□	■		■	□	fireweed
	<i>Geocaulon lividum</i>	■	■	■■■■■			bastard toadflax
	<i>Saxifraga tricuspidata</i>		■				prickly saxifrage
Bryophytes	<i>Hylocomium / Pleurozium</i>	■			■■■■■	■	feathermosses
	Bryophyta	□□		■■■■■		□□□	unknown moss
Lichens	<i>Cetraria</i> spp.	■■■■■	■		□□	■	Iceland lichens
	<i>Cladina</i> spp.	■				■■■■■	reindeer lichens
	<i>Cladonia</i> spp.	■■■■■	□□		□□	■	clad lichens
	<i>Peltigera</i> spp.	■	□□		■	■	pelt lichens
	<i>Stereocaulon</i> spp.	■			□□	□□□	foam lichens

Note: gold cells highlight key diagnostic species

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ 1 – 3	■ 3 – 10	■ 10 – 25	■ >25

High-bench horsetail sites and forests of southeast Yukon with dwarf raspberry, mitrewort, bunchberry and wild sarsaparilla

Layer	Scientific name	Sw17	Sw18	Sw34	Sw35	Sw36	Common name
	n =	8	22	18	12	60	
Trees	<i>Picea glauca</i>	■■■■■	■■■■	■■■■	■■■■	■■■■■	white spruce
	<i>Betula papyrifera</i>	■	□	□		□	paper birch
Shrubs	<i>Alnus alnobetula</i>	□	■■■	■■■	■■■■		green alder
	<i>Alnus incana</i>	□□	■■■■	■■■■	□□□	□□□	river alder
	<i>Cornus sericea</i>	■	■■■	■■■	□		red-osier dogwood
	<i>Oplopanax horridus</i>				■■■		devil's club
	<i>Ribes hudsonianum</i>	□		■	□		black currant
	<i>Ribes lacustre</i>		□	□	■		swamp gooseberry
	<i>Rosa acicularis</i>	■■■	■■■■	■■■	■■■	■■■■	prickly rose
	<i>Rubus idaeus</i>		□□		■■■■		red raspberry
	<i>Salix</i> spp.	■		□□	□□	■■■	willows
	<i>Shepherdia canadensis</i>	■■	□	□			soapberry
	<i>Viburnum edule</i>	■■■	■■■	■■■	■■■	■■■	highbush cranberry
Ground shrubs	<i>Linnaea borealis</i>	■■■	■■■	■■■	□□	■■■	twinflower
Forbs	<i>Adoxa moschatellina</i>				■■■		moschatel
	<i>Aralia nudicaulis</i>	■	□□	■■■	■■■		wild sarsaparilla
	<i>Chamaenerion angustifolium</i>	■		■■■		□	fireweed
	<i>Cornus canadensis</i>	■■■■	■■■	■■■■	■■■	□□□	bunchberry
	<i>Equisetum arvense / pratense</i>	■	■■■■■	■	□□	■■■■	horsetails
	<i>Equisetum scirpoides</i>	■	□	□			dwarf scouring-rush
	<i>Lathyrus ochroleucus</i>	■					wild pea
	<i>Mertensia paniculata</i>	■■	■■	■■	■	■	tall bluebells
	<i>Mitella nuda</i>	■■	■■■	■■	■■■		naked mitrewort
	<i>Rubus pubescens</i>	■■■	■■■	■■■	■■■		dwarf raspberry
Bryophytes	<i>Hylocomium / Pleurozium</i>					■■■■■	feathermosses
	Bryophyta	■■■■■	■■■■	■■■■	■■■■		unknown mosses

Note: gold cells highlight key diagnostic species

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

White spruce-dominated associations

Mesic and subhygric sites

Layer	Scientific name	Sw14	Sw22	Sw25	Sw26	Sw27	Sw29	Sw30	Sw31	Common name
	n =	7	6	9	35	158	60	62	69	
Trees	<i>Picea glauca</i>	■■■	■■■■	■■■■	■■■■■	■■■■■	■■■■	■■■■	■■■■■	white spruce
Shrubs	<i>Picea glauca</i>	■■■	■	□□□	□□	□□	□□	□□	■■	white spruce
	<i>Betula glandulosa</i>	■■	■	■■■■■			■■	■■■■■	□	shrub birch
	<i>Dasiphora fruticosa</i>			■■			□	□	□□	shrubby cinquefoil
	<i>Rhododendron groenlandicum</i>	■■■					■■■■■	■■■	■■	common Labrador tea
	<i>Rosa acicularis</i>				■■	□	□		□	prickly rose
	<i>Salix</i> spp.	■■■■	■■■■	■■■■	■■■	□□	■■■	■■■■	■■■■	willows
	<i>Shepherdia canadensis</i>		□		■■■■	□			□	soapberry
	<i>Vaccinium uliginosum</i>	□□	■■	□			■■■	■■■	□□	blueberry
Ground shrubs	<i>Arctostaphylos uva-ursi</i>			■■■	□					kinnikinnick
	<i>Arctous rubra</i>	□	□	□□	□	□	■■■	□	■■■	red bearberry
	<i>Cassiope tetragona</i>	■■■■								four-angled mountain-heather
	<i>Empetrum nigrum</i>	■■■	■	□□			■■■■	■■■	■■■	crowberry
	<i>Linnaea borealis</i>				■■■	■■			□□	twinline
	<i>Vaccinium vitis-idaea</i>	□	■		□□	□□	■■■	■■■	■■■	lowbush cranberry
Graminoids	<i>Arctagrostis latifolia</i>		■■■■							polargrass
	<i>Festuca altaica</i>		■■	■■■■■			□	■■■	□	Altai fescue
Forbs	<i>Mertensia paniculata</i>		■■		■	□	□	□	□	tall bluebells
	<i>Petasites frigidus</i>		■■■							arctic sweet coltsfoot
Bryophytes	<i>Hylocomium / Pleurozium</i>	■■■■	■■■■■	□□□	■■■■■	■■■■■	■■■■■	■■■■■	■■■■■	feathermosses
	Bryophyta			■■■		□□□			□□□	mosses
Lichens	<i>Cladina</i> spp.	■■■■	■■■			□□	■■■	■■■	■■	reindeer lichens
	<i>Cladonia</i> spp.		□	■■■	■■	□□	□□	□	■■	clad lichens
	<i>Peltigera</i> spp.		■■	■■	■■■	■■■	■■	■■	■■	pelt lichens

Note: gold cells highlight key diagnostic species

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

Wetlands – swamps, bogs and fens

Layer	Scientific name	Sw32	Sw37	Sw39	Sw41	Sw50	Sw51	Sw52	Sw54	Sw56	Common name
	n =	13	8	23	14	12	12	5	8	9	
Trees	<i>Picea glauca</i>	■■■■■	■■■■■	■■■■■	■■■■■	■■■■■	■■■■■	■■■■■	■■■	■■■■■	white spruce
Shrubs	<i>Picea glauca</i>	■■■■■	■■■	□□	■■■	■■■	■■■	■■■■■	■■■	■■	white spruce
	<i>Alnus alnobetula / incana</i>		■■■								green / river alder
	<i>Betula glandulosa</i>	□	□□	□	■■■■■	■■	■■■■■	■■■■■	■■■■■	■■■■■	shrub birch
	<i>Dasiphora fruticosa</i>	■■	■■	■	■■	■■	■■■	■■	■■■	■■	shrubby cinquefoil
	<i>Rhododendron</i> spp.	■■■	■■■	■■	■■■■■	■■■■■	□□□		■■	■■■	Labrador teas
	<i>Rosa acicularis</i>		■■	□							prickly rose
	<i>Salix myrtillifolia</i>	■■■	□	■■■	□□□	■■■	■■■■■	□□□	■■		blueberry willow
	<i>Salix</i> spp.	■■■	■■■■■	■■■■■	■■■■■	■■■■■	■■■■■	■■■■■	■■■■■	■■■■■	willows
	<i>Vaccinium uliginosum</i>	□□□	■■	□□	□□□	□□			■■	■■■	blueberry
Ground shrubs	<i>Arctous rubra</i>	■■■	□□	■■■	□□□	■■■	■■■		■■		red bearberry
	<i>Empetrum nigrum</i>	□	□□□	■■	■■■	■■	□□□		□	■■	crowberry
	<i>Linnaea borealis</i>	□	■■	□							twinflower
	<i>Vaccinium vitis-idaea</i>	■■■	■■■	■■	■■■	■■	□	■■■	□	■■■	lowbush cranberry
Graminoids	<i>Calamagrostis canadensis</i>							■■■■■			bluejoint reedgrass
	<i>Carex aquatilis</i>	□□				■■■■■	■■■■■		□□□		water sedge
	<i>Carex bigelowii</i> ssp. <i>lugens</i>							■■■■■			spruce muskeg sedge
	<i>Carex capillaris</i>								■■■		hair-like sedge
	<i>Carex</i> spp.			□□□	□□□□	■■■■■			■■■■■	□□□□	other sedges
	<i>Eriophorum brachyantherum</i>								■■■		closed-sheath cottongrass
	Poaceae	■■	■■■	■	□		■■		■■	■■■■■	grass family
Forbs	<i>Equisetum arvense / pratense</i>		■■■■■	■■■■■		■■			■		horsetails
Bryophytes	Amblystegiaceae	■■■■■	■■■■■	■■■■■	■■■	■■■■■	■■■■■	■■■	■■■■■		brown mosses
	<i>Hylocomium / Pleurozium</i>	■■■■■	■■■■■	■■■■■	■■■■■	■■■		■■■■■	■■■■■	■■■■■	feathermosses
	<i>Sphagnum</i> spp.		■■■■■		□□□		□□□			■■■■■	peat mosses
Lichens	<i>Cladonia</i> spp.	■	□	□	□□	□			□	■■	clad lichens
	<i>Peltigera</i> spp.	■■	■	■■	■	□	□	■■■■■	□	■■	pelt lichens

Note: gold cells highlight key diagnostic species

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

Fact sheets: White spruce associations

Sw01 **White spruce / Kinnikinnick / Lichen**

Sw01 is a white spruce woodland or forest with high lichen ground cover that commonly occurs in the BOL, but also in lower elevations of the BOH.

Vegetation: Sw01 stands have an open to moderately closed tree canopy of white spruce (*Picea glauca*), with some white spruce in the shrub layer. The understorey has a lightly developed shrub layer comprised mostly of willows (*Salix* spp.) and soapberry (*Shepherdia canadensis*). Kinnikinnick (*Arctostaphylos uva-ursi*) is usually present and can be of moderately high cover. Mosses commonly occur, with low or sometimes moderate cover, including feathermosses (*Hylocomium splendens*, *Pleurozium schreberi*), heron's-bill mosses (*Dicranum* spp.) and haircap mosses (mostly *Polytrichum juniperinum*). A diversity of lichens characterizes the forest floor, including snow lichens (*Flavocetraria* spp.), reindeer lichens (*Cladina* spp.), clad lichens (*Cladonia* spp.), foam lichens (*Stereocaulon* spp.) and lichen crusts.



Environment: This association occurs at lower elevations on rapidly drained to well-drained sites. Parent materials vary, including glaciofluvial, fluvial, eolian, lacustrine and morainal. Soils are classified as Brunisols (Eutric, Dystric) or sometimes Regosols or Gray Luvisols. The forest floor often has some cover of woody debris.

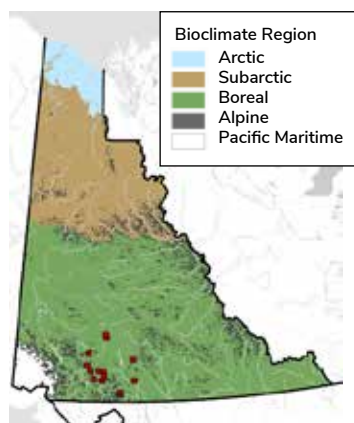
Dynamics: Stands are variable in density, and often include a minor component of aspen (*Populus tremuloides*). As white spruce is shade tolerant, stands may develop via succession from stands dominated by other species. Scattered other tree species occur, including aspen, pine or balsam poplar; however, these Sw01 stands appear to have been initiated with white spruce.

Comments

- Key characteristics: dry site; white spruce-dominated; high lichen cover
- Component of CNVC00354 White Spruce / Kinnikinnick / Reindeer Lichens

Sw01 Environment table

Zone	BOL (BOH)
Elevation (m)	590 – 755 – 1070
Aspect	variable
Slope (%)	0 – 4 – 20
Soil moisture regime	subxeric, submesic
Soil drainage	rapid to well
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	1 – 4 – 15
Soil class	Brunisols (Eutric or Dystric), Regosols

**Sw01** Vegetation summary (%)

Trees	10 – 32 – 65	Shrubs	0.5 – 12 – 40	Ground shrubs	0 – 10 – 40
Graminoids and Forbs	1 – 10 – 20	Bryophytes	0.2 – 9 – 25	Lichens	17 – 50 – 80

Layer	Scientific name	Sw01	Common name
		n = 22	
Trees	<i>Picea glauca</i>	■■■■■	white spruce
Shrubs	<i>Picea glauca</i>	■■■	white spruce
	<i>Salix</i> spp.	■■■	willows
	<i>Shepherdia canadensis</i>	■ ■	soapberry
Ground shrubs	<i>Arctostaphylos uva-ursi</i>	■■■	kinnikinnick
Graminoids	Poaceae	■■	grass family
Forbs	<i>Geocaulon lividum</i>	■ ■ ■	bastard toadflax
Bryophytes	<i>Hylocomium</i> / <i>Pleurozium</i>	■■■	feathermosses
Lichens	<i>Cetraria</i> spp.	■■■■■	Iceland lichens
	<i>Cladina</i> spp.	■ ■ ■	reindeer lichens
	<i>Cladonia</i> spp.	■■■■■	clad lichens
	<i>Peltigera</i> spp.	■■■	pelt lichens
	<i>Stereocaulon</i> spp.	■ ■	foam lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

Sw02 **White spruce / Kinnikinnick**

Sw02 is a white spruce woodland or forest with high kinnikinnick cover that occurs mostly in the BOL, but also at lower elevations of the BOH.

Vegetation: Stands have an open to moderately closed tree canopy of white spruce (*Picea glauca*), sometimes with some pine (*Pinus contorta*) or aspen (*Populus tremuloides*). The shrub layer is lightly to moderately developed, comprised of willows (*Salix* spp.), prickly rose (*Rosa acicularis*), soapberry (*Shepherdia canadensis*) and sometimes juniper (*Juniperus communis*, *J. horizontalis*). Kinnikinnick (*Arctostaphylos uva-ursi*) is usually abundant and dominates the ground shrub layer. Moss and lichen cover is low.

No photo
available

Environment: This association occurs on gentle to moderately sloping, rapidly drained sites, on warm (south, southwest) or neutral aspects. Parent materials are fluvial or morainal (data are limited). Soils are classified as Eutric or Dystric Brunisols.

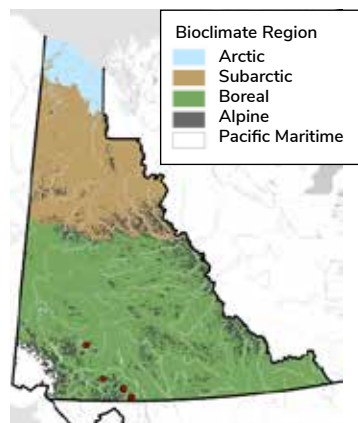
Dynamics: Stands vary in density and often include a minor component of aspen or pine. Stands may develop via succession from stands dominated by other species as scattered other tree species occur, but these Sw02 stands appear to have been initiated primarily with white spruce.

Comments

- Key characteristics: dry site; white spruce-dominated, high kinnikinnick cover, low lichen cover
- Component of CNVC00354 White Spruce / Kinnikinnick / Reindeer Lichens

Sw02 Environment table

Zone	BOL (BOH)
Elevation (m)	700 – 830 – 1005
Aspect	warm or neutral
Slope (%)	10 – 25 – 40
Soil moisture regime	xeric, subxeric
Soil drainage	rapid
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	limited data
Soil class	Brunisols (Eutric or Dystric)

**Sw02 Vegetation summary (%)**

Trees	15 – 35 – 55	Shrubs	0.5 – 17 – 32	Ground shrubs	10 – 50 – 90
Graminoids and Forbs	1 – 4 – 8	Bryophytes	0 – 6 – 10	Lichens	0 – 4 – 10

Layer	Scientific name	Sw02	Common name
		n = 4	
Trees	<i>Picea glauca</i>	■■■■■	white spruce
	<i>Pinus contorta</i>	■ ■	lodgepole pine
	<i>Populus tremuloides</i>	■ ■	trembling aspen
Shrubs	<i>Rosa acicularis</i>	■■	prickly rose
	<i>Salix</i> spp.	■■■	willows
	<i>Shepherdia canadensis</i>	■■	soapberry
Ground shrubs	<i>Arctostaphylos uva-ursi</i>	■■■■■	kinnikinnick
	<i>Linnaea borealis</i>	■	twinflower
Graminoids	Poaceae	■ ■	grass family
Forbs	<i>Chamaenerion angustifolium</i>	■	fireweed
	<i>Geocaulon lividum</i>	■	bastard toadflax
	<i>Saxifraga tricuspidata</i>	■	prickly saxifrage
Lichens	<i>Cetraria</i> spp.	■	Iceland lichens
	<i>Dicranum</i> spp.	■ ■	heron's-bill mosses

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

Sw05 White spruce / Mountain-avens – Lapland rosebay – Kinnikinnick

Sw05 is a white spruce woodland with high ground shrub cover of entire-leaved mountain-avens, Lapland rosebay, kinnikinnick and bearberry that commonly occurs on warm-aspect slopes in the SUW, but also in the ARDS and ARLS.

Vegetation: Sw05 stands are comprised of tree-height or shrub-height white spruce (*Picea glauca*). Black spruce (*P. mariana*) occurs occasionally. Understorey shrubs include shrubby cinquefoil (*Dasiphora fruticosa*), blueberry (*Vaccinium uliginosum*), common juniper (*Juniperus communis*) and soapberry (*Shepherdia canadensis*). Ground shrubs dominate the ground cover and include mountain-avens (mostly *Dryas integrifolia*, but also *D. octopetala*), Lapland rosebay (*Rhododendron lapponicum*), kinnikinnick (*Arctostaphylos uva-ursi*), bearberry (*Arctous rubra*, *A. alpinus*), four-angled mountain-heather (*Cassiope tetragona*) and crowberry (*Empetrum nigrum*). A low cover of mosses usually occurs (such as *Sanionia uncinata*, *Hylocomium splendens*, *Pleurozium schreberi*, *Abietinella abietina*, *Rhytidium rugosum*), along with a low cover of various lichens.



Environment: This association occurs on submesic, warm-aspect (south or southwest), gentle to moderately steep slopes (mostly moderate), on moderately well drained to well-drained sites. Data on soils is limited. In the limited data, parent materials are colluvial or morainal, and soils are classified as Cryosols or Gray Luvisols. No data on permafrost occurrence or depth are available. The forest floor often has some woody debris, rocks or exposed mineral soil.

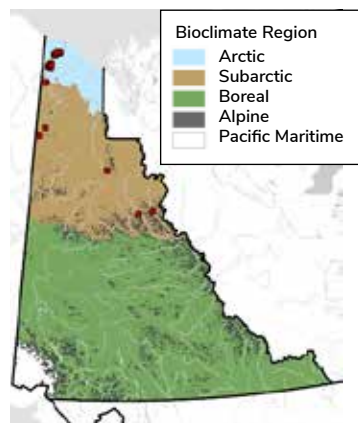
Dynamics: Stands are variable in density and can include some larger-than-average trees. Stands are likely to regenerate to white spruce after disturbance, but sometimes have a black spruce component, depending on local seed sources.

Comments

- Key characteristics: warm-aspect slopes; white spruce-dominated; high ground shrub cover, mostly of entire-leaved mountain-avens
- Component of CNVC00374 White Spruce / Shrubby Cinquefoil / Kinnikinnick – Lapland Rosebay / Entire-leaved mountain-avens

Sw05 Environment table

Zone	SUW (ARDS, ARLS)
Elevation (m)	40 – 495 – 1005
Aspect	warm
Slope (%)	4 – 36 – 60
Soil moisture regime	submesic (mesic)
Soil drainage	well to moderately well
Permafrost presence/depth (cm)	common (data limited)
Unvegetated cover (%)	1 – 3 – 10
Soil class	Cryosols (data limited)

**Sw05 Vegetation summary (%)**

Trees	0 – 17 – 40	Shrubs	1 – 42 – 99	Ground shrubs	10 – 60 – 99
Graminoids and Forbs	3 – 16 – 37	Bryophytes	2 – 25 – 70	Lichens	0.2 – 8 – 22

Layer	Scientific name	Sw05	Common name
		n = 36	
Trees	<i>Picea glauca</i>	■■■■■	white spruce
Shrubs	<i>Picea glauca</i>	■■■■■	white spruce
	<i>Betula glandulosa</i>	■■■	shrub birch
	<i>Dasiphora fruticosa</i>	■■■	shrubby cinquefoil
	<i>Juniperus communis</i>	■■■	common juniper
	<i>Salix</i> spp.	■■■	willows
	<i>Shepherdia canadensis</i>	■■■	soapberry
	<i>Vaccinium uliginosum</i>	■■■	blueberry
Ground shrubs	<i>Arctostaphylos uva-ursi</i>	■■■	kinnikinnick
	<i>Arctous rubra / alpina</i>	■■■	bearberry
	<i>Cassiope tetragona</i>	■■■	four-angled mountain-heather
	<i>Dryas integrifolia</i>	■■■■■	entire-leaved mountain-avens
	<i>Empetrum nigrum</i>	■■■	crowberry
	<i>Rhododendron lapponicum</i>	■■■	Lapland rosebay
Graminoids	<i>Carex scirpoidea</i>	■■■	single-spike sedge
	Poaceae	■■■	grass family
Forbs	<i>Anticlea elegans</i>	■	mountain death-camas
	<i>Hedysarum alpinum</i>	■■■	alpine hedysarum

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

Sw09% White spruce / Alder / Yellow mountain-avens

Sw09% is a white spruce forest with alder and yellow mountain-avens that is known from one site (Donjek River) in the BOL.

Vegetation: White spruce (*Picea glauca*) characterizes the tree canopy. The understorey is mostly alder (*Alnus* spp.), with a ground cover of yellow mountain-avens (*Dryas drummondii*) and mosses.

No photo
available

Environment: This association occurs on level, well-drained, gravelly-sand fluvial soils associated with large rivers. Soils are Cumulic Regosols.

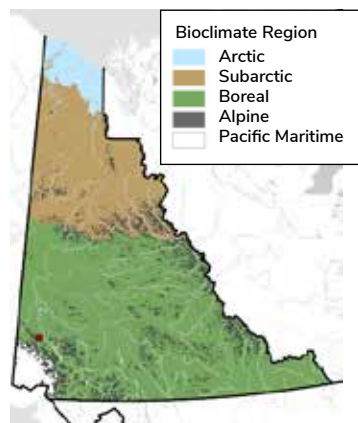
Dynamics: Stands develop on stable portions of braided river valleys. A change in river erosion patterns may destroy individual sites, but portions of the channel are stable long enough for white spruce forest to develop.

Comments

- Key characteristics: gravelly floodplain site; white spruce-dominated, high alder cover, 0–25% yellow mountain-avens
- Provisional association (code followed by %) is based on a single plot — it is possible that this is a unique site and that the vegetation community would not occur elsewhere, but the area that the plot occupies appears large enough to potentially support more of this community
- CNVC association not yet determined

Sw09% Environment table

Zone	BOL
Elevation (m)	730
Aspect	neutral
Slope (%)	0
Soil moisture regime	subxeric to submesic
Soil drainage	well
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	limited data
Soil class	Regosol (Cumulic)

**Sw09%** Vegetation summary (%)

Trees	35	Shrubs	60	Ground shrubs	25
Graminoids and Forbs	5	Bryophytes	30	Lichens	0

Layer	Scientific name	Sw09%	Common name
		n = 1	
Trees	<i>Picea glauca</i>	■■■■■	white spruce
Shrubs	<i>Alnus</i> spp.	■■■■■	alders
Ground shrubs	<i>Arctous rubra</i>	■■■	red bearberry
	<i>Dryas drummondii</i>	■■■■	yellow mountain-avens
Forbs	<i>Geocaulon lividum</i>	■■■	bastard toadflax
	<i>Pyrola asarifolia</i>	■	pink wintergreen
Bryophytes	Bryophyta	■■■■■	mosses

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

Sw11 **White spruce / Mountain-avens – Alpine Bearberry**

Sw11 is a white spruce woodland with high cover of mountain-avens that commonly occurs on gravelly terraces in the SUW, but also in the ARDS and ARLS.

Vegetation: Sw11 stands are comprised of tree-height or shrub-height white spruce (*Picea glauca*).

Understorey shrubs are mostly willows (*Salix glauca*, *S. niphoclada*, *S. alaxensis*, *S. fuscescens*), but also include shrubby cinquefoil (*Dasiphora fruticosa*) and soapberry (*Shepherdia canadensis*). Mountain-avens (mostly *Dryas integrifolia*, but also *D. octopetala*), dominate the ground shrub layer. Other ground shrubs include Lapland rosebay (*Rhododendron lapponicum*), alpine bearberry (*Arctous alpinus*) and four-angled mountain-heather (*Cassiope tetragona*). Mosses and lichens usually occur, but with low cover.

No photo
available

Environment: This association occurs on rapidly drained gravelly terraces along rivers. Site and soil data are very limited. Parent materials are fluvial, and soils are classified as Cumulic Regosols. No data on permafrost occurrence or depth are available. The forest floor often has some woody debris, rocks or exposed mineral soil.

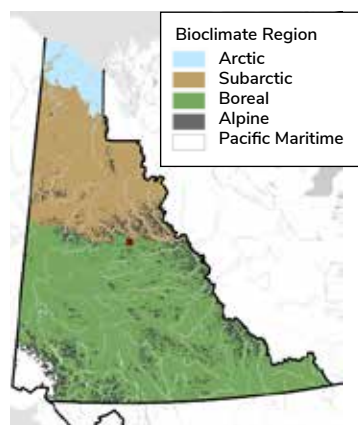
Dynamics: White spruce is the only tree species in these open stands. Stands are likely to regenerate to white spruce after disturbance.

Comments

- Key characteristics: gravel terraces; white spruce-dominated; high cover of mountain-avens
- Component of CNVC00375 White Spruce / Entire-leaved Mountain-avens – White Mountain-avens – Alpine Bearberry

Sw11 Environment table

Zone	SUW (ARDS, ARLS)
Elevation (m)	750
Aspect	neutral
Slope (%)	2
Soil moisture regime	submesic
Soil drainage	rapid
Permafrost presence/depth (cm)	absent (data limited)
Unvegetated cover (%)	4
Soil class	Regosol (Cumulic)

**Sw11 Vegetation summary (%)**

Trees	0 – 11 – 20	Shrubs	11 – 25 – 52	Ground shrubs	34 – 75 – 99
Graminoids and Forbs	0 – 9 – 20	Bryophytes	0 – 5 – 10	Lichens	0 – 1 – 5

Layer	Scientific name	Sw11	Common name
		n = 4	
Trees	<i>Picea glauca</i>	■ ■ ■	white spruce
Shrubs	<i>Picea glauca</i>	■ ■ ■	white spruce
	<i>Betula glandulosa</i>	■ ■ ■	shrub birch
	<i>Dasiphora fruticosa</i>	■ ■	shrubby cinquefoil
	<i>Salix</i> spp.	■ ■ ■ ■	willows
	<i>Shepherdia canadensis</i>	■ ■	soapberry
Ground shrubs	<i>Arctous alpinus</i>	■ ■ ■	alpine bearberry
	<i>Cassiope tetragona</i>	■ ■	four-angled mountain-heather
	<i>Dryas integrifolia / octopetala</i>	■ ■ ■ ■ ■	mountain-avens
	<i>Empetrum nigrum</i>	■	crowberry
	<i>Rhododendron lapponicum</i>	■ ■ ■	Lapland rosebay
Forbs	<i>Chamaenerion latifolium</i>	■	river beauty

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ ■ 1 – 3	■ ■ ■ 3 – 10	■ ■ ■ ■ 10 – 25	■ ■ ■ ■ ■ >25

Sw14 **White spruce / Mountain-heather / Step moss**

Sw14 is a white spruce woodland with four-angled mountain-heather that occurs on cool-aspect slopes in the BOH.

Vegetation: Sw14 stands have a tree canopy of white spruce (*Picea glauca*), with some white spruce in the shrub layer. The shrub layer is moderately well developed, with common Labrador tea (*Rhododendron groenlandicum*), shrub birch (*Betula glandulosa*) and willows (*Salix* spp.). Four-angled mountain-heather (*Cassiope tetragona*) and crowberry (*Empetrum nigrum*) are characteristic ground shrubs. Although mosses dominate the forest floor, mostly feathermosses (*Hylcomium splendens*, *Pleurozium schreberi*), reindeer lichens (*Cladina* spp.) also occur with moderate cover.

No photo
available

Environment: This association occurs on moderate, cool-aspect (north, northeast) slopes at higher elevations in the boreal. Soil data are very limited, so there is no information on parent materials, soil types or the presence/depth (cm) of permafrost. It is likely that these cool-aspect slopes do have permafrost.

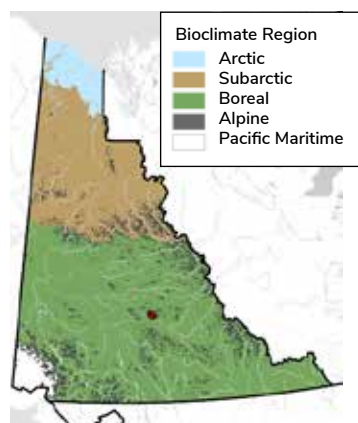
Dynamics: Stands are open. White spruce dominates and is likely to regenerate after disturbance.

Comments

- Key characteristics: white spruce woodland; four-angled mountain-heather
- Component of CNVC00108 White Spruce / Glandular Birch / Stairstep Moss

Sw14 Environment table

Zone	BOH
Elevation (m)	1055 – 1125 – 1155
Aspect	cool
Slope (%)	7 – 20 – 40
Soil moisture regime	mesic to subhygric
Soil drainage	moderately well to imperfect
Permafrost presence/depth (cm)	likely (no data)
Unvegetated cover (%)	no data
Soil class	unknown (no data)

**Sw14** Vegetation summary (%)

Trees	2 – 7 – 25	Shrubs	12 – 30 – 61	Ground shrubs	7 – 19 – 25
Graminoids and Forbs	0 – 1 – 2	Bryophytes	24 – 36 – 55	Lichens	12 – 22 – 30

Layer	Scientific name	Sw14	Common name
		n = 7	
Trees	<i>Picea glauca</i>	■■■	white spruce
Shrubs	<i>Picea glauca</i>	■■■	white spruce
	<i>Betula glandulosa</i>	■■	shrub birch
	<i>Rhododendron groenlandicum</i>	■■■	common Labrador tea
	<i>Salix</i> spp.	■■■■	willows
Ground shrubs	<i>Cassiope tetragona</i>	■■■■	four-angled mountain-heather
	<i>Empetrum nigrum</i>	■■■	crowberry
Bryophytes	Bryophyta	■■■■	mosses
Lichens	<i>Cladina</i> spp.	■■■■	reindeer lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

Sw15 **White spruce / Blueberry / Mountain-avens – Lapland rosebay**

Sw15 is a white spruce woodland characterized by blueberry, entire-leaved mountain-avens, red/alpine bearberry and Lapland rosebay. It commonly occurs on mesic sites in the SUW and in the arctic in the ARDS and ARLS.

Vegetation: Sw15 stands have a tree canopy comprised of tree-height or shrub-height white spruce (*Picea glauca*). Understorey shrubs are mostly blueberry (*Vaccinium uliginosum*) and willows (*Salix glauca*, *S. richardsonii* and others). Ground shrubs are of high cover and include mountain-avens, mostly *Dryas integrifolia* and sometimes eight-petal mountain avens (*D. octopetala*), Lapland rosebay (*Rhododendron lapponicum*), alpine/red bearberry (*Arctous alpinus*, *A. rubra*), net-veined willow (*Salix reticulata*) and four-angled mountain-heather (*Cassiope tetragona*). Moss cover is moderate to high, with crumpled-leaf moss (*Rhytidium rugosum*), sickle moss (*Sanionia uncinata*), wiry fern moss (*Abietinella abietina*) and mountain groove-moss (*Aulacomnium turgidum*) commonly occurring. Various lichens occur with low cover.



Environment: This association occurs primarily on level to gently sloping mesic sites. Soil data are very limited. Permafrost likely occurs on all sites, so soils would be classified as Cryosols. No data on permafrost depth are available. The forest floor often has some woody debris, rocks or exposed mineral soil.

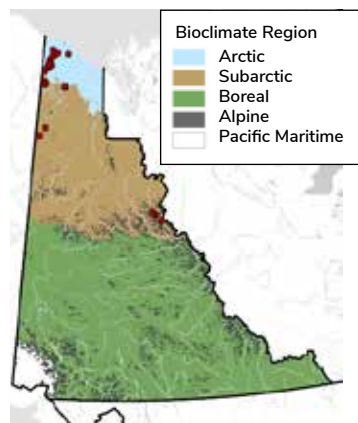
Dynamics: White spruce is the only tree species in these open stands. Stands are likely to regenerate to white spruce after disturbance.

Comments

- Key characteristics: white spruce woodlands on mesic site dominated by blueberry, mountain-avens, bearberries and Lapland rosebay
- Component of CNVC00376 White Spruce / Bog Blueberry/ Entire-leaved Mountain-avens – Lapland Rosebay

Sw15 Environment table

Zone	SUW, ARDS, ARLS
Elevation (m)	220 – 440 – 915
Aspect	variable
Slope (%)	0 – 12 – 70
Soil moisture regime	mesic (submesic)
Soil drainage	well to moderately well
Permafrost presence/depth (cm)	common (data limited)
Unvegetated cover (%)	2 – 12 – 30
Soil class	Cryosols (data limited)

**Sw15 Vegetation summary (%)**

Trees	0 – 16 – 50	Shrubs	3 – 35 – 99	Ground shrubs	9 – 41 – 92
Graminoids and Forbs	0.1 – 18 – 70	Bryophytes	5 – 25 – 95	Lichens	0.5 – 5 – 20

Layer	Scientific name	Sw15 n = 45	Common name
Trees	<i>Picea glauca</i>	■■■■■	white spruce
Shrubs	<i>Dasiphora fruticosa</i>	■	shrubby cinquefoil
	<i>Salix</i> spp.	■■■	willows
	<i>Vaccinium uliginosum</i>	■■■■■	blueberry
Ground shrubs	<i>Arctous alpinus / rubra</i>	■■■	alpine / red bearberry
	<i>Cassiope tetragona</i>	■■■	four-angled mountain-heather
	<i>Dryas integrifolia</i>	■■■■■	entire-leaved mountain-avens
	<i>Rhododendron lapponicum</i>	■■■	Lapland rosebay
	<i>Salix reticulata</i>	■■■	net-veined willow
Forbs	<i>Hedysarum alpinum</i>	■■	alpine hedysarum
Bryophytes	Bryophyta	■■■■■	mosses
Lichens	Lichens	■■■	lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

Sw16 **White spruce / Alder / Mountain-avens – Lapland rosebay**

Sw16 is a white spruce woodland characterized by green alder, blueberry, entire-leaved mountain-avens and Lapland rosebay. It commonly occurs on lower-slope, mesic sites in the SUW.

Vegetation: Sw16 stands have a tree canopy of white spruce (*Picea glauca*), sometimes with a moderate to high cover of white spruce in the shrub layer. Green alder (*Alnus alnobetula*) characterizes the shrub layer. Other under-storey shrubs are blueberry (*Vaccinium uliginosum*), willows (*Salix* spp.) and shrubby cinquefoil (*Dasiphora fruticosa*). Ground shrubs are of high cover and include entire-leaved mountain-avens (*Dryas integrifolia*), Lapland rosebay (*Rhododendron lapponicum*), alpine/red bearberry (*Arctous alpinus*, *A. rubra*) and four-angled mountain-heather (*Cassiope tetragona*). Single-spike sedge (*Carex scirpoidea*) is present. Moss cover is moderate to high, but mosses were often not identified to species in the data. Sickie moss (*Sanionia uncinata*) occurs frequently. Various lichens occur with low cover.



Environment: This association occurs primarily on warm (south, southwest) or neutral-aspect, moderately sloping mesic sites, usually at the base or toe of slopes. Soil data are very limited. No data on soil types or presence of permafrost are available.

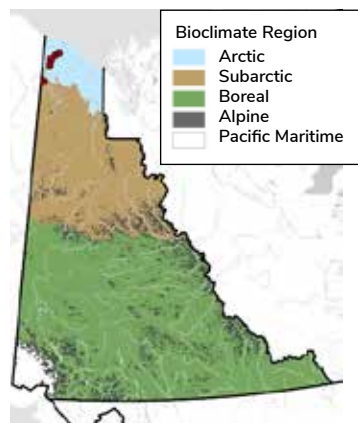
Dynamics: White spruce is the only tree species in these open stands. Stands are likely regenerate to white spruce after disturbance.

Comments

- Key characteristics: white spruce woodlands on mesic sites with green alder, blueberry, mountain-avens and Lapland rosebay
- Component of CNVC00377 White Spruce / Green Alder – Blueberry / Entire-leaved Mountain-avens – Lapland Rosebay

Sw16 Environment table

Zone	SUW
Elevation (m)	220 – 370 – 495
Aspect	warm, neutral
Slope (%)	12 – 37 – 60
Soil moisture regime	mesic
Soil drainage	moderately well
Permafrost presence/depth (cm)	no data
Unvegetated cover (%)	limited data
Soil class	no data

**Sw16** Vegetation summary (%)

Trees	5 – 16 – 35	Shrubs	14 – 59 – 99	Ground shrubs	19 – 50 – 87
Graminoids and Forbs	3 – 18 – 37	Bryophytes	15 – 36 – 70	Lichens	0 – 4 – 15

Layer	Scientific name	Sw16	Common name
		n = 11	
Trees	<i>Picea glauca</i>	■■■■■	white spruce
Shrubs	<i>Alnus alnobetula</i>	■■■■■	green alder
	<i>Dasiphora fruticosa</i>	■■■	shrubby cinquefoil
	<i>Salix</i> spp.	■■■	willows
	<i>Vaccinium uliginosum</i>	■■■■■	blueberry
Ground shrubs	<i>Arctous rubra</i> / <i>alpinus</i>	■■■	red / alpine bearberry
	<i>Cassiope tetragona</i>	■■■	four-angled mountain-heather
	<i>Dryas integrifolia</i>	■■■■■	entire-leaved mountain-avens
	<i>Empetrum nigrum</i>	■■	crowberry
	<i>Rhododendron lapponicum</i>	■■■	Lapland rosebay
Graminoids	<i>Carex scirpoidea</i>	■■■	single-spike sedge
	Poaceae	■■	grass family
Forbs	<i>Lupinus arcticus</i>	■■	arctic lupine
Bryophytes	Bryophyta	■■■■■	mosses

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

Sw17 **White spruce / Highbush cranberry / Feathermoss**

Sw17 is a white spruce forest of southeast Yukon dominated by highbush cranberry, prickly rose, bunchberry, twinflower and dwarf raspberry. It occurs in the BOL (subzone BOLr).

Vegetation: Sw17 stands have a tree canopy of white spruce (*Picea glauca*), often with a minor component of paper birch (*Betula papyrifera*). The shrub layer is well developed and dominated by highbush cranberry (*Viburnum edule*) and prickly rose (*Rosa acicularis*). Soapberry (*Shepherdia canadensis*) and red-osier dogwood (*Cornus sericea*) are also common shrubs. The ground shrub layer includes twinflower (*Linnaea borealis*). The forb layer is diverse and well developed, comprised mostly of bunchberry (*Cornus canadensis*), tall bluebells (*Mertensia paniculata*), naked mitrewort (*Mitella nuda*) and dwarf raspberry (*Rubus pubescens*). Feathermosses (*Hylocomium splendens*, *Pleurozium schreberi*, *Ptilium crista-castrensis*) dominate the forest floor.

No photo
available

Environment: Sw17 occurs on level to gently sloping, nutrient-rich, mesic sites of the BOLr. Soil data are very limited; there is no information on parent materials or soil types. Permafrost would be absent from these sites.

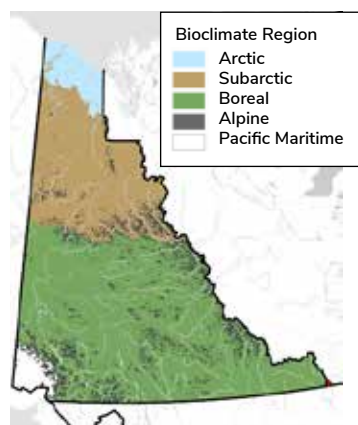
Dynamics: Stands are productive, moderately closed, with tall white spruce. Stands are dominated by white spruce, but similar sites could have a forest cover of hardwoods (aspen or paper birch) or be mixed-wood stands of aspen, paper birch and spruce. Spruce stands could develop through forest succession, or spruce could dominate following disturbance.

Comments

- Key characteristics: mesic white spruce forests of BOLr with highbush cranberry, prickly rose, bunchberry and dwarf raspberry; lacking or low cover of common horsetail, devil's club and alders
- Component of CNVC00102 White Spruce / Prickly Rose / Step Moss

Sw17 Environment table

Zone	BOL; subzone BOLlr
Elevation (m)	390
Aspect	variable
Slope (%)	0 – 3 – 10
Soil moisture regime	mesic
Soil drainage	moderately well
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	no data
Soil class	no data

**Sw17** Vegetation summary (%)

Trees	20 – 33 – 60	Shrubs	5 – 23 – 39	Ground shrubs	1 – 13 – 30
Graminoids and Forbs	12 – 23 – 31	Bryophytes	30 – 63 – 85	Lichens	0

Layer	Scientific name	Sw17	Common name
		n = 8	
Trees	<i>Picea glauca</i>	■■■■■	white spruce
	<i>Betula papyrifera</i>	■ ■	paper birch
Shrubs	<i>Cornus sericea</i>	■ ■	red-osier dogwood
	<i>Rosa acicularis</i>	■■■	prickly rose
	<i>Shepherdia canadensis</i>	■■	soapberry
	<i>Viburnum edule</i>	■■■	highbush cranberry
Ground shrubs	<i>Linnaea borealis</i>	■■■	twinlineflower
Forbs	<i>Aralia nudicaulis</i>	■	wild sarsaparilla
	<i>Chamaenerion angustifolium</i>	■	fireweed
	<i>Cornus canadensis</i>	■■■■	bunchberry
	<i>Equisetum arvense</i>	■ ■	common horsetail
	<i>Equisetum scirpoides</i>	■ ■	dwarf scouring-rush
	<i>Galium</i> spp.	■	bedstraws
	<i>Lathyrus ochroleucus</i>	■	wild pea
	<i>Mertensia paniculata</i>	■■	tall bluebells
	<i>Mitella nuda</i>	■■	naked mitrewort
	<i>Pyrola asarifolia</i>	■	pink wintergreen
	<i>Rubus pubescens</i>	■■■	dwarf raspberry
Bryophytes	Bryophyta	■■■■■	mosses

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

Sw18 White spruce / Red-osier dogwood / Horsetail – Mitrewort

Sw18 is a white spruce forest of high river benches characterized by horsetails that occurs in the BOL in the southeast Yukon (subzone BOLlr). Sw18 is visually similar to Sw36.

No photo
available

Vegetation: Stands of Sw18 have a tree canopy of white spruce (*Picea glauca*), often with a minor component of paper birch (*Betula papyrifera*). The shrub layer is very well developed, including river alder (*Alnus incana*), prickly rose (*Rosa acicularis*), highbush cranberry (*Viburnum edule*), red-osier dogwood (*Cornus sericea*) and often, green alder (*A. alnobetula*). The ground shrub layer includes twinflower (*Linnaea borealis*). The forb layer is characterized by horsetails (*Equisetum arvense*, *E. pratense*) of moderately high to very high cover. Common and sometimes abundant forbs are naked mitrewort (*Mitella nuda*), dwarf raspberry (*Rubus pubescens*), bunchberry (*Cornus canadensis*) and tall bluebells (*Mertensia paniculata*). Feathermosses (*Hylocomium splendens*, *Pleurozium schreberi*, *Ptilium crista-castrensis*) dominate the forest floor.

Environment: This association occurs on level to gently sloping high fluvial benches. These high benches are generally very productive due to nutrient-rich groundwater flow and periodic flooding. Soil data are very limited, but these sites occur on fluvial parent materials, and soils are Brunisols or Regosols. The soils typically show evidence of historical fluvial deposition. The forest floor usually has some cover of woody debris.

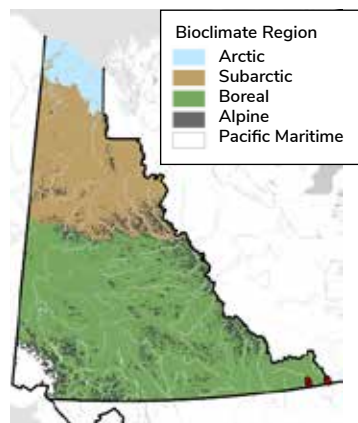
Dynamics: Stands are productive and are dominated by tall white spruce. On larger rivers, these stands are part of a floodplain complex that reflects both erosion and deposition processes. Lower, and younger, benches are dominated by deciduous shrubs and trees, but often have a minor spruce component. Over time, through ongoing deposition of fluvial materials, the sites become drier and less subject to frequent flooding. The deciduous hardwoods die off and spruce dominates the site.

Comments

- Key characteristics: white spruce forests on high river benches with horsetails $\geq 10\%$, no devil's club, but dwarf raspberry, naked mitrewort, tall bluebells and bunchberry present
- Component of CNVC00096 White Spruce / Common Horsetail – Meadow Horsetail

Sw18 Environment table

Zone	BOL; subzone BOLlr
Elevation (m)	360 – 410 – 587
Aspect	neutral
Slope (%)	0 – 3 – 10
Soil moisture regime	subhygric
Soil drainage	moderately well to imperfect
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	0 – 7 – 11
Soil class	Brunisols (Regosols)

**Sw18** Vegetation summary (%)

Trees	10 – 26 – 60	Shrubs	5 – 54 – 99	Ground shrubs	0 – 13 – 30
Graminoids and Forbs	9 – 49 – 99	Bryophytes	0.5 – 32 – 90	Lichens	0 – 1 – 2

Layer	Scientific name	Sw18	Common name
		n = 22	
Trees	<i>Picea glauca</i>	■■■■■	white spruce
Shrubs	<i>Alnus incana</i>	■■■■■	river alder
	<i>Alnus alnobetula</i>	■■■■■	green alder
	<i>Cornus sericea</i>	■■■■■	red-osier dogwood
	<i>Rosa acicularis</i>	■■■■■	prickly rose
	<i>Viburnum edule</i>	■■■■■	highbush cranberry
Ground shrubs	<i>Linnaea borealis</i>	■■■■■	twinline
Forbs	<i>Cornus canadensis</i>	■■■■■	bunchberry
	<i>Equisetum arvense / pratense</i>	■■■■■	horsetails
	<i>Mertensia paniculata</i>	■■■■■	tall bluebells
	<i>Mitella nuda</i>	■■■■■	naked mitrewort
	<i>Rubus pubescens</i>	■■■■■	dwarf raspberry
Bryophytes	Bryophyta	■■■■■	mosses

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

Sw20 White spruce / Grass / Kinnikinnick

Sw20 is a white spruce forest with high grass cover that occurs in the BOL.

Vegetation: Stands have a tree canopy of white spruce (*Picea glauca*), sometimes with some aspen (*Populus tremuloides*) or pine (*Pinus contorta*). The shrub layer is lightly to moderately developed, with willows (*Salix* spp.) as the only frequent species. Infrequent shrubs include prickly rose (*Rosa acicularis*), soapberry (*Shepherdia canadensis*) and creeping juniper (*Juniperus horizontalis*). In the ground shrub layer kinnikinnick varies in cover. Grasses (unidentified to genus) are of moderately high to very high cover. Moss and lichen cover is generally low, but step moss (*Hylocomium splendens*) can be abundant on some sites.

Environment: This association occurs on level to gently sloping, rapidly drained to moderately well drained sites that occur primarily on glaciofluvial or lacustrine parent materials. Soils are Dystric Brunisols or Orthic Gray Luvisols.

Dynamics: Stands are mostly relatively dense, with a minor extent of aspen. Stands may develop by succession from grassy stands dominated by successional tree species such as aspen, pine or mixed-wood species. Or they may develop with white spruce following disturbance.

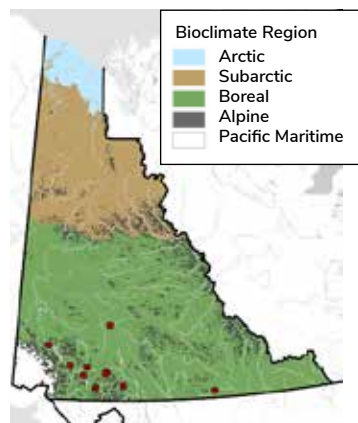
Comments

- Key characteristics: white spruce-dominated; high grass cover (not polargrass), low cover of shrub birch
- Component of CNVC00369 White Spruce / Grass – Kinnikinnick



Sw20 Environment table

Zone	BOL
Elevation (m)	700 – 830 – 1005
Aspect	warm or neutral
Slope (%)	0 – 2 – 10
Soil moisture regime	submesic
Soil drainage	rapid to moderately well
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	limited data
Soil class	Brunisols, Gray Luvisols

**Sw20 Vegetation summary (%)**

Trees	25 – 58 – 85	Shrubs	0 – 12 – 35	Ground shrubs	0.1 – 14 – 40
Graminoids and Forbs	16 – 33 – 72	Bryophytes	0.5 – 30 – 70	Lichens	0.5 – 9 – 30

Layer	Scientific name	Sw20	Common name
		n = 10	
Trees	<i>Picea glauca</i>	■■■■■	white spruce
	<i>Populus tremuloides</i>	■■	trembling aspen
Shrubs	<i>Salix</i> spp.	■ ■	willows
Ground shrubs	<i>Arctostaphylos uva-ursi</i>	■■■■■	kinnikinnick
Graminoids	Poaceae	■■■■■	grass family
Forbs	<i>Chamaenerion angustifolium</i>	■ ■	fireweed
Bryophytes	<i>Hylocomium splendens</i>	■■■■■	step moss
Lichens	<i>Peltigera aphthosa</i>	■ ■	freckle pelt lichen

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

Sw21 White spruce / Lapland rosebay – Net-veined willow – Marsh horsetail

Sw21 is a white spruce woodland characterized by marsh horsetail, entire-leaved mountain-avens, Lapland rosebay and net-veined willow. It occurs on moist to wet sites in the SUW.

Vegetation: Sw21 stands have a tree canopy comprised of tree-height or shrub-height white spruce (*Picea glauca*). Other than white spruce, the shrub layer is lightly developed, primarily with willow (*Salix* spp.). Ground shrubs are usually of high cover and include entire-leaved mountain-avens (*Dryas integrifolia*), Lapland rosebay (*Rhododendron lapponicum*), bearberry (*Arctous alpinus*, *A. rubra*) and four-angled mountain-heather (*Cassiope tetragona*). Sedges (*Carex bigelowii* ssp. *lugens*, *C. membranacea*, *C. scirpoidea* and others) are present, with low to moderate cover. Marsh horsetail (*Equisetum palustre*), of moderate to high cover, characterizes the forb layer. Other species indicative of the moist soil conditions include small tofieldia (*Tofieldia pusilla*) and marsh grass-of-Parnassus (*Parnassia palustris*). Moss cover is high, but most mosses were not identified to species. Various lichens occur with low cover.



Environment: This association occurs primarily on long, uniform, gentle slopes that are subhygric to hygric. Soil data are very limited and although there are no data on soil types or presence of permafrost, it is likely that these sites are underlain by permafrost.

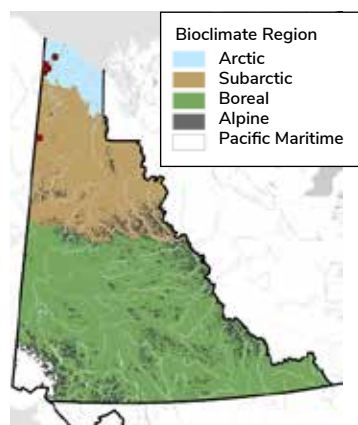
Dynamics: White spruce is the only tree species in these open stands. Stands are likely to regenerate to white spruce after disturbance.

Comments

- Key characteristics: white spruce woodlands on moist sites with marsh horsetail and subarctic ground shrubs, including Lapland rosebay and entire-leaved mountain-avens
- Component of CNVC00378 White Spruce / Marsh Horsetail – Net-veined Willow – Alpine Bearberry – Spruce Muskeg Sedge

Sw21 Environment table

Zone	SUW
Elevation (m)	290 – 500 – 710
Aspect	variable
Slope (%)	2 – 8 – 13
Soil moisture regime	subhygric – hygric
Soil drainage	imperfect
Permafrost presence/depth (cm)	no data, but likely present
Unvegetated cover (%)	limited data
Soil class	no data

**Sw21 Vegetation summary (%)**

Trees	0 – 6 – 16	Shrubs	7 – 26 – 53	Ground shrubs	40 – 52 – 67
Graminoids and Forbs	16 – 34 – 52	Bryophytes	60 – 75 – 90	Lichens	0 – 4 – 12

Layer	Scientific name	Sw21	Common name
		n = 7	
Trees	<i>Picea glauca</i>	■■■■	white spruce
Shrubs	<i>Picea glauca</i>	■■■■■	white spruce
	<i>Salix</i> spp.	■■■	willows
Ground shrubs	<i>Arctous alpinus / rubra</i>	■■■	alpine / red bearberry
	<i>Dryas integrifolia</i>	■■■■■	entire-leaved mountain-avens
	<i>Rhododendron lapponicum</i>	■■■	Lapland rosebay
	<i>Salix reticulata</i>	■■■	net-veined willow
	<i>Salix arctica</i>	■■■	arctic willow
Graminoids	<i>Carex bigelowii</i> ssp. <i>lugens</i>	■■■	spruce muskeg sedge
	<i>Carex membranacea</i>	■■	fragile sedge
	<i>Eriophorum vaginatum</i>	■ ■	tussock cottongrass
	Poaceae	■■	grass family
Forbs	<i>Equisetum palustre</i>	■■■■■	marsh horsetail
	<i>Parnassia palustris</i>	■	marsh grass-of-Parnassus
	<i>Tofieldia pusilla</i>	■	small tofieldia
Bryophytes	Bryophyta	■■■■■	mosses
Lichens	<i>Flavocetraria</i> spp.	■■■	snow lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

Sw22 **White spruce / Willow – Blueberry / Polargrass / Feathermoss**

Sw22 is a white spruce forest that occurs on moist sites with willows and polargrass, primarily in the BOH and sometimes in the SUS.

Vegetation: Sw22 stands have a tree canopy of white spruce (*Picea glauca*), with some white spruce in the shrub layer. The shrub layer is moderately well developed, mostly of willows (*Salix* spp.) and low cover of blueberry (*Vaccinium uliginosum*). In the graminoid layer polargrass (*Arctagrostis latifolia*), of moderate to moderately high cover, is characteristic of this community. Forb diversity is high, but not consistent. Horsetails (mostly *Equisetum arvense*) are of very low cover. Feathermosses (*Hylcomium splendens*, *Pleurozium schreberi*) occur with very high cover. Lichens are of low to moderate cover.

Environment: This association occurs at higher elevations of the BOH or in the SUS, mostly on moderately well drained to imperfectly drained level or gently sloped sites. Based on limited data, parent materials are fluvial, and soils are classified as Orthic Regosols, so sites are likely near streams. No permafrost occurrence is noted. The forest floor often has some cover of woody debris.

Dynamics: White spruce dominates the open to closed stands and is likely to regenerate after disturbance.

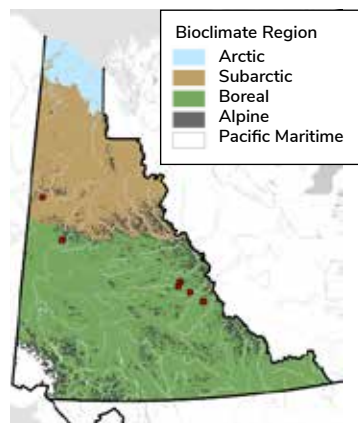
Comments

- Key characteristics: white spruce forest; high elevation near streams; willow, polargrass
- Component of CNVC00367 White Spruce / Willow / Polargrass / Red-stemmed Feathermoss



Sw22 Environment table

Zone	BOH (SUS)
Elevation (m)	760 – 935 – 1040
Aspect	neutral, variable
Slope (%)	0 – 4 – 10
Soil moisture regime	subhygric (hygric)
Soil drainage	moderately well to imperfect
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	1 – 7 – 12
Soil class	Regosols

**Sw22 Vegetation summary (%)**

Trees	15 – 24 – 35	Shrubs	10 – 21 – 41	Ground shrubs	1 – 5 – 16
Graminoids and Forbs	13 – 26 – 57	Bryophytes	52 – 78 – 90	Lichens	0.1 – 9 – 18

Layer	Scientific name	Sw22	Common name
		n = 6	
Trees	<i>Picea glauca</i>	■■■■■	white spruce
Shrubs	<i>Picea glauca</i>	■	white spruce
	<i>Betula glandulosa</i>	■	shrub birch
	<i>Ribes triste</i>	■■	swamp red currant
	<i>Salix</i> spp.	■■■■■	willows
	<i>Vaccinium uliginosum</i>	■■	blueberry
Ground shrubs	<i>Empetrum nigrum</i>	■	crowberry
	<i>Vaccinium vitis-idaea</i>	■	lowbush cranberry
Graminoids	<i>Arctagrostis latifolia</i>	■■■	polargrass
	<i>Festuca altaica</i>	■■	Altai fescue
Forbs	<i>Lupinus arcticus</i>	■■	arctic lupine
	<i>Mertensia paniculata</i>	■■	tall bluebells
	<i>Petasites frigidus</i>	■■■	arctic sweet coltsfoot
	<i>Polemonium acutiflorum</i>	■■	tall Jacob's-ladder
Bryophytes	<i>Hylocomium</i> / <i>Pleurozium</i>	■■■■■	feathermosses
	<i>Polytrichum juniperinum</i>	■■■	juniper haircap moss
Lichens	<i>Cladina</i> spp.	■■■	reindeer lichens
	<i>Nephroma arcticum</i>	■■	arctic kidney lichen
	<i>Peltigera</i> spp.	■■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

Sw23 **White spruce / Mountain-avens – Lapland rosebay – Horsetail**

Sw23 is a white spruce woodland characterized by entire-leaved mountain-avens, Lapland rosebay and horsetails that occurs on moist sites in the SUW and ARLS.

Vegetation: Sw23 stands have a tree canopy comprised of tree-height or shrub-height white spruce (*Picea glauca*). The shrub layer is moderately developed, primarily with willow (*Salix* spp.). Ground shrubs are of moderate to high cover and include entire-leaved mountain-avens (*Dryas integrifolia*), Lapland rosebay (*Rhododendron lapponicum*), red bearberry (*Arctous rubra*) and four-angled mountain-heather (*Cassiope tetragona*). Horsetails (*Equisetum arvense*, *E. pratense*), of moderately high to very high cover, characterize the forb layer. Sedges (*Carex* spp.) are present, generally with low cover. Moss cover is high, but most mosses were not identified to species. Crumpled-leaf moss (*Rhytidium rugosum*) occurs frequently. Various lichens occur with low cover.



Environment: This association occurs primarily on subhygric, level to gently sloping sites. Soil data are very limited. No data on soil types or presence of permafrost are available.

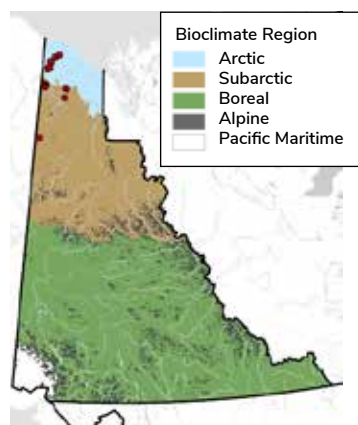
Dynamics: White spruce is the only tree in these open stands. Stands are likely to regenerate to white spruce after disturbance.

Comments

- Key characteristics: white spruce woodlands on moist sites with horsetails $\geq 15\%$, and subarctic ground shrubs, including Lapland rosebay and entire-leaved mountain-avens; spruce muskeg sedge, if present, of lower cover than horsetails
- Component of CNVC00379 White Spruce / Horsetail – Red Bearberry

Sw23 Environment table

Zone	SUW, ARLS
Elevation (m)	200 – 425 – 720
Aspect	variable
Slope (%)	0 – 9 – 25
Soil moisture regime	subhygric
Soil drainage	moderately well to imperfect
Permafrost presence/depth (cm)	no data
Unvegetated cover (%)	limited data
Soil class	no data

**Sw23** Vegetation summary (%)

Trees	0 – 17 – 33	Shrubs	8 – 22 – 50	Ground shrubs	1 – 30 – 67
Graminoids and Forbs	16 – 43 – 85	Bryophytes	15 – 48 – 95	Lichens	0 – 4 – 15

Layer	Scientific name	Sw23	Common name
		n = 23	
Trees	<i>Picea glauca</i>	■■■■■	white spruce
Shrubs	<i>Dasiphora fruticosa</i>	■	shrubby cinquefoil
	<i>Salix</i> spp.	■■■■■	willows
	<i>Vaccinium uliginosum</i>	■■■	blueberry
Ground shrubs	<i>Arctous rubra</i>	■■■	red bearberry
	<i>Cassiope tetragona</i>	■■■	four-angled mountain-heather
	<i>Dryas integrifolia</i>	■■■■■	entire-leaved mountain-avens
	<i>Rhododendron lapponicum</i>	■■■	Lapland rosebay
	<i>Salix reticulata</i>	■■	net-veined willow
Graminoids	<i>Carex</i> spp.	■■■	sedges
	Poaceae	■	grass family
Forbs	<i>Equisetum arvense</i> / <i>pratense</i>	■■■■■	horsetails
Bryophytes	Bryophyta	■■■■■	mosses

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

Sw24 White spruce / Mountain-avens – Lapland rosebay – Muskeg sedge

Sw24 is a white spruce woodland characterized by entire-leaved mountain-avens, Lapland rosebay and spruce muskeg sedge. It occurs on moist sites in the SUW.

Vegetation: Sw24 stands have a tree canopy comprised of tree-height or shrub-height white spruce (*Picea glauca*). A component of black spruce (*P. mariana*) is sometimes present. The shrub layer is moderately developed, primarily with willow (*Salix* spp.). Ground shrubs are of moderate to very high cover and include entire-leaved mountain-avens (*Dryas integrifolia*), Lapland rosebay (*Rhododendron lapponicum*), red bearberry (*Arctous rubra*), net-veined willow (*S. reticulata*) and four-angled mountain-heather (*Cassiope tetragona*). Horsetails (*Equisetum arvense*, *E. pratense*) occur occasionally. Spruce muskeg sedge (*Carex bigelowii* ssp. *lugens*), of moderately high to high cover, characterizes the understorey. Moss cover is moderate to very high, but most mosses were not identified to species. Various lichens occur with low to moderate cover.



Environment: This association occurs primarily on subhygric to hygric, level to moderately sloping sites, on cool or neutral-aspects. Soil data are very limited. No data on soil types or presence of permafrost are available. The forest floor often has some cover of woody debris.

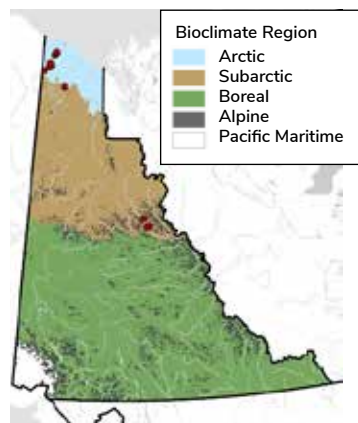
Dynamics: White spruce is the primary tree in these open stands. Stands are likely to regenerate to white spruce after disturbance, but seed sources may allow black spruce to occur.

Comments

- Key characteristics: white spruce woodlands on moist sites with spruce muskeg sedge $\geq 10\%$; horsetails, if present, less than spruce muskeg sedge cover; subarctic ground shrubs include Lapland rosebay and entire-leaved mountain-avens
- Component of CNVC00380 White Spruce Bog Blueberry / Entire-leaved Mountain-avens – Lapland Rosebay – Sedge

Sw24 Environment table

Zone	SUW
Elevation (m)	205 – 455 – 840
Aspect	neutral to cool (neutral)
Slope (%)	2 – 15 – 33
Soil moisture regime	subhygric to hygric
Soil drainage	poor to moderately well
Permafrost presence/depth (cm)	no data
Unvegetated cover (%)	0.5 – 3 – 10
Soil class	no data

**Sw24** Vegetation summary (%)

Trees	0 – 11 – 35	Shrubs	2 – 35 – 99	Ground shrubs	4 – 40 – 91
Graminoids and Forbs	10 – 45 – 82	Bryophytes	4 – 31 – 85	Lichens	0 – 11 – 50

Layer	Scientific name	Sw24	Common name
		n = 18	
Trees	<i>Picea glauca</i>	■■■■■	white spruce
Shrubs	<i>Picea glauca</i>	■■■	white spruce
	<i>Betula glandulosa</i>	■■■	shrub birch
	<i>Dasiphora fruticosa</i>	■■	shrubby cinquefoil
	<i>Salix</i> spp.	■■■■■	willows
	<i>Vaccinium uliginosum</i>	■■■	blueberry
Ground shrubs	<i>Arctous rubra</i> / <i>alpinus</i>	■■■	red / alpine bearberry
	<i>Cassiope tetragona</i>	■■■	four-angled mountain-heather
	<i>Dryas integrifolia</i>	■■■■■	entire-leaved mountain-avens
	<i>Rhododendron lapponicum</i>	■■■	Lapland rosebay
	<i>Salix reticulata</i>	■■■	net-veined willow
Graminoids	<i>Carex bigelowii</i> ssp. <i>lugens</i>	■■■■■	spruce muskeg sedge
Forbs	<i>Hedysarum alpinum</i>	■■	alpine hedysarum
Bryophytes	Bryophyta	■■■■■	mosses

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

Sw25 White spruce / Shrub birch – Willow / Altai fescue – Kinnikinnick

Sw25 is a white spruce woodland or forest with high shrub birch, willow and Altai fescue cover that occurs in the BOL and BOH.

Vegetation: Stands have a tree canopy of white spruce (*Picea glauca*), sometimes with black spruce (*P. mariana*), pine (*Pinus contorta*) or fir (*Abies lasiocarpa*). The shrub layer is very well developed, with shrub birch (*Betula glandulosa*) and grey-leaved willow (*Salix glauca*) as the key species. Kinnikinnick is usually present in the ground shrub layer. Altai fescue (*Festuca altaica*) characterizes the graminoid layer, with moderately high to very high cover. Moss and lichen cover is low to moderate and variable in species.

No photo
available

Environment: This association occurs on level or gently sloping sites. Lower elevation sites (BOL) seem to be influenced by cold air, whereas BOH sites are climatically cool. Parent materials are morainal, glaciofluvial or lacustrine. Soils are Brunisols (Dystric, Eutric) or Turbic Cryosols. Cryosols were noted in some BOL sites.

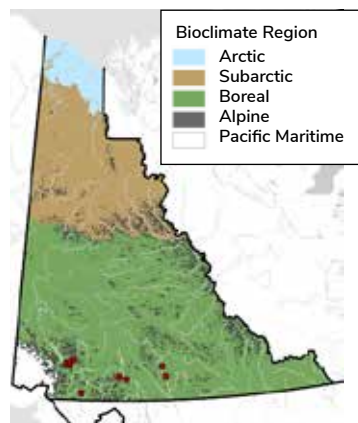
Dynamics: Stands are relatively open, with a minor extent of other species (pine, black spruce, fir). Local seed sources after disturbance and stand succession influence species composition.

Comments

- Key characteristics: white spruce woodland or forest; moderately high to high cover of shrub birch and willow; Altai fescue $\geq 15\%$
- Component of CNVC00368 White Spruce / Shrub Birch – Grey-leaved Willow / Altai Fescue

Sw25 Environment table

Zone	BOL, BOH
Elevation (m)	750 – 890 – 1115
Aspect	neutral, variable
Slope (%)	0 – 3 – 10
Soil moisture regime	mesic (subhygric)
Soil drainage	well to moderately well (imperfect)
Permafrost presence/depth (cm)	occasional (40 cm)
Unvegetated cover (%)	1 – 3 – 5
Soil class	Brunisols (Eutric or Dystric), Cryosols

**Sw25 Vegetation summary (%)**

Trees	7 – 24 – 55	Shrubs	33 – 66 – 95	Ground shrubs	1 – 12 – 27
Graminoids and Forbs	15 – 36 – 67	Bryophytes	0 – 17 – 40	Lichens	1 – 12 – 50

Layer	Scientific name	Sw25	Common name
		n = 9	
Trees	<i>Picea glauca</i>	■■■■■	white spruce
Shrubs	<i>Betula glandulosa</i>	■■■■■	shrub birch
	<i>Dasiphora fruticosa</i>	■ ■	shrubby cinquefoil
	<i>Salix glauca</i>	■■■■■	grey-leaved willow
Ground shrubs	<i>Arctostaphylos uva-ursi</i>	■■■	kinnikinnick
Graminoids	<i>Festuca altaica</i>	■■■■■	Altai fescue
Forbs	<i>Achillea millefolium</i>	■	common yarrow
	<i>Chamaenerion angustifolium</i>	■■	fireweed
Bryophytes	Bryophyta	■ ■ ■	mosses
Lichens	<i>Cladonia</i> spp.	■ ■ ■	clad lichens
	<i>Peltigera</i> spp.	■ ■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

Sw26 White spruce / Soapberry / Step moss

Sw26 is a mesic white spruce – feathermoss forest characterized by soapberry that occurs primarily in the southwest Yukon in the BOL, but also in the BOH.

Vegetation: Sw26 stands have a tree canopy of white spruce (*Picea glauca*), sometimes with a minor component of aspen (*Populus tremuloides*), balsam poplar (*P. balsamifera*) or pine (*Pinus contorta*). The shrub layer is characterized by soapberry (*Shepherdia canadensis*), of moderate to high cover. Willows (*Salix* spp.) commonly occur as well. The understorey is generally lightly developed, although ground shrubs can be of moderate cover. Ground shrubs include twinflower (*Linnaea borealis*), kinnikinnick (*Arctostaphylos uva-ursi*), lowbush cranberry (*Vaccinium vitis-idaea*) and red bearberry (*Arctous rubra*). Feathermosses dominate the forest floor, usually step moss (*Hylocomium splendens*) of high to very high cover. Red-stemmed feathermoss (*Pleurozium schreberi*) or wiry fern moss (*Abietinella abietina*) can be of high cover.



Environment: This association occurs on level sites or gentle to moderately steep slopes that are on neutral or warm (south, southwest) aspects. Parent materials are mostly fluvial or lacustrine, but can be morainal or glaciolacustrine. Soils are classified as Eutric Brunisols or Orthic Gray Luvisols. Permafrost is absent from these sites. The forest floor often has some cover of woody debris.

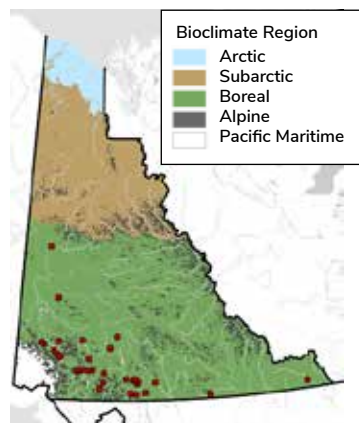
Dynamics: Stands are mostly moderately closed. Although this association is strongly dominated by white spruce, stands on mesic sites in the BOL of southwest Yukon can be comprised of white spruce, aspen and pine with various combinations. Sw26 stands can develop through forest succession or spruce can seed in and dominate following disturbance.

Comments

- Key characteristics: mesic white spruce – feathermoss forests of southwest Yukon with soapberry; absence or very low cover of other indicator species
- Component of CNVC00370 White Spruce / Step Moss

Sw26 Environment table

Zone	BOL (BOH)
Elevation (m)	420 – 775 – 1165
Aspect	neutral or neutral to warm
Slope (%)	0 – 11 – 50
Soil moisture regime	mesic
Soil drainage	well to moderately well
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	1 – 9 – 15
Soil class	Brunisols (Eutric), Gray Luvisols

**Sw26 Vegetation summary (%)**

Trees	10 – 46 – 80	Shrubs	4 – 23 – 60	Ground shrubs	1 – 13 – 30
Graminoids and Forbs	0.5 – 10 – 30	Bryophytes	10 – 57 – 99	Lichens	0 – 8 – 21

Layer	Scientific name	Sw26	Common name
		n = 35	
Trees	<i>Picea glauca</i>	■■■■■	white spruce
Shrubs	<i>Rosa acicularis</i>	■ ■	prickly rose
	<i>Salix</i> spp.	■■■	willows
	<i>Shepherdia canadensis</i>	■■■■	soapberry
Ground shrubs	<i>Linnaea borealis</i>	■ ■ ■	twinline
Forbs	<i>Chamaenerion angustifolium</i>	■	fireweed
	<i>Geocaulon lividum</i>	■ ■	bastard toadflax
Bryophytes	<i>Hylocomium splendens</i>	■■■■■	step moss
Lichens	<i>Cladonia</i> spp.	■ ■	clad lichens
	<i>Peltigera</i> spp.	■■■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

Sw27 White spruce / Feathermoss

Sw27 is a mesic white spruce – feathermoss forest characterized by a sparse understorey that occurs primarily in the BOL, but also in the BOH.

Vegetation: Sw27 stands have a tree canopy of white spruce (*Picea glauca*), often with a minor extent of aspen (*Populus tremuloides*) or other tree species. The understorey is generally sparse, with low cover of various species, such as soapberry (*Shepherdia canadensis*), twinflower (*Linnaea borealis*), red bearberry (*Arctous rubra*), fireweed (*Chamaenerion angustifolium*) and/or lowbush cranberry (*Vaccinium vitis-idaea*). The forest floor is dominated by feathermosses, usually step moss (*Hylocomium splendens*) — typic subassociation (Sw27t), but sometimes wiry fern moss (*Abietinella abietina*) — wiry fern moss subassociation (Sw27w).

Environment: Sw27 occurs on level to moderately sloping, submesic to mesic sites throughout the BOL and at lower elevations of the BOH. This association occurs on moderately well drained to well-drained sites on a range of parent materials, mostly morainal, lacustrine, fluvial and glaciofluvial, but also colluvial and eolian. Soils are mostly classified as Eutric or Dystric Brunisols or Gray Luvisols. Permafrost is rarely present on these sites. The forest floor often has some cover of woody debris.

Dynamics: Stands mostly have a relatively closed canopy. Although this association is strongly dominated by white spruce, these types of sites can be comprised of stands of white spruce, aspen, pine or Alaska birch, in various combinations. Sw27 stands can develop through forest succession, or spruce can seed in and dominate following disturbance.

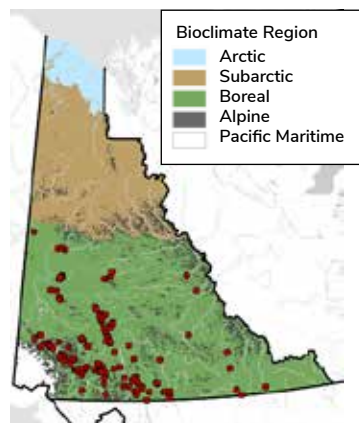
Comments

- Key characteristics: mesic white spruce – feathermoss forests; absence or very low cover of other indicator species
- Component of CNVC00370 White Spruce / Step Moss



Sw27 Environment table

Zone	BOL (BOH)
Elevation (m)	385 – 735 – 1195
Aspect	neutral or variable
Slope (%)	0 – 7 – 60
Soil moisture regime	submesic to mesic
Soil drainage	well to moderately well
Permafrost presence/depth (cm)	occasional
Unvegetated cover (%)	1 – 6 – 25
Soil class	Brunisols (Gray Luvisols)



Please note that the points shown on the map include the subassociations.

Sw27 Vegetation summary (%)

Trees	10 – 50 – 80	Shrubs	0.1 – 5 – 38	Ground shrubs	0.1 – 8 – 40
Graminoids and Forbs	0.1 – 6 – 30	Bryophytes	20 – 70 – 99	Lichens	0.1 – 10 – 50

Layer	Scientific name	Sw27t n = 143	Sw27w n = 15	Common name
Trees	<i>Picea glauca</i>	■■■■■	■■■■■	white spruce
Shrubs	<i>Rosa acicularis</i>	■	□	prickly rose
	<i>Salix</i> spp.	□□	■■	willows
Ground shrubs	<i>Arctous rubra</i>		■■	red bearberry
	<i>Linnaea borealis</i>	■■	□□□	twinflower
Forbs	<i>Geocaulon lividum</i>	■■	□	bastard toadflax
	<i>Lupinus arcticus</i>	□	■■	arctic lupine
Bryophytes	<i>Abietinella abietina</i>		■■■■■	wiry fern moss
	<i>Dicranum</i> spp.	■■	□	heron's-bill mosses
	<i>Hylocomium splendens</i>	■■■■■	□□□	step moss
Lichens	<i>Cladina</i> spp.	■■		reindeer lichens
	<i>Cladonia</i> spp.	■■		clad lichens
	<i>Peltigera</i> spp.	■■■	■■■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

Sw28 **White spruce / Shrub birch / Crowberry / Reindeer lichen**

Sw28 is a white spruce woodland with high shrub birch and lichen ground cover that commonly occurs in the SUW and BOL, and at higher elevations of the BOL.

Vegetation: Sw28 stands have a tree canopy of white spruce (*Picea glauca*), with some white spruce in the shrub layer. Sometimes black spruce (*P. mariana*) is present in the tree and shrub layers as well. The understorey has a well-developed shrub layer comprised mostly of shrub birch (*Betula glandulosa*) as well as willows (*Salix* spp.) and blueberry (*Vaccinium uliginosum*). Crowberry (*Empetrum nigrum*) is usually present in the ground shrub layer. Mosses commonly occur, mostly feathermosses (*Hylocomium splendens*, *Pleurozium schreberi*), with low to moderate cover. Reindeer lichens (*Cladina* spp.) usually dominate the well-developed lichen cover, although foam lichens (*Stereocaulon* spp.) or snow lichens (*Flavocetraria* spp.) can dominate.



Environment: This association occurs at higher elevations of the BOL or in the SUW, on moderately well drained to well-drained sites. Parent materials are either morainal or colluvial and sometimes shallow to bedrock, although soil data are limited. Soils are classified as Brunisols (Eutric, Dystric) or sometimes Cryosols (Turbic). Very limited data on permafrost occurrence or depth are available. The forest floor often has some cover of woody debris or rocks.

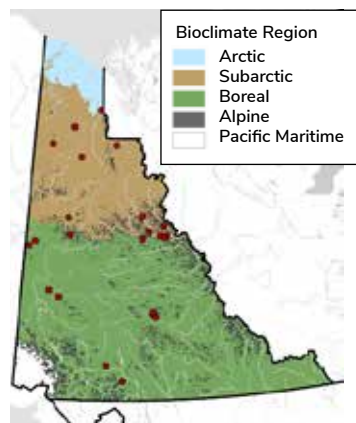
Dynamics: Stands are generally open and tall enough to be of tree height. White spruce dominates and is likely to establish after disturbance.

Comments

- Key characteristics: white spruce woodland; high shrub birch and lichen cover
- Component of CNVC00366 White Spruce / Shrub Birch / Black Crowberry / Reindeer Lichen

Sw28 Environment table

Zone	SUW, BOH (BOL)
Elevation (m)	370 – 995 – 1400
Aspect	variable
Slope (%)	0 – 15 – 62
Soil moisture regime	subxeric to mesic
Soil drainage	well to moderately well
Permafrost presence/depth (cm)	occasional (50 cm)
Unvegetated cover (%)	1 – 4 – 15
Soil class	Brunisols (Eutric or Dystric), Cryosols

**Sw28 Vegetation summary (%)**

Trees	2 – 14 – 35	Shrubs	25 – 50 – 99	Ground shrubs	0 – 18 – 54
Graminoids and Forbs	0 – 6 – 20	Bryophytes	0 – 20 – 65	Lichens	25 – 60 – 99

Layer	Scientific name	Sw28 n = 30	Common name
Trees	<i>Picea glauca</i>	■■■■■	white spruce
Shrubs	<i>Picea glauca</i>	■■■	white spruce
	<i>Betula glandulosa</i>	■■■■■	shrub birch
	<i>Rhododendron</i> spp.	■■■	Labrador teas
	<i>Salix</i> spp.	■■■	willows
	<i>Vaccinium uliginosum</i>	■■■	blueberry
Ground shrubs	<i>Empetrum nigrum</i>	■■■	crowberry
	<i>Vaccinium vitis-idaea</i>	■■■	lowbush cranberry
Bryophytes	<i>Hylocomium</i> / <i>Pleurozium</i>	■■■■■	feathermosses
Lichens	<i>Cetraria</i> spp.	■■■	Iceland lichens
	<i>Cladina</i> spp.	■■■■■	reindeer lichens
	<i>Cladonia</i> spp.	■■	clad lichens
	<i>Peltigera</i> spp.	■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

Sw29 White spruce / Labrador tea / Crowberry / Feathermoss

Sw29 is a white spruce woodland or forest with high cover of common Labrador tea and high feathermoss ground cover that occurs in the BOL and BOH.

Vegetation: Sw29 stands have a tree canopy of white spruce (*Picea glauca*), with some white spruce in the shrub layer. Sometimes black spruce (*P. mariana*) is present in the tree layer. The understorey has a well-developed shrub layer comprised mostly of common Labrador tea (*Rhododendron groenlandicum*), blueberry (*Vaccinium uliginosum*) and willows (*Salix* spp.). The ground shrubs crowberry (*Empetrum nigrum*), lowbush cranberry (*V. vitis-idaea*) and red bearberry (*Arctous rubra*) are usually of moderately high to high cover. Step moss (*Hylocomium splendens*) dominates the forest floor, often with some red-stemmed feathermoss (*Pleurozium schreberi*). Brown mosses (*Aulacomnium palustre*, *Tomentypnum nitens*) can occur, with low cover. Reindeer lichens (*Cladina mitis*, *C. rangiferina*, *C. stellaris*), of low cover, are usually present.



Environment: This association is found on moderately well-drained to well-drained, sometimes imperfectly drained sites in the BOL and BOH. Parent materials are either morainal or colluvial and sometimes shallow to bedrock, although soil data are limited. Soils are classified as Brunisols (Eutric, Dystric) or sometimes Cryosols (Turbic). Some higher-elevation sites have permafrost. Very limited data on permafrost occurrence or depth are available. The forest floor often has some cover of woody debris or rocks.

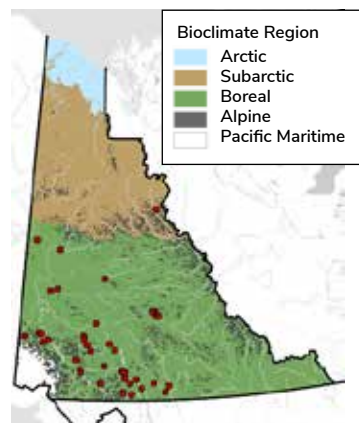
Dynamics: Stands vary in density, with more open stands at higher elevations. White spruce dominates and is likely to establish after disturbance, rather than developing successionally from other types of stands. Similar associations include Sb23 and SbSw30.

Comments

- Key characteristics: white spruce woodland or forest; high cover of common Labrador tea and feathermoss; common Labrador tea cover > shrub birch cover
- Component of CNVC00371 White Spruce / Labrador Tea / Lowbush Cranberry – Black Crowberry / Step Moss

Sw29 Environment table

Zone	BOL, BOH
Elevation (m)	500 – 990 – 1365
Aspect	variable
Slope (%)	0 – 14 – 60
Soil moisture regime	mesic to subhygric
Soil drainage	well to moderately well (imperfect)
Permafrost presence/depth (cm)	occasional (>30 cm)
Unvegetated cover (%)	1 – 5 – 23
Soil class	Brunisols (Eutric or Dystric), (Cryosols)

**Sw29 Vegetation summary (%)**

Trees	2 – 22 – 75	Shrubs	23 – 51 – 99	Ground shrubs	3 – 27 – 93
Graminoids and Forbs	0 – 7 – 26	Bryophytes	10 – 54 – 99	Lichens	0.1 – 10 – 45

Layer	Scientific name	Sw29	Common name
		n = 60	
Trees	<i>Picea glauca</i>	■■■■■	white spruce
Shrubs	<i>Betula glandulosa</i>	■ ■	shrub birch
	<i>Rhododendron groenlandicum</i>	■■■■■	common Labrador tea
	<i>Salix</i> spp.	■■■	willows
	<i>Vaccinium uliginosum</i>	■■■	blueberry
Ground shrubs	<i>Arctous rubra</i>	■■■	red bearberry
	<i>Empetrum nigrum</i>	■■■■■	crowberry
	<i>Vaccinium vitis-idaea</i>	■■■	lowbush cranberry
Bryophytes	<i>Hylocomium splendens</i>	■■■■■	step moss
Lichens	<i>Cladina</i> spp.	■■■	reindeer lichens
	<i>Peltigera</i> spp.	■ ■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

Sw30 White spruce / Shrub birch / Crowberry / Feathermoss

Sw30 is a white spruce woodland or forest with high shrub birch and feathermoss ground cover that occurs primarily in the BOH and sometimes in the BOL.

Vegetation: Sw30 stands have a tree canopy of white spruce (*Picea glauca*), with some white spruce also in the shrub layer. The understory has a well-developed shrub layer comprised mostly of shrub birch (*Betula glandulosa*), blueberry (*Vaccinium uliginosum*) and willows (*Salix* spp.), often with some common Labrador tea (*Rhododendron groenlandicum*). The ground shrubs crowberry (*Empetrum nigrum*) and lowbush cranberry (*V. vitis-idaea*) occur with varying cover. Altai fescue (*Festuca altaica*) is commonly present in the graminoid layer. Mosses dominate the forest floor, usually with high cover, but sometimes the bryophyte layers are lightly developed, usually when there is high shrub cover. The main mosses are step moss (*Hylocomium splendens*) and red-stemmed feathermoss (*Pleurozium schreberi*). Brown mosses (*Aulacomnium palustre*, *Tomentypnum nitens*) sometimes occur, with low cover. Reindeer lichens (*Cladina mitis*, *C. rangiferina*, *C. stellaris*) are usually present.

Environment: This association occurs primarily on moderately well drained to well-drained sites in the BOH. It occasionally is found on more moist sites, particularly in the BOL. Parent materials are mostly morainal, but include fluvial, glaciofluvial, colluvial and lacustrine materials. Soils are classified as Brunisols (Eutric, Dystric) or sometimes Cryosols (Static, Turbic). Some higher-elevation sites have permafrost. The forest floor often has some cover of woody debris or rocks.

Dynamics: Stands vary in density, with more open stands at higher elevations. White spruce dominates and likely establishes after disturbance, rather than developing successional from other types of stands. Similar black spruce and mixed-wood associations include Sb26, FSw20, FPSw20, P31, PSw21.

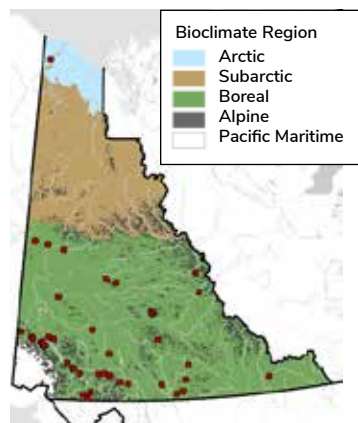
Comments

- Key characteristics: white spruce woodland or forest; high shrub birch and feathermoss cover; shrub birch cover > common Labrador tea cover
- Component of CNVC00108 White Spruce / Shrub Birch / Step Moss



Sw30 Environment table

Zone	BOH (BOL)
Elevation (m)	365 – 1050 – 1365
Aspect	warm, neutral
Slope (%)	0 – 10 – 50
Soil moisture regime	mesic to subhygric
Soil drainage	well to moderately well (imperfect)
Permafrost presence/depth (cm)	occasional (>25 cm)
Unvegetated cover (%)	1 – 5 – 20
Soil class	Brunisols (Eutric or Dystric), (Cryosols)

**Sw30 Vegetation summary (%)**

Trees	2 – 20 – 80	Shrubs	22 – 62 – 99	Ground shrubs	0.1 – 19 – 65
Graminoids and Forbs	0 – 7 – 26	Bryophytes	1 – 52 – 95	Lichens	0 – 11 – 40

Layer	Scientific name	Sw30	Common name
		n = 62	
Trees	<i>Picea glauca</i>	■■■■■	white spruce
Shrubs	<i>Betula glandulosa</i>	■■■■■	shrub birch
	<i>Rhododendron groenlandicum</i>	■■■	common Labrador tea
	<i>Salix</i> spp.	■■■■■	willows
	<i>Vaccinium uliginosum</i>	■■■	blueberry
Ground shrubs	<i>Empetrum nigrum</i>	■■■	crowberry
	<i>Vaccinium vitis-idaea</i>	■■■	lowbush cranberry
Graminoids	<i>Festuca altaica</i>	■■■	Altai fescue
Bryophytes	<i>Hylocomium</i> / <i>Pleurozium</i>	■■■■■	feathermosses
Lichens	<i>Cladina</i> spp.	■■■	reindeer lichens
	<i>Peltigera</i> spp.	■■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

Sw31 White spruce / Willow / Red bearberry / Feathermoss

Sw31 is a white spruce woodland or forest, with red bearberry and high feathermoss ground cover, that occurs primarily in the BOH, but sometimes in the BOL.

Vegetation: Sw31 stands have a tree canopy of white spruce (*Picea glauca*), with some white spruce in the shrub layer. The shrub layer is lightly developed to very well developed and comprised mostly of willows (*Salix* spp.), including blueberry willow (*S. myrtillofolia*). Common Labrador tea (*Rhododendron groenlandicum*), of low to moderate cover, is often present. Red bearberry (*Arctous rubra*) is a characteristic ground shrub, and crowberry (*Empetrum nigrum*) and lowbush cranberry (*V. vitis-idaea*) are often present as well, with variable cover. Step moss (*Hylocomium splendens*) dominates the forest floor, often with some red-stemmed feathermoss (*Pleurozium schreberi*). Brown mosses (*Aulacomnium palustre*, *Tomentypnum nitens*) can occur, with low to moderate cover. Lichens, with low to moderate cover, are usually present.



Environment: This association mostly occurs on level or gently sloped sites, on moderately well drained to imperfectly drained sites in the BOL and BOH. It can occur on steeper slopes as well. Parent materials are mostly morainal, but include lacustrine, fluvial and glaciofluvial materials. Soils are classified as Brunisols (Eutric, Dystric) or sometimes Cryosols (Organic, Static, Turbic). Some higher-elevation sites have permafrost. The forest floor often has some cover of woody debris or rocks.

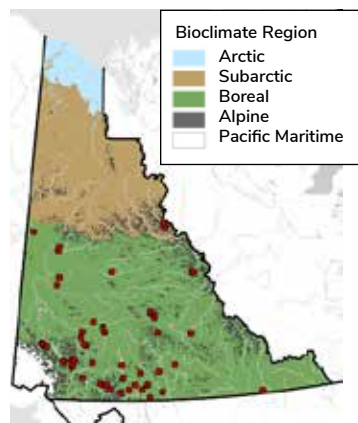
Dynamics: Stands are open or closed and strongly dominated by white spruce. White spruce likely establishes after disturbance, rather than developing successionally from other types of stands. Similar black spruce and mixed-wood spruce versions of this association do occur, including Sb32 and SbSw31.

Comments

- Key characteristics: white spruce woodland or forest; high feathermoss cover; red bearberry $\geq 2\%$, or, if lower, then high cover of willows or crowberry (as compared to Sw27)
- Component of CNVC00382 White Spruce / Willow / Black Crowberry – Red Bearberry / Step Moss

Sw31 Environment table

Zone	BOH (BOL)
Elevation (m)	340 – 895 – 1430
Aspect	variable
Slope (%)	0 – 12 – 63
Soil moisture regime	mesic to subhygric
Soil drainage	moderately well to imperfect
Permafrost presence/depth (cm)	occasional (>25 cm)
Unvegetated cover (%)	1 – 7 – 20
Soil class	Brunisols (Eutric or Dystric), (Cryosols)

**Sw31** Vegetation summary (%)

Trees	5 – 30 – 80	Shrubs	2 – 30 – 99	Ground shrubs	1 – 22 – 75
Graminoids and Forbs	0.1 – 9 – 38	Bryophytes	2 – 52 – 99	Lichens	0.1 – 8 – 45

Layer	Scientific name	Sw31	Common name
		n = 69	
Trees	<i>Picea glauca</i>	■■■■■	white spruce
Shrubs	<i>Picea glauca</i>	■ ■	white spruce
	<i>Rhododendron groenlandicum</i>	■ ■	common Labrador tea
	<i>Salix</i> spp.	■■■■	willows
Ground shrubs	<i>Arctous rubra</i>	■■■	red bearberry
	<i>Empetrum nigrum</i>	■ ■ ■	crowberry
	<i>Vaccinium vitis-idaea</i>	■ ■ ■	lowbush cranberry
Bryophytes	<i>Hylocomium splendens</i>	■■■■■	step moss
Lichens	<i>Cladina</i> spp.	■ ■	reindeer lichens
	<i>Cladonia</i> spp.	■ ■	clad lichens
	<i>Peltigera</i> spp.	■ ■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ ■ 1 – 3	■ ■ ■ 3 – 10	■ ■ ■ ■ 10 – 25	■ ■ ■ ■ ■ >25

Sw32 **White spruce / Willow / Red bearberry / Brown moss**

Sw32 is an open white spruce wetland with willow, red bearberry, feathermosses and brown mosses that occurs in the BOL. This association comprises part of the SbSw – Red Bearberry – Brown Moss Swamp ecosite (S08) and the Palsa Bog ecosite (B08).

Vegetation: Sw32 stands have a tree canopy of white spruce (*Picea glauca*), often with considerable white spruce in the shrub layer. Other than white spruce, the shrub layer is lightly to moderately well developed, and comprised mostly of willows (*Salix glauca*, *S. myrtillofolia*), common Labrador tea (*Rhododendron groenlandicum*) and shrubby cinquefoil (*Dasiphora fruticosa*). Key understorey species are red bearberry (*Arctous rubra*), dwarf scouring-rush (*Equisetum scirpoides*), brown mosses (mostly *Aulacomnium palustre* and *Tomentypnum nitens*) and feathermosses (*Hylocomium splendens*, *Pleurozium schreberi*).



Environment: This association occurs on level or gently sloping sites with poor, sometimes imperfect soil drainage. Parent materials are often organic, but can also be glaciolacustrine or fluvial. Soils are classified as Cryosols (Organic, Static, Turbic) or Gleysols. Soils often have permafrost. The forest floor has some cover of woody debris.

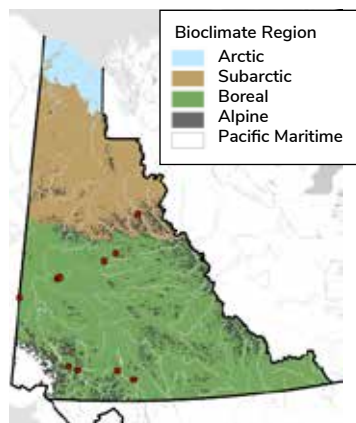
Dynamics: Stands are generally open, of low stature, and strongly dominated by white spruce. White spruce likely establishes after disturbance, rather than developing successional from other types of stands.

Comments

- Key characteristics: white spruce swamp or bog; brown moss cover $\geq 10\%$; shrub birch $< 5\%$, water sedge $< 10\%$, horsetails $< 5\%$
- Component of CNVC00383 White Spruce / Willow – Shrub Birch / Red Bearberry / Step Moss

Sw32 Environment table

Zone	BOL
Elevation (m)	380 – 640 – 810
Aspect	neutral (cool)
Slope (%)	0 – 3 – 10
Soil moisture regime	hygric to subhygric
Soil drainage	poor (imperfect)
Permafrost presence/depth (cm)	frequent (>20 cm)
Unvegetated cover (%)	0.2 – 3 – 10
Soil class	Cryosols, Gleysols

**Sw32** Vegetation summary (%)

Trees	1 – 11 – 41	Shrubs	8 – 36 – 82	Ground shrubs	1 – 14 – 30
Graminoids and Forbs	1 – 14 – 33	Bryophytes	20 – 64 – 92	Lichens	0.1 – 5 – 16

Layer	Scientific name	Sw32	Common name
		n = 13	
Trees	<i>Picea glauca</i>	■■■■■	white spruce
Shrubs	<i>Picea glauca</i>	■■■■■	white spruce
	<i>Dasiphora fruticosa</i>	■ ■	shrubby cinquefoil
	<i>Rhododendron groenlandicum</i>	■■■	common Labrador tea
	<i>Salix myrtillofolia</i>	■ ■ ■	blueberry willow
	<i>Salix</i> spp.	■■■	willows
Ground shrubs	<i>Arctous rubra</i>	■■■	red bearberry
	<i>Vaccinium vitis-idaea</i>	■ ■ ■	lowbush cranberry
Graminoids	Poaceae	■ ■	grass family
Forbs	<i>Equisetum scirpoides</i>	■	dwarf scouring-rush
Bryophytes	Amblystegiaceae	■■■■■	brown mosses
	<i>Hylocomium / Pleurozium</i>	■■■■■	feathermosses
Lichens	<i>Cladonia</i> spp.	■	clad lichens
	<i>Peltigera</i> spp.	■■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

Sw34 **White spruce / Alder – Highbush cranberry / Wild sarsaparilla – Mitrewort**

Sw34 is a white spruce forest of level to gently sloping sites characterized by alder that occurs in the BOL in the southeast Yukon.

Vegetation: Sw34 stands have a tree canopy of white spruce (*Picea glauca*), often with a minor component of paper birch (*Betula papyrifera*) or balsam poplar (*Populus balsamifera*). The shrub layer is very well developed, including green alder (*A. alnobetula*; subassociation Sw34g) and/or river alder (*Alnus incana*; subassociation Sw34r), prickly rose (*Rosa acicularis*), highbush cranberry (*Viburnum edule*) and red-osier dogwood (*Cornus sericea*). The forb layer is well developed and diverse, with naked mitrewort (*Mitella nuda*), dwarf raspberry (*Rubus pubescens*), bunchberry (*Cornus canadensis*), wild sarsaparilla (*Aralia nudicaulis*) and tall bluebells (*Mertensia paniculata*). Horsetails (*Equisetum arvense*, *E. pratense*) are also often present, with low to moderate cover. Feathermosses (*Hylocomium splendens*, *Pleurozium schreberi*, *Ptilium crista-castrensis*) dominate the forest floor.

No photo
available

Environment: This association occurs on high fluvial benches or gentle slopes. These sites are generally very productive due to nutrient-rich groundwater flow and/or subsurface flooding. Soil data are very limited.

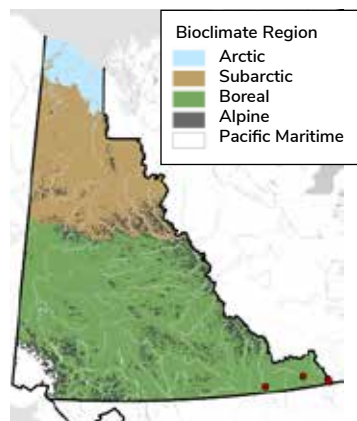
Dynamics: Stands are productive and are dominated by white spruce. These stands may be part of a floodplain complex (see Sw18) or may occur on uplands sites. In either case, they could regenerate to white spruce after disturbance or go through successional stages dominated by deciduous hardwoods such as balsam poplar or paper birch.

Comments

- Key characteristics: white spruce forests with alders $\geq 10\%$, no devil's club, horsetails $< 10\%$, and southeast Yukon species such as dwarf raspberry, naked mitrewort, tall bluebells and bunchberry
- Component of CNVC00097 White Spruce / Black Twinberry / Dwarf Raspberry

Sw34 Environment table

Zone	BOL
Elevation (m)	360 – 480 – 750
Aspect	neutral (variable)
Slope (%)	0 – 4 – 12
Soil moisture regime	mesic to subhygric
Soil drainage	moderately well to imperfect
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	no data
Soil class	no data



Please note that the points shown on the map include the subassociations.

Sw34 Vegetation summary (%)

Trees	10 – 26 – 60	Shrubs	16 – 48 – 82	Ground shrubs	0 – 13 – 60
Graminoids and Forbs	10 – 33 – 71	Bryophytes	1 – 26 – 99	Lichens	0 – 0.1 – 1

Layer	Scientific name	Sw34g n = 6	Sw34r n = 12	Common name
Trees	<i>Picea glauca</i>	■■■■■	■■■■■	white spruce
	<i>Populus balsamifera</i>	■	□	balsam poplar
Shrubs	<i>Alnus alnobetula</i>	■■■■■	□□	green alder
	<i>Alnus incana</i>		■■■■■	river alder
	<i>Cornus sericea</i>	■■■	■■	red-osier dogwood
	<i>Rosa acicularis</i>	■■■■■	■■■	prickly rose
	<i>Salix</i> spp.	□□	■■	willows
	<i>Shepherdia canadensis</i>	■■	□	soapberry
	<i>Viburnum edule</i>	■■■	■■■	highbush cranberry
Ground shrubs	<i>Linnaea borealis</i>	■■	■■■	twinline
Forbs	<i>Aralia nudicaulis</i>	■■■	■■	wild sarsaparilla
	<i>Chamaenerion angustifolium</i>	■■■	■	fireweed
	<i>Cornus canadensis</i>	■■■■■	■■■■■	bunchberry
	<i>Equisetum arvense / pratense</i>	■■	■■	horsetails
	<i>Mertensia paniculata</i>	■■	■■	tall bluebells
	<i>Mitella nuda</i>	■■■	■■	naked mitrewort
	<i>Rubus pubescens</i>	■■■	■■■	dwarf raspberry
Bryophytes	Bryophyta	■■■■■	■■■■■	mosses

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

Sw35 **White spruce / Red raspberry – Devil's club**

Sw35 is a white spruce forest of moist sites characterized by devil's club that occurs in the BOL (subzone BOLlr) in the southeast Yukon.

No photo
available

Vegetation: Sw34 stands have a tree canopy of white spruce (*Picea glauca*), often with a minor component of fir (*Abies lasiocarpa*) or paper birch (*Betula papyrifera*). The shrub layer is very well developed, with devil's club (*Oplopanax horridus*) as a key indicator. Other shrubs are green alder (*A. alnobetula*), sometimes with river alder (*Alnus incana*), red raspberry (*Rubus idaeus*), prickly rose (*Rosa acicularis*), highbush cranberry (*Viburnum edule*) and currants (*Ribes lacustre*, *R. hudsonianum*, *R. glandulosum*). The forb layer is well developed and diverse, but with few consistent species. Common species are mitrewort (*Mitella nuda*), moschatel (*Adoxa moschatellina*), bunchberry (*Cornus canadensis*), tall bluebells (*Mertensia paniculata*), wild sarsaparilla (*Aralia nudicaulis*), dwarf raspberry (*Rubus pubescens*) and horsetails (*Equisetum arvense*, *E. sylvaticum*). Various ferns are often present, including oak fern (*Gymnocarpium dryopteris*) and lady fern (*Athyrium filix-femina*). Mosses occur with low to high cover.

Environment: This association occurs on moist level sites (perhaps high fluvial benches) and gentle to steep seepage slopes on cool (north, northeast) or neutral-aspects. Soil data are very limited.

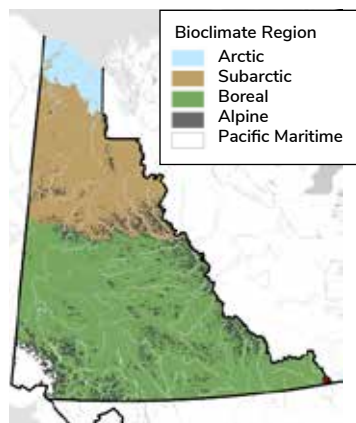
Dynamics: Stands are open, productive and dominated by white spruce. Stands may succeed from other overstorey types, such as balsam poplar (see SwB31), or may regenerate to white spruce after disturbance.

Comments

- Key characteristics: white spruce forests with devil's club, and southeast Yukon species moschatel, naked mitrewort, tall bluebells and bunchberry
- Component of CNVC00099 White Spruce / Devil's Club

Sw35 Environment table

Zone	BOL; subzone BOLlr
Elevation (m)	530 – 585 – 630
Aspect	neutral, cool or neutral
Slope (%)	0 – 21 – 60
Soil moisture regime	subhygric to hygric
Soil drainage	imperfect
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	no data
Soil class	no data

**Sw35** Vegetation summary (%)

Trees	10 – 15 – 35	Shrubs	38 – 60 – 99	Ground shrubs	0 – 5 – 10
Graminoids and Forbs	19 – 40 – 83	Bryophytes	0 – 21 – 55	Lichens	0

Layer	Scientific name	Sw35	Common name
		n = 12	
Trees	<i>Picea glauca</i>	■■■■■	white spruce
Shrubs	<i>Abies lasiocarpa</i>	■■■	fir
	<i>Alnus alnobetula</i>	■■■■■	green alder
	<i>Oplopanax horridus</i>	■■■	devil's club
	<i>Ribes</i> spp.	■■■	currants
	<i>Rosa acicularis</i>	■■■	prickly rose
	<i>Rubus idaeus</i>	■■■■■	red raspberry
	<i>Viburnum edule</i>	■■■	highbush cranberry
Forbs	<i>Adoxa moschatellina</i>	■■■	moschatel
	<i>Aralia nudicaulis</i>	■■■	wild sarsaparilla
	<i>Cornus canadensis</i>	■■■	bunchberry
	<i>Mertensia paniculata</i>	■■	tall bluebells
	<i>Mitella nuda</i>	■■■	naked mitrewort
	<i>Rubus pubescens</i>	■■■	dwarf raspberry
Bryophytes	Bryophyta	■■■■■	mosses

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

Sw36 White spruce / Highbush cranberry / Horsetail

Sw36 is a white spruce forest of high river benches characterized by horsetails that occurs primarily in the BOL and sometimes in the BOH. Users should refer to Sw18 if the site is in the extreme southeast Yukon, as these associations are visually similar.

Vegetation: Stands of Sw36 have a tree canopy of white spruce (*Picea glauca*), often with a minor component of balsam poplar (*Populus balsamifera*) or Alaska birch (*Betula neoalaskana*). The shrub layer is lightly to very well developed, with prickly rose (*Rosa acicularis*) and highbush cranberry (*Viburnum edule*) usually present. River alder (*Alnus incana*) occurs frequently, and at high cover (>15%) is classified as a river alder subassociation (Sw36a). Twin-flower (*Linnaea borealis*) is a common and sometimes abundant ground shrub. The forb layer is characterized by horsetails (*Equisetum arvense*, *E. pratense*), usually of moderately high to very high cover. On some sites, horsetail is of low cover and these sites are classified as a nudum subassociation (Sw36n). Sites with low or no cover of river alder and $\geq 10\%$ horsetail cover are considered the typical subassociation (Sw36t). Forbs also include tall bluebells (*Mertensia paniculata*) and bunchberry (*Cornus canadensis*). Feathermosses (*Hylocomium splendens*, *Pleurozium schreberi*, *Ptilium crista-castrensis*) dominate the forest floor.



Environment: This association occurs on level to gently sloping high fluvial benches. These high benches are generally very productive due to nutrient rich groundwater flow and periodic flooding. These sites occur on fluvial parent materials, and soils are mostly Regosols (Orthic, Cumulic) or Brunisols (Dystric, Eutric). The soils typically show evidence of past fluvial deposition. The forest floor usually has some cover of woody debris.

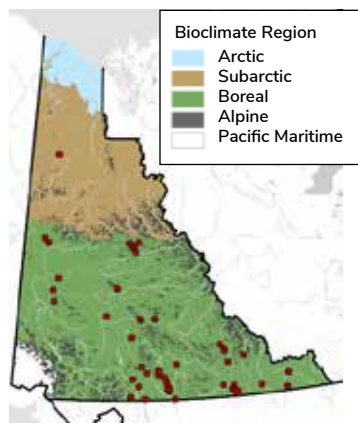
Dynamics: Stands are productive and are dominated by tall white spruce. On larger rivers, these stands are part of a floodplain complex that reflects both erosion and deposition processes. Lower, and younger, benches are dominated by deciduous shrubs and trees, but often have a minor spruce component. Over time, through ongoing deposition of fluvial materials, the sites become drier and less subject to frequent flooding. The deciduous hardwoods die off and the spruce dominate the site.

Comments

- Key characteristics: white spruce forests on high river benches with horsetail cover usually $\geq 1\%$; lacking indicators of extreme southeast Yukon (see Sw18)
- Component of CNVC00096 White Spruce / Common Horsetail – Meadow Horsetail

Sw36 Environment table

Zone	BOL (BOH)
Elevation (m)	310 – 660 – 975
Aspect	neutral
Slope (%)	0 – 0.5 – 12
Soil moisture regime	subhygric
Soil drainage	well to moderately well (imperfect)
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	2 – 10 – 30
Soil class	Regosols (Brunisols)



Please note that the points shown on the map include the subassociations.

Sw36 Vegetation summary (%)

Trees	10 – 47 – 90	Shrubs	2 – 37 – 97	Ground shrubs	0 – 10 – 55
Graminoids and Forbs	1 – 38 – 99	Bryophytes	0.5 – 65 – 99	Lichens	0 – 2 – 10

Layer	Scientific name	Sw36a n = 6	Sw36n n = 18	Sw36t n = 36	Common name
Trees	<i>Picea glauca</i>	■■■■■	■■■■■	■■■■■	white spruce
Shrubs	<i>Alnus incana</i>	■■■■■		□□	river alder
	<i>Rosa acicularis</i>	■■■■	■■■■	■■■■	prickly rose
	<i>Salix</i> spp.	□□□	■■	■■■	willows
	<i>Viburnum edule</i>	■■■	■■■	■■■	highbush cranberry
Ground shrubs	<i>Linnaea borealis</i>	■	■■■	■■■	twinlineflower
Forbs	<i>Chamaenerion angustifolium</i>	■	□□	□□	fireweed
	<i>Cornus canadensis</i>	■■■	■■■	□□□	bunchberry
	<i>Equisetum arvense/pratense</i>	■■■■■	■■	■■■■■	horsetails
	<i>Mertensia paniculata</i>	■	□□	■■	tall bluebells
Bryophytes	<i>Hylocomium splendens</i>	■■■■■	■■■■■	■■■■■	step moss
Lichens	<i>Peltigera</i> spp.	■	■■	□	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

Sw37 **White spruce / Alder / Feathermoss – Brown moss**

Sw37 is a white spruce wetland with alder, horsetail, feathermosses and brown mosses that occurs in the BOL and SUW. This association comprises part of the SbSw – Alder – Labrador tea – Peat Moss Swamp ecosite (S15).

Vegetation: Sw37 stands have a tree canopy of white spruce (*Picea glauca*), often with some white spruce in the shrub layer. Other than white spruce, the shrub layer is moderately well developed to well developed, with alder (*Alnus alnobetula*, *A. incana*), willows (*Salix* spp.), Labrador teas (*Rhododendron groenlandicum*, *R. tomentosum*), and others. Horsetails (*Equisetum arvense*, *E. pratense*) are prominent in the understorey, along with lowbush cranberry (*Vaccinium vitis-idaea*) and grasses (*Calamagrostis canadensis*, *Arctagrostis latifolia*). Step moss (*Hylocomium splendens*), brown mosses (mostly *Aulacomnium palustre*, *Tomentypnum nitens*, *Drepanocladus* spp.) and peat mosses (*Sphagnum* spp.) characterize the bryophyte layer.



Environment: Sw37 occurs on level to sloping sites with imperfect to very poor soil drainage. Parent materials are organic, and fluvial or morainal with a peaty surface layer. Soils are classified as Turbic Cryosols or Gleysols. Soils often have permafrost. The forest floor has some cover of woody debris.

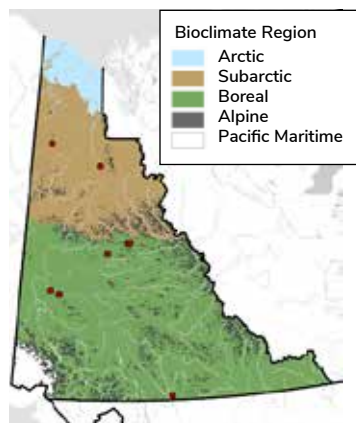
Dynamics: Stands are dominated by white spruce of varying density. White spruce may establish after disturbance or develop successional from white spruce – Alaska birch stands.

Comments

- Key characteristics: white spruce swamp; alders $\geq 2\%$, horsetails $\geq 5\%$, water sedge $< 10\%$
- CNVC association not yet determined

Sw37 Environment table

Zone	BOL, SUW
Elevation (m)	390 – 680 – 1000
Aspect	neutral (variable)
Slope (%)	0 – 10 – 47
Soil moisture regime	hygric to subhydryc
Soil drainage	imperfect (poor, very poor)
Permafrost presence/depth (cm)	frequent (>20 cm)
Unvegetated cover (%)	1 – 6 – 10
Soil class	Cryosols (Turbic), Gleysols

**Sw37** Vegetation summary (%)

Trees	5 – 25 – 55	Shrubs	8 – 42 – 99	Ground shrubs	0.1 – 17 – 52
Graminoids and Forbs	1 – 36 – 84	Bryophytes	56 – 79 – 99	Lichens	0 – 1 – 7

Layer	Scientific name	Sw37	Common name
		n = 8	
Trees	<i>Picea glauca</i>	■■■■■	white spruce
Shrubs	<i>Alnus alnobetula / incana</i>	■■■	green / river alder
	<i>Dasiphora fruticosa</i>	■ ■	shrubby cinquefoil
	<i>Picea glauca</i>	■ ■ ■	white spruce
	<i>Rhododendron</i> spp.	■ ■ ■	Labrador teas
	<i>Rosa acicularis</i>	■ ■	prickly rose
	<i>Salix</i> spp.	■■■■■	willows
	<i>Vaccinium uliginosum</i>	■ ■	blueberry
Ground shrubs	<i>Linnaea borealis</i>	■ ■	twinflower
	<i>Vaccinium vitis-idaea</i>	■ ■ ■	lowbush cranberry
Graminoids	Poaceae	■■■	grass family
Forbs	<i>Equisetum arvense</i>	■■■■■	common horsetail
Bryophytes	Amblystegiaceae	■■■■■	brown mosses
	<i>Hylocomium splendens</i>	■■■■■	step moss
	<i>Sphagnum</i> spp.	■ ■ ■ ■	peat mosses
Lichens	<i>Peltigera</i> spp.	■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

Sw39 White spruce / Willow / Horsetail / Brown moss

Sw39 is a white spruce wetland with willows, horsetails, feathermosses and brown mosses that occurs primarily in the BOL and sometimes in the BOH and SUW. This association comprises part of the Sw – Willow – Horsetail Swamp ecosite (S13).

Vegetation: Sw39 stands have a tree canopy of white spruce (*Picea glauca*), often with some white spruce in the shrub layer. The shrub layer is well developed to very well developed, with willows (*Salix* spp.), including blueberry willow (*S. myrtillofolia*) and Labrador teas (*Rhododendron groenlandicum*, *R. tomentosum*). Horsetails (*Equisetum arvense*, *E. sylvaticum*) are usually prominent in the understorey, along with red bearberry (*Arctous rubra*), lowbush cranberry (*Vaccinium vitis-idaea*), crowberry (*Empetrum nigrum*) and grasses (*Calamagrostis canadensis*, *Arctagrostis latifolia*). Step moss (*Hylocomium splendens*) and brown mosses (mostly *Aulacomnium palustre*, *Tomentypnum nitens*) characterize the bryophyte layer. Peat mosses (*Sphagnum* spp.) sometimes occur.



Environment: Sw39 occurs on level to gently sloping sites with imperfect to poor soil drainage. Parent materials are usually fluvial or glaciofluvial, with a peaty surface. Soils are classified as Turbic or Static Cryosols, Humic Gleysols or Gleysols. Soils frequently have permafrost. The forest floor has some cover of woody debris.

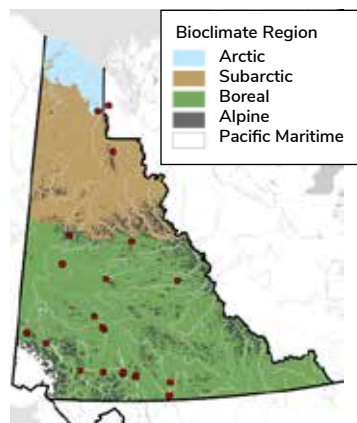
Dynamics: Stands are dominated by white spruce of varying density. White spruce establishes after disturbance. Similar sites can have a component of black spruce (SbSw39).

Comments

- Key characteristics: white spruce swamp; willows dominate shrub layer, horsetails ≥5%, water sedge <10%, brown mosses, usually of high cover
- Component of CNVC00373 White Spruce / Common Horsetail – Meadow Horsetail – Red Bearberry / Step Moss

Sw39 Environment table

Zone	BOL (BOH, SUW)
Elevation (m)	330 – 720 – 1230
Aspect	neutral, variable
Slope (%)	0 – 5 – 25
Soil moisture regime	hygric to subhydryc
Soil drainage	imperfect to poor
Permafrost presence/depth (cm)	frequent (>30 cm)
Unvegetated cover (%)	0.1 – 4 – 10
Soil class	Cryosols (Static, Turbic), Gleysols (Humic Gleysols)

**Sw39 Vegetation summary (%)**

Trees	7 – 24 – 70	Shrubs	4 – 33 – 95	Ground shrubs	0.1 – 12 – 55
Graminoids and Forbs	6 – 31 – 66	Bryophytes	20 – 68 – 90	Lichens	0 – 5 – 18

Layer	Scientific name	Sw39 n = 23	Common name
Trees	<i>Picea glauca</i>	■■■■■	white spruce
Shrubs	<i>Dasiphora fruticosa</i>	■	shrubby cinquefoil
	<i>Rhododendron</i> spp.	■ ■	Labrador teas
	<i>Salix myrtillofolia</i>	■ ■ ■	blueberry willow
	<i>Salix</i> spp.	■■■■■	willows
Ground shrubs	<i>Arctous rubra</i>	■■■	red bearberry
	<i>Empetrum nigrum</i>	■ ■	crowberry
	<i>Vaccinium vitis-idaea</i>	■ ■	lowbush cranberry
Graminoids	Poaceae	■	grass family
Forbs	<i>Equisetum arvense</i>	■■■■■	common horsetail
Bryophytes	<i>Aulacomnium</i> / <i>Tomentypnum</i>	■■■■■	brown mosses
	<i>Hylocomium splendens</i>	■■■■■	step moss
Lichens	<i>Peltigera</i> spp.	■ ■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ ■ 1 – 3	■ ■ ■ 3 – 10	■ ■ ■ ■ 10 – 25	■ ■ ■ ■ ■ >25

Sw41 White spruce / Shrub birch / Feathermoss – Brown moss

Sw41 is a white spruce wetland with shrub birch, willows, feathermosses and brown mosses that occurs in the BOL and BOH. This association comprises part of the SbSw – Shrub Birch – Feathermoss – Brown moss Swamp ecosite (S10).

Vegetation: Sw41 stands have a tree canopy of white spruce (*Picea glauca*), with some white spruce in the shrub layer. The shrub layer is well developed to very well developed, mostly with shrub birch (*Betula glandulosa*), willows (*Salix* spp.), including blueberry willow (*S. myrtillofolia*), and some common Labrador tea (*Rhododendron groenlandicum*). Crowberry (*Empetrum nigrum*) and lowbush cranberry (*Vaccinium vitis-idaea*) are consistently present in the ground shrub layer. Step moss (*Hylocomium splendens*) and red-stemmed feathermoss (*Pleurozium schreberi*) are of high to very high cover and brown mosses (*Aulacomnium palustre*, *Tomentypnum nitens*) occur with moderate to moderately high cover. Peat mosses (*Sphagnum* spp.) are sometimes present.

Environment: Sw41 occurs primarily on level sites with imperfect to very poor soil drainage. Parent materials vary (morainal, fluvial, lacustrine organic), with a peaty surface layer. Cooler sites can have permafrost if peat is thick enough to insulate the site from summer temperatures. Soils are usually Gleysols, with some Cryosols (Organic). The forest floor has some cover of woody debris.

Dynamics: Stands are dominated by white spruce of varying density. White spruce establishes on these sites after disturbance, but black spruce can also establish (e.g., SbSw41).

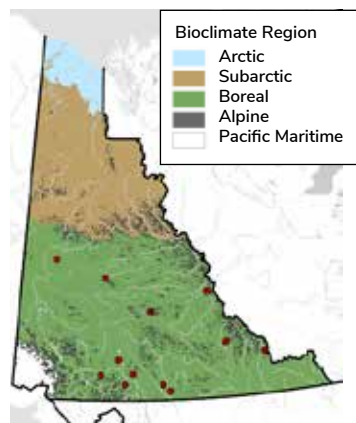
Comments

- Key characteristics: white spruce swamp; shrub birch $\geq 5\%$ and usually greater, water sedge $< 10\%$, horsetails $< 5\%$, brown mosses of moderate to moderately high cover, feathermosses abundant
- CNVC association not yet determined



Sw41 Environment table

Zone	BOL, BOH
Elevation (m)	445 – 885 – 1205
Aspect	neutral (variable)
Slope (%)	0 – 5 – 30
Soil moisture regime	hygic to subhydic
Soil drainage	imperfect to very poor
Permafrost presence/depth (cm)	infrequent
Unvegetated cover (%)	1 – 5 – 20
Soil class	Gleysols (Cryosols)

**Sw41 Vegetation summary (%)**

Trees	2 – 24 – 60	Shrubs	28 – 70 – 99	Ground shrubs	4 – 22 – 40
Graminoids and Forbs	0 – 15 – 36	Bryophytes	10 – 60 – 99	Lichens	0.1 – 9 – 18

Layer	Scientific name	Sw41	Common name
		n = 14	
Trees	<i>Picea glauca</i>	■■■■■	white spruce
Shrubs	<i>Picea glauca</i>	■■■	white spruce
	<i>Betula glandulosa</i>	■■■■■	shrub birch
	<i>Dasiphora fruticosa</i>	■■■	shrubby cinquefoil
	<i>Rhododendron groenlandicum</i>	■■■■■	common Labrador tea
	<i>Salix</i> spp.	■■■■■	willows
Ground shrubs	<i>Empetrum nigrum</i>	■■■	crowberry
	<i>Vaccinium vitis-idaea</i>	■■■	lowbush cranberry
Bryophytes	<i>Aulacomnium</i> / <i>Tomentypnum</i>	■■■	brown mosses
	<i>Hylocomium</i> / <i>Pleurozium</i>	■■■■■	feathermosses
Lichens	<i>Peltigera</i> spp.	■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

Sw50 White spruce / Water sedge / Golden fuzzy fen moss

Sw50 is a white spruce wetland with water sedge and brown mosses that occurs in the BOL and lower elevations of the BOH. This association comprises part of the Sw – Sedge – Fen Moss Swamp (S16) and SbSw – Water Sedge Fen (F04) ecosites.

Vegetation: Sw50 stands have a tree canopy of white spruce (*Picea glauca*), with some white spruce in the shrub layer. The shrub layer is moderately well developed to very well developed, mostly with willows (*Salix* spp.), including blueberry willow (*S. myrtillofolia*), but also with Labrador teas (*Rhododendron groenlandicum*, *R. tomentosum*) and some shrub birch (*Betula glandulosa*). Water sedge (*Carex aquatilis*) and golden fuzzy fen moss (*Tomentypnum nitens*) characterize the understorey. Other brown mosses (*Aulacomnium palustre*, *Drepanocladus* spp.) can also occur.

Environment: This association occurs primarily on level sites with poor to very poor soil drainage. Organic soil depth is less deep on fluvial or lacustrine materials on swamp sites and deeper on fen sites. Permafrost can occur on cooler sites. Soils are Turbic or Organic Cryosols, Gleysols or Organic (Mesisols, Humisols). The forest floor sometimes has a low cover of woody debris and small pools of standing water.

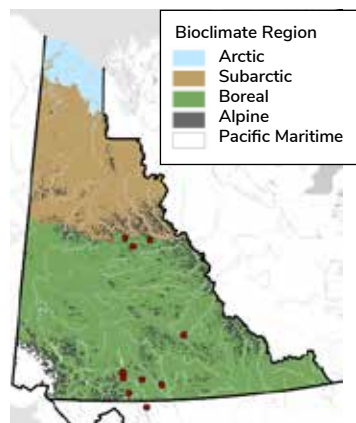
Dynamics: Stands are dominated by white spruce of varying density. White spruce establishes on these sites after disturbance, but black spruce can sometimes establish as well (see Sb54, SbSw54).

**Comments**

- Key characteristics: white spruce swamp or fen; water sedge >10%, shrub birch <5%; brown mosses of high to very high cover
- Component of CNVC00355 White Spruce / Shrub Birch / Water Sedge

Sw50 Environment table

Zone	BOL (BOH)
Elevation (m)	610 – 756 – 1060
Aspect	neutral (variable)
Slope (%)	0 – 3 – 6
Soil moisture regime	hygric to subhydryc
Soil drainage	poor to very poor
Permafrost presence/depth (cm)	frequent
Unvegetated cover (%)	1 – 5 – 10
Soil class	Cryosols, Gleysols, Organic

**Sw50 Vegetation summary (%)**

Trees	5 – 24 – 62	Shrubs	16 – 54 – 99	Ground shrubs	0 – 18 – 43
Graminoids and Forbs	10 – 22 – 39	Bryophytes	26 – 72 – 95	Lichens	0 – 3 – 12

Layer	Scientific name	Sw50 n = 12	Common name
Trees	<i>Picea glauca</i>	■■■■■	white spruce
Shrubs	<i>Picea glauca</i>	■■■	white spruce
	<i>Betula glandulosa</i>	■■	shrub birch
	<i>Dasiphora fruticosa</i>	■■	shrubby cinquefoil
	<i>Rhododendron</i> spp.	■■■■■	Labrador teas
	<i>Salix myrtillofolia</i>	■■■	blueberry willow
	<i>Salix</i> spp.	■■■■■	willows
Ground shrubs	<i>Arctous rubra / alpinus</i>	■■■	red / alpine bearberry
	<i>Empetrum nigrum</i>	■■	crowberry
	<i>Vaccinium vitis-idaea</i>	■■	lowbush cranberry
Graminoids	<i>Carex aquatilis</i>	■■■■■	water sedge
Forbs	<i>Equisetum arvense</i>	■■	common horsetail
Bryophytes	<i>Tomentypnum nitens</i>	■■■■■	golden fuzzy fen moss
	Amblystegiaceae	■■■■■	other brown mosses
	<i>Hypnum / Pleurozium</i>	■■■	feathermosses

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

Sw51 White spruce / Shrub birch / Water sedge

Sw51 is a white spruce fen with shrub birch, water sedge and brown mosses that occurs in the BOL and at lower elevations of the BOH. This association comprises part of the SbSw – Water Sedge Fen ecosite (F04).

Vegetation: Sw51 stands have a tree canopy of white spruce (*Picea glauca*), often with most of the white spruce in the shrub layer. The shrub layer is well developed to very well developed, with white spruce, shrub birch (*Betula glandulosa*) and willows (*Salix* spp.), including blueberry willow (*S. myrtillofolia*). Water sedge (*Carex aquatilis*) characterizes the understorey. Golden fuzzy fen moss (*Tomentypnum nitens*) is the dominant brown moss; others are glow moss (*Aulacomnium palustre*), star moss (*Campylium* spp.) and hook moss (*Drepanocladus* spp.).

Environment: This association occurs on level sites with poor to very poor soil drainage. Parent materials are deep peat or organic veneers over mineral soil (such as fluvial). Soils are often organic and classified as Mesisols or sometimes Cryosols or Humic Gleysols. Permafrost is occasionally present. The forest floor sometimes has a low cover of woody debris and small pools of standing water.

Dynamics: Stands are dominated by white spruce of varying density. White spruce establishes on these sites after disturbance, but black spruce can sometimes establish as well (see Sb54, SbSw54).

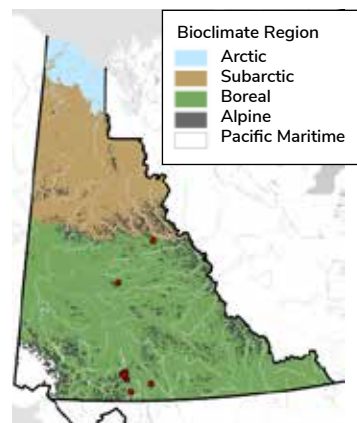
Comments

- Key characteristics: white spruce fen; water sedge >10%, shrub birch ≥5%; brown mosses of high to very high cover
- Component of CNVC00355 White Spruce / Shrub Birch / Water Sedge



Sw51 Environment table

Zone	BOL (BOH)
Elevation (m)	700 – 800 – 1060
Aspect	neutral
Slope (%)	0 – 2 – 3
Soil moisture regime	hygric to subhydryc
Soil drainage	poor to very poor
Permafrost presence/depth (cm)	occasional
Unvegetated cover (%)	1 – 3 – 5
Soil class	Organic (Mesisols), (Cryosols, Humic Gleysols)

**Sw51 Vegetation summary (%)**

Trees	1 – 11 – 25	Shrubs	18 – 57 – 99	Ground shrubs	0 – 10 – 27
Graminoids and Forbs	10 – 30 – 81	Bryophytes	50 – 76 – 96	Lichens	0 – 2 – 6

Layer	Scientific name	Sw51	Common name
		n = 12	
Trees	<i>Picea glauca</i>	■■■■■	white spruce
Shrubs	<i>Picea glauca</i>	■■■	white spruce
	<i>Betula glandulosa</i>	■■■■■	shrub birch
	<i>Dasiphora fruticosa</i>	■■■	shrubby cinquefoil
	<i>Salix myrtillifolia</i>	■■■■■	blueberry willow
	<i>Salix</i> spp.	■■■■■	willows
Ground shrubs	<i>Arctous rubra</i>	■■■	red bearberry
Graminoids	<i>Carex aquatilis</i>	■■■■■	water sedge
	Poaceae	■■■	grass family
Bryophytes	<i>Aulacomnium / Tomentypnum</i>	■■■■■	brown mosses

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

Sw52 **White spruce / Shrub birch / Bluejoint reedgrass**

Sw52 is a white spruce swamp with shrub birch, bluejoint reedgrass and brown mosses that occurs in the BOL. This association comprises part of the Sw – Shrub birch – Grass Swamp ecosite (S09).

Vegetation: Sw52 stands are comprised of open and often stunted white spruce (*Picea glauca*), frequently with most of the white spruce in the shrub layer. Black spruce (*P. mariana*) is sometimes present in the shrub layer. The shrub layer is well developed to very well developed, with white spruce, shrub birch (*Betula glandulosa*) and willows (*Salix* spp.). Bluejoint reedgrass (*Calamagrostis canadensis*) characterizes the understorey, which also has spruce muskeg sedge (*Carex bigelowii* ssp. *lugens*). Golden fuzzy fen moss (*Tomentypnum nitens*) is the dominant brown moss. Step moss (*Hylacomium splendens*) and red-stemmed feathermoss (*Pleurozium schreberi*) are usually present with moderate to high cover. Pelt lichens (*Peltigera* spp.) also occur.



Environment: This association occurs on level sites with poor to very poor soil drainage. Parent materials are eolian, fluvial or glaciofluvial. Soils are Cryosols (Turbic, based on limited data). Permafrost is present, but data does not include the depth. The forest floor sometimes has a low cover of woody debris and small pools of standing water.

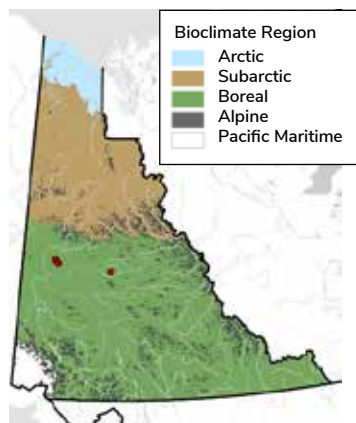
Dynamics: Stands are dominated by white spruce of varying density. White spruce establishes on these sites after disturbance, but black spruce sometimes establishes as well.

Comments

- Key characteristics: white spruce swamp; shrub birch $\geq 10\%$, bluejoint reedgrass $> 15\%$, brown mosses present
- CNVC association not yet determined

Sw52 Environment table

Zone	BOL
Elevation (m)	440 – 490 – 625
Aspect	neutral
Slope (%)	0
Soil moisture regime	subhydic
Soil drainage	poor to very poor
Permafrost presence/depth (cm)	present
Unvegetated cover (%)	limited data
Soil class	Cryosols (Turbic)

**Sw52 Vegetation summary (%)**

Trees	0 – 18 – 31	Shrubs	43 – 90 – 99	Ground shrubs	0 – 6 – 15
Graminoids and Forbs	20 – 54 – 99	Bryophytes	15 – 57 – 92	Lichens	4 – 18 – 70

Layer	Scientific name	Sw52	Common name
		n = 5	
Trees	<i>Picea glauca</i>	■ ■ ■ ■	white spruce
Shrubs	<i>Picea glauca</i>	■ ■ ■ ■	white spruce
	<i>Betula glandulosa</i>	■ ■ ■ ■ ■	shrub birch
	<i>Dasiphora fruticosa</i>	■ ■	shrubby cinquefoil
	<i>Salix</i> spp.	■ ■ ■ ■	willows
Ground shrubs	<i>Vaccinium vitis-idaea</i>	■ ■ ■	lowbush cranberry
Graminoids	<i>Calamagrostis canadensis</i>	■ ■ ■ ■ ■	bluejoint reedgrass
	<i>Carex bigelowii</i> ssp. <i>lugens</i>	■ ■ ■ ■	spruce muskeg sedge
Forbs	<i>Pyrola</i> spp.	■ ■ ■	wintergreens
Bryophytes	<i>Hylocomium splendens</i>	■ ■ ■ ■	step moss
	<i>Pleurozium schreberi</i>	■ ■ ■ ■	red-stemmed feathermoss
	<i>Tomentypnum nitens</i>	■ ■ ■	golden fuzzy fen moss
Lichens	<i>Peltigera</i> spp.	■ ■ ■ ■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ ■ 1 – 3	■ ■ ■ 3 – 10	■ ■ ■ ■ 10 – 25	■ ■ ■ ■ ■ >25

Sw54 **White spruce / Shrub birch / Sedge / Golden fuzzy fen moss**

Sw54 is a white spruce swamp, with shrub birch, sedges (mostly hair-like sedge or water sedge) and golden fuzzy fen moss, that occurs in the BOH and occasionally at the upper elevations of the BOL. This association comprises part of the Sw – Sedge – Fen Moss Swamp ecosite (S16).

No photo
available

Vegetation: Sw54 stands have a tree canopy of white spruce (*Picea glauca*), often with most of the white spruce of shrub height. The shrub layer is well developed to very well developed, with shrub birch (*Betula glandulosa*), willows (*Salix* spp.), including blueberry willow (*S. myrtillofolia*) and shrubby cinquefoil (*Dasiphora fruticosa*). Sedges (*Carex aquatilis*, *C. capillaris*, *C. diandra*, among others) characterize the understorey. Golden fuzzy fen moss (*Tomentypnum nitens*) is the dominant brown moss; glow moss (*Aulacomnium palustre*) is common, but not abundant.

Environment: This association occurs on level sites with imperfect to poor soil drainage. Parent materials are mostly fluvial or eolian, with a peaty surface layer. Soils are usually Cryosols (Turbic, Static) or Gleysols. Permafrost is usually present. The forest floor has a low cover of woody debris.

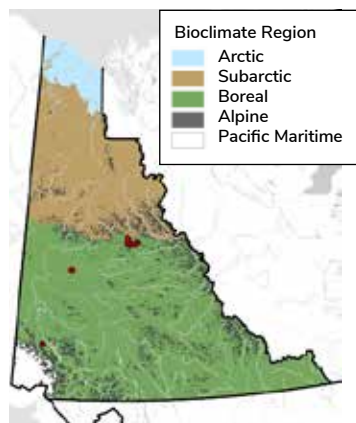
Dynamics: Stands are dominated by white spruce of varying density and heights. White spruce establishes on these sites after disturbance, but a minor component of black spruce can sometimes occur.

Comments

- Key characteristics: white spruce swamp; sedges >10%, shrub birch ≥5%; brown mosses of high to very high cover
- CNVC association not yet determined

Sw54 Environment table

Zone	BOH (BOL)
Elevation (m)	410 – 710 – 1150
Aspect	neutral
Slope (%)	0 – 1 – 4
Soil moisture regime	hygic to subhydryc
Soil drainage	imperfect to poor
Permafrost presence/depth (cm)	common (>35 cm)
Unvegetated cover (%)	1 – 8 – 15
Soil class	Cryosols (Gleysols)

**Sw54** Vegetation summary (%)

Trees	0 – 9 – 12	Shrubs	35 – 54 – 78	Ground shrubs	1 – 7 – 15
Graminoids and Forbs	18 – 31 – 58	Bryophytes	25 – 66 – 99	Lichens	0 – 5 – 20

Layer	Scientific name	Sw54	Common name
		n = 8	
Trees	<i>Picea glauca</i>	■■■	white spruce
Shrubs	<i>Picea glauca</i>	■■■	white spruce
	<i>Betula glandulosa</i>	■■■■	shrub birch
	<i>Dasiphora fruticosa</i>	■■■	shrubby cinquefoil
	<i>Rhododendron groenlandicum</i>	■ ■	common Labrador tea
	<i>Salix myrtillofolia</i>	■ ■	blueberry willow
	<i>Salix</i> spp.	■■■■	willows
	<i>Vaccinium uliginosum</i>	■ ■	blueberry
Ground shrubs	<i>Arctous rubra</i>	■ ■	red bearberry
	<i>Rubus arcticus</i>	■ ■	nagoonberry
Graminoids	<i>Eriophorum brachyantherum</i>	■ ■ ■	closed-sheath cottongrass
	Poaceae	■ ■	grass family
	<i>Carex capillaris</i>	■■■	hair-like sedge
	<i>Carex</i> spp.	■■■■	sedges
Bryophytes	<i>Tomentypnum nitens</i>	■■■■■	golden fuzzy fen moss
	<i>Hylocomium / Pleurozium</i>	■ ■ ■ ■	feathermosses

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

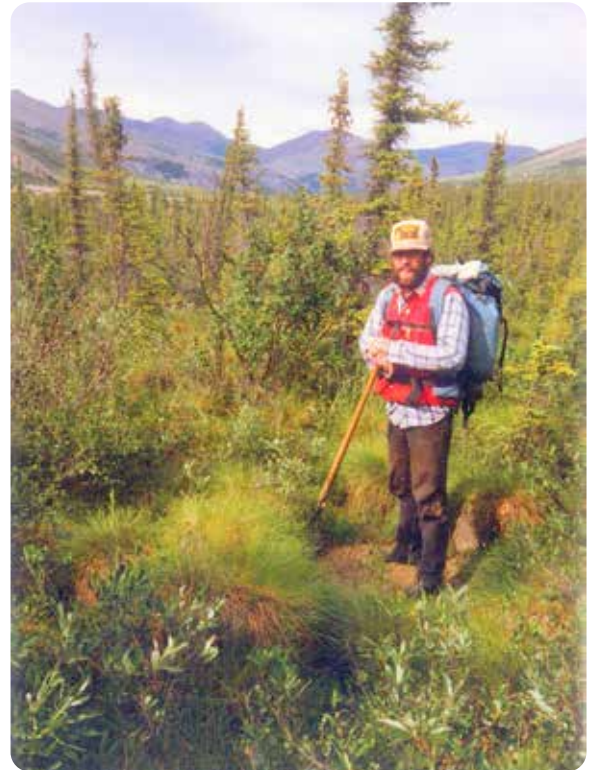
Sw55 **White spruce / Mountain-avens / Tussock cottongrass**

Sw55 is a white spruce woodland characterized by tussock cottongrass, entire-leaved mountain-avens and Lapland rosebay that occurs on moist sites in the SUW.

Vegetation: Sw55 stands have a tree canopy comprised of tree-height or shrub-height white spruce (*Picea glauca*). The shrub layer is lightly developed to moderately developed, primarily with willow (*Salix* spp.). Tussock cottongrass (*Eriophorum vaginatum*) of moderately high to high cover characterizes the understorey. Spruce muskeg sedge (*Carex bigelowii* ssp. *lugens*) and horsetails (*Equisetum arvense*, *E. pratense*) are usually present, but each of lower cover than the cottongrass. Ground shrubs are of moderate cover and include entire-leaved mountain-avens (*Dryas integrifolia*), Lapland rosebay (*Rhododendron lapponicum*), bearberry (mostly *Arctous rubra*) and net-veined willow (*S. reticulata*). Moss cover is moderate to high, but many mosses were not identified to species. Mosses include crumpled-leaf moss (*Rhytidium rugosum*), wiry fern moss (*Abietinella abietina*) and mountain groove moss (*Aulacomnium turgidum*). Various lichens can occur with low to moderate cover.

Environment: This association occurs on level to gently sloping subhygric sites. Soil data are very limited. Parent materials are fluvial or colluvial. Only one soil is classified, as a Turbic Cryosol. No data on depth to permafrost are available.

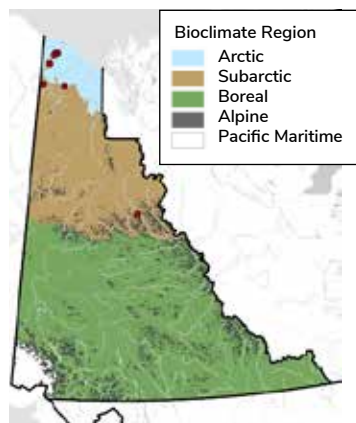
Dynamics: White spruce is the primary tree in these open stands. Stands likely regenerate to white spruce after disturbance, but local seed sources may allow black spruce to occur, as there are somewhat similar black spruce communities.

**Comments**

- Key characteristics: white spruce woodlands on moist sites with tussock cottongrass $\geq 15\%$ and higher in cover than spruce muskeg sedge or horsetails, if present; subarctic ground shrubs including Lapland rosebay and entire-leaved mountain-avens
- CNVC association not yet determined

Sw55 Environment table

Zone	SUW
Elevation (m)	200 – 370 – 640
Aspect	variable
Slope (%)	0 – 7 – 15
Soil moisture regime	subhygric
Soil drainage	imperfect
Permafrost presence/depth (cm)	present (limited data)
Unvegetated cover (%)	no data
Soil class	Cryosols (limited data)

**Sw55** Vegetation summary (%)

Trees	5 – 12 – 30	Shrubs	5 – 21 – 62	Ground shrubs	10 – 21 – 33
Graminoids and Forbs	34 – 60 – 83	Bryophytes	13 – 31 – 70	Lichens	0 – 4 – 20

Layer	Scientific name	Sw55	Common name
		n = 8	
Trees	<i>Picea glauca</i>	■■■■■	white spruce
Shrubs	<i>Salix</i> spp.	■■■	willows
	<i>Vaccinium uliginosum</i>	■■■	blueberry
Ground shrubs	<i>Andromeda polifolia</i>	■■	bog-rosemary
	<i>Arctous rubra / alpinus</i>	■■	red / alpine bearberry
	<i>Dryas integrifolia</i>	■■■	entire-leaved mountain-avens
	<i>Rhododendron lapponicum</i>	■■■	Lapland rosebay
	<i>Salix reticulata</i>	■■	net-veined willow
Graminoids	<i>Carex bigelowii</i> ssp. <i>lugens</i>	■■■	spruce muskeg sedge
	<i>Eriophorum vaginatum</i>	■■■■■	tussock cottongrass
Forbs	<i>Equisetum arvense / pratense</i>	■■■	horsetails
Bryophytes	Bryophyta	■■■■■	mosses

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

Sw56 White spruce / Shrub birch / Grass / Peat moss

Sw56 is a white spruce swamp with shrub birch, grasses and peat mosses that occurs mostly in the BOH, but sometimes in the BOL. This association comprises part of the Sw – Shrub birch – Grass Swamp ecosite (S09).

Vegetation: Sw56 stands have a tree canopy of white spruce (*Picea glauca*), with some white spruce in the shrub layer. Black spruce (*P. mariana*) is sometimes present. The shrub layer is well developed to very well developed, mostly with shrub birch (*Betula glandulosa*) and willows (*Salix* spp.). Grasses are characteristic of this association; grass species vary and include bluejoint reedgrass (*Calamagrostis canadensis*), Altai fescue (*Festuca altaica*) or bluegrass (*Poa* sp.). Step moss (*Hylocomium splendens*) and peat mosses (*Sphagnum* spp.) are of moderately high to very high cover. Red-stemmed feathermoss (*Pleurozium schreberi*) and brown mosses (*Aulacomnium palustre*, *Tomentypnum nitens*) are often present. Lichen cover is generally low.

Environment: This association occurs on level or gently sloping sites with imperfect to poor soil drainage. Parent materials are varied, including fluvial, glaciofluvial, lacustrine or morainal, with a peaty surface layer. Soils are generally Cryosols (Static, Turbic), but Gleyed Brunisols can occur. Permafrost is commonly present at about 30 cm depth. The forest floor sometimes has a low cover of woody debris and very small pools of standing water.

Dynamics: Stands are dominated by white spruce of varying density. White spruce establishes on these sites after disturbance, but black spruce can sometimes occur as well.

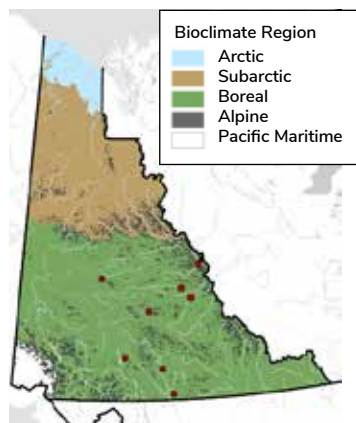
Comments

- Key characteristics: white spruce swamp; shrub birch $\geq 10\%$, grasses $> 10\%$, peat mosses $\geq 10\%$
- CNVC association not yet determined



Sw56 Environment table

Zone	BOH (BOL)
Elevation (m)	730 – 993 – 1177
Aspect	neutral (neutral, cold)
Slope (%)	0 – 4 – 10
Soil moisture regime	subhydric
Soil drainage	imperfect to poor
Permafrost presence/depth (cm)	common (>30 cm)
Unvegetated cover (%)	4 – 7 – 15
Soil class	Cryosols (Gleyed Brunisols)

**Sw56 Vegetation summary (%)**

Trees	1 – 30 – 65	Shrubs	253 – 64 – 99	Ground shrubs	1 – 15 – 55
Graminoids and Forbs	10 – 22 – 42	Bryophytes	20 – 64 – 99	Lichens	1 – 7 – 18

Layer	Scientific name	Sw56	Common name
		n = 9	
Trees	<i>Picea glauca</i>	■■■■■	white spruce
Shrubs	<i>Picea glauca</i>	■ ■	white spruce
	<i>Betula glandulosa</i>	■■■■■	shrub birch
	<i>Dasiphora fruticosa</i>	■ ■	shrubby cinquefoil
	<i>Rhododendron groenlandicum</i>	■ ■ ■	common Labrador tea
	<i>Salix</i> spp.	■■■■■	willows
	<i>Vaccinium uliginosum</i>	■ ■ ■	blueberry
Ground shrubs	<i>Empetrum nigrum</i>	■ ■	crowberry
	<i>Vaccinium vitis-idaea</i>	■ ■ ■	lowbush cranberry
Graminoids	Poaceae	■■■■■	grass family
Bryophytes	<i>Hylocomium splendens</i>	■■■■■	step moss
	<i>Sphagnum</i> spp.	■■■■■	peat mosses
Lichens	<i>Cladina</i> spp.	■ ■ ■	reindeer lichens
	<i>Cladonia</i> spp.	■ ■	clad lichens
	<i>Peltigera</i> spp.	■ ■	pelt lichens

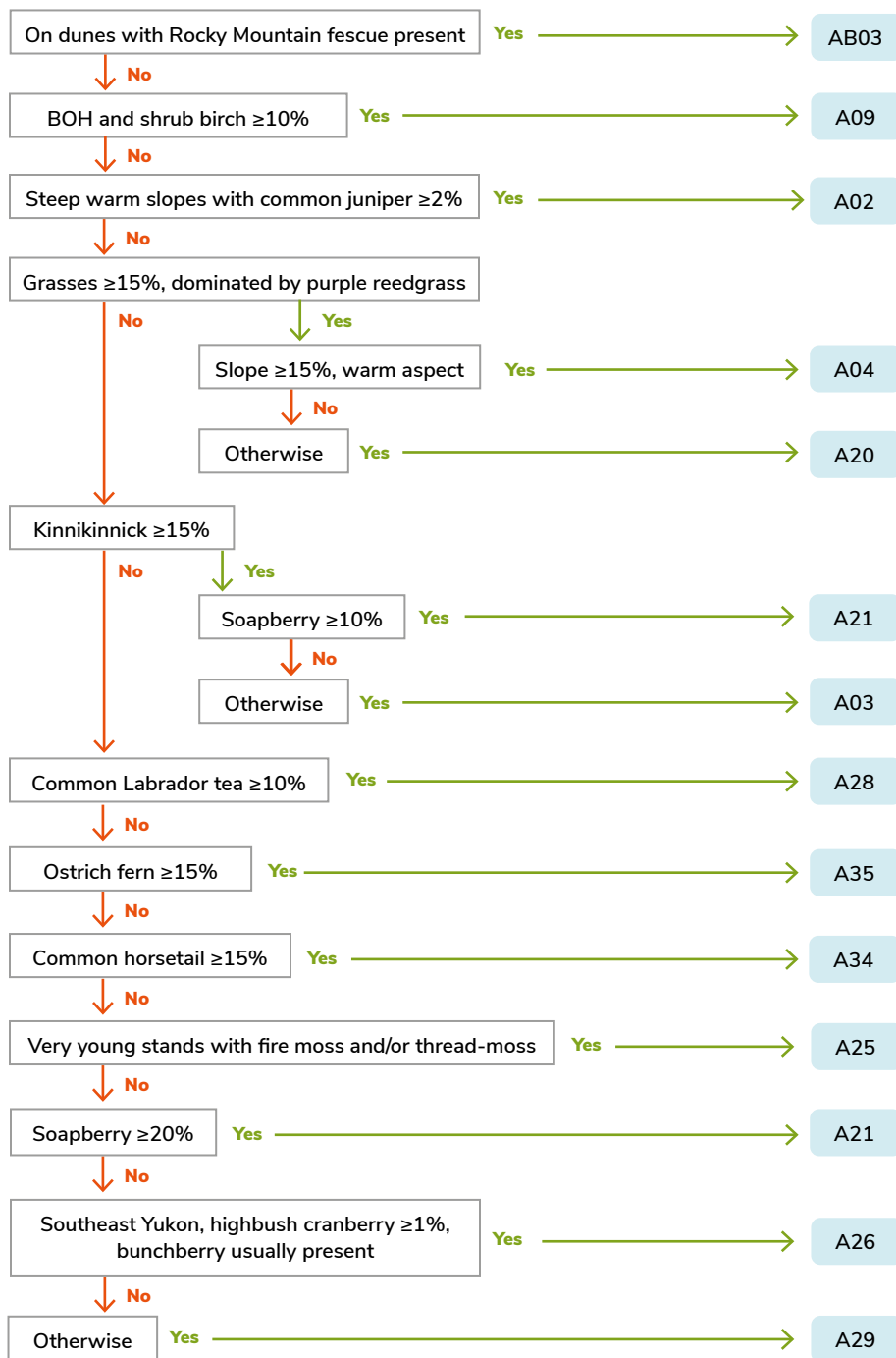
Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ ■ 1 – 3	■ ■ ■ 3 – 10	■ ■ ■ ■ 10 – 25	■ ■ ■ ■ ■ >25

6.0 Deciduous associations

Aspen-dominated associations

Aspen strongly dominates over conifer species (>85% of canopy composition), or dominates over other deciduous hardwood species (birch or balsam poplar).

Flowchart Aspen-dominated associations



Summary of features: aspen-dominated associations**Dry sites**

	A02	A03	AB03	A04	A09	A20	A21
Zone	BOL, BOH	BOL, BOH	BOL	BOL	BOH (BOL)	BOL	BOL
Geography	south	southwest	southwest	southwest	south	southwest	southwest
Important site features	steep warm slopes	level and gentle to moderate to steep warm and neutral slopes	dunes	moderate to steep warm slopes	moderate to steep warm slopes	level or gently sloping	level or warm aspects
Drainage	very rapid to well	rapid to moderately well	rapid to very rapid	rapid to well	very rapid to well	well	well
Tree canopy	aspen	aspen	aspen (balsam poplar)	aspen	aspen	aspen	aspen
Key understorey species	common juniper, soapberry, kinnikinnick	kinnikinnick	Rocky mountain fescue, Yukon lupine	prickly rose, kinnikinnick, grasses	shrub birch, Altai fescue	grasses, kinnikinnick	soapberry, kinnikinnick

Mesic, moist and riparian sites

	A25	A26	A28	A29	A34	A35
Zone	BOL	BOL	BOH	BOL (BOH)	BOL	BOL
Geography	southwest	southeast	southwest	south	south	southeast
Important site features	level	gentle slopes	gentle to moderate slopes	level to moderate slopes	subsurface seepage, flooding	subsurface seepage, flooding
Drainage	well	rapid to well	well	well to moderately well	moderately well to imperfect	imperfect
Tree canopy	aspen	aspen	aspen	aspen	aspen (paper birch)	aspen
Key understorey species	willow, purple reedgrass, thread-moss, fire moss	highbush cranberry, green alder, bunchberry	common Labrador tea	lacks other key indicators	common horsetail	ostrich fern

Aspen-dominated associations

Vegetation table for aspen-dominated associations

Layer	Scientific name	AB03	A02	A03	A04	A09	A20	A21	Common name
	n =	4	15	27	18	8	35	32	
Trees	<i>Populus tremuloides</i>	■■■	■■■■■	■■■■■	■■■■■	■■■■■	■■■■■	■■■■■	trembling aspen
	<i>Picea glauca</i>	□	□□	■		■	■	■	white spruce
	<i>Populus balsamifera</i>	□□							balsam poplar
	<i>Betula papyrifera</i>								paper birch
Shrubs	<i>Juniperus communis</i>	□□	■■■■			■■■			common juniper
	<i>Populus balsamifera</i>	■■■							balsam poplar
	<i>Betula glandulosa</i>					■■■■			shrub birch
	<i>Rhododendron groenlandicum</i>					■■■			common Labrador tea
	<i>Populus tremuloides</i>	■■■■	■■■■	□□□	■■■■	■■■■	□□	□□□	trembling aspen
	<i>Rosa acicularis</i>	□□	■■■	■■■	■■■■	■	■	■■■	prickly rose
	<i>Salix</i> spp.	□□		■		■■■	□□□	□□	willows
	<i>Shepherdia canadensis</i>		■■■■	■	■■■		■■■	■■■■	soapberry
	<i>Viburnum edule</i>		■■■					□□	highbush cranberry
	<i>Betula papyrifera</i>								paper birch
	<i>Alnus alnobetula</i>								green alder
	<i>Alnus incana</i>								river alder
	<i>Rubus idaeus</i>								red raspberry
	<i>Empetrum nigrum</i>					■■■■			black crowberry
Ground shrubs	<i>Arctostaphylos uva-ursi</i>	■■■■	■■■	■■■■■	■■■■	■■■	■■■■■	■■■■■	kinnikinnick
	<i>Linnaea borealis</i>		□□	□□		■	□□	■■■	twinline
	<i>Vaccinium vitis-idaea</i>		□□	□□		■■■	□□		lowbush cranberry
	<i>Carex sabulosa</i>	■							Baikal sedge
Graminoids	Poaceae	■■■	■■■■	■■■	■■■■	■■■	■■■■■	■■■	grass family
	<i>Lupinus kuschei</i>	■■■							Yukon lupine
Forbs	<i>Artemisia campestris</i>	■■							field wormwood
	<i>Chamaenerion angustifolium</i>	□	■■■	■■■	□□	■■■	■■■	■■■	fireweed
	<i>Cornus canadensis</i>					■■■			bunchberry
	<i>Mertensia paniculata</i>		□			□		□	tall bluebells
	<i>Geocaulon lividum</i>					□			bastard toadflax
	<i>Equisetum arvense</i>								common horsetail
	<i>Rubus pubescens</i>								dwarf raspberry
	<i>Aralia nudicaulis</i>								wild sarsaparilla
	<i>Matteuccia struthiopteris</i>								ostrich fern
	<i>Ceratodon purpureus</i>								fire moss
Bryophytes	<i>Gemmabryum caespitium</i>								tufted bryum
	<i>Hylocomium splendens</i>	■■■				■■■		□	step moss
	<i>Polytrichum juniperinum</i>	□				□			juniper haircap moss
	<i>Cladina / Cladonia</i> spp.	■		□□	□	■■■			clad lichens

Note: gold cells highlight key diagnostic species

Vegetation table for aspen-dominated associations, continued

Layer	Scientific name	A25	A26	A28	A29	A34	A35	Common name
	n =	26	12	5	33	4	1	
Trees	<i>Populus tremuloides</i>	■■■■	■■■■■	■■■■■	■■■■■	■■■■	■■■■	trembling aspen
	<i>Picea glauca</i>		■	■	□	■		white spruce
	<i>Populus balsamifera</i>		□□			■■■■		balsam poplar
	<i>Betula papyrifera</i>		□			■■■■	■	paper birch
Shrubs	<i>Juniperus communis</i>		□					common juniper
	<i>Populus balsamifera</i>					■		balsam poplar
	<i>Betula glandulosa</i>							shrub birch
	<i>Rhododendron groenlandicum</i>		□□	■■■■		■		common Labrador tea
	<i>Populus tremuloides</i>	■■■■		□□	□□□	■■■		trembling aspen
	<i>Rosa acicularis</i>		■■■	■■■	■■■	■■■■		prickly rose
	<i>Salix</i> spp.	■■■■	□□	□□	□□□	■		willows
	<i>Shepherdia canadensis</i>	□□		■	■	□□□		soapberry
	<i>Viburnum edule</i>		■■■	■		■■■■	■	highbush cranberry
	<i>Betula papyrifera</i>		□			■■■		paper birch
	<i>Alnus alnobetula</i>		□□□□	□□		□□		green alder
	<i>Alnus incana</i>						■■■	river alder
	<i>Rubus idaeus</i>						■■■	red raspberry
Ground shrubs	<i>Empetrum nigrum</i>			□				black crowberry
	<i>Arctostaphylos uva-ursi</i>	□	□□	■■■	■■■	□		kinnikinnick
	<i>Linnaea borealis</i>	□□	■■■	■■■	■	■		twinline
	<i>Vaccinium vitis-idaea</i>		■■■	■■■	□□□	■		lowbush cranberry
Graminoids	<i>Carex sabulosa</i>							Baikal sedge
	Poaceae	■■■	□	□□	■	□	■■■	grass family
Forbs	<i>Lupinus kuscchei</i>							Yukon lupine
	<i>Artemisia campestris</i>							field wormwood
	<i>Chamaenerion angustifolium</i>	■■■	■	■	■■■	■	■	fireweed
	<i>Cornus canadensis</i>		■■■			■■■		bunchberry
	<i>Mertensia paniculata</i>		□	■	□	■	■	tall bluebells
	<i>Geocaulon lividum</i>		■	■		■		bastard toadflax
	<i>Equisetum arvense</i>					■■■■	■	common horsetail
	<i>Rubus pubescens</i>		□			■	■	dwarf raspberry
	<i>Aralia nudicaulis</i>					□	■	wild sarsaparilla
	<i>Matteuccia struthiopteris</i>						■■■■■	ostrich fern
Bryophytes	<i>Ceratodon purpureus</i>	■■■						fire moss
	<i>Gemmabryum caespitium</i>	■■■■■						tufted bryum
	<i>Hylocomium splendens</i>		■■■■	■■■		■		step moss
	<i>Polytrichum juniperinum</i>	■■■	□□					juniper haircap moss
Lichen	<i>Cladina</i> / <i>Cladonia</i> spp.		□□	□	□□			clad lichens

Note: gold cells highlight key diagnostic species

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ 1 – 3	■ 3 – 10	■ 10 – 25	■ >25

Fact sheets: Aspen-dominated associations

A02 Aspen / Juniper

A02 is a trembling aspen forest or woodland with common juniper in the understorey that occurs frequently on very steep warm aspects in the BOL and BOH of the southern Yukon.

Vegetation: Stands of A02 have an open or closed tree canopy of trembling aspen (*Populus tremuloides*) of tree height or tall shrub height, sometimes with a small amount of white spruce (*Picea glauca*). The shrub layer is often comprised of aspen, with common juniper (*Juniperus communis*), soapberry (*Shepherdia canadensis*) and some prickly rose (*Rosa acicularis*). Low to moderate cover of fireweed (*Chamaenerion angustifolium*) and grasses, mostly purple reedgrass (*Calamagrostis purpurascens*) or Altai fescue (*Festuca altaica*), and kinnikinnick (*Arctostaphylos uva-ursi*) characterizes the understorey. The forest floor is poorly developed, sometimes with scattered bryophytes or lichens and abundant leaf litter.



Environment: This association occurs at varying elevations on very rapidly drained to well-drained sites, on steep warm aspects. Soils are variable in texture, from mostly colluvial or glaciofluvial parent materials, and are usually classified as Brunisols. Occasionally, the forest floor can have moderate cover of rocks or exposed mineral soil. Wind can sometimes be a factor.

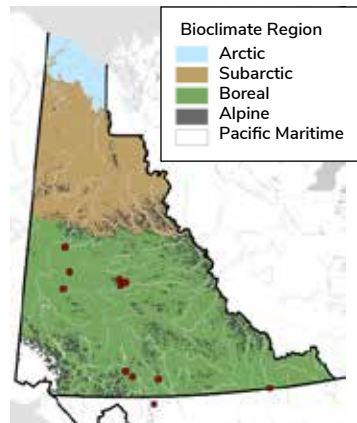
Dynamics: Stands are strongly dominated by aspen, usually in both the tree and shrub layers. White spruce is often a minor component of the canopy or understorey. Due to the density of aspen, the spruce will not characterize much of the stand over time. The stands are likely stable, since aspen would likely sucker after wildfire to form aspen stands again.

Comments

- Key characteristics: aspen-dominated tree/tall shrub canopy; common juniper $\geq 2\%$; occurs on steep warm slopes
- Component of CNVC00330 *Populus tremuloides* / *Shepherdia canadensis* / *Arctostaphylos uva-ursi*

A02 Environment table

Zone	BOL, BOH
Elevation (m)	449 – 905 – 1380
Aspect	warm
Slope (%)	25 – 59 – 82
Soil moisture regime	xeric, subxeric (submesic)
Soil drainage	very rapid to well
Permafrost presence/depth (cm)	not observed
Unvegetated cover (%)	0 – 18 – 70
Soil class	Eutric or Dystric Brunisols

**A02 Vegetation summary (%)**

Trees	0 – 32 – 99	Shrubs	21 – 58 – 85	Ground shrubs	0 – 25 – 67
Graminoids and forbs	1 – 21 – 67	Bryophytes	0 – 5 – 55	Lichens	0 – 2 – 11

Layer	Scientific name	A02	Common name
		n = 15	
Trees	<i>Populus tremuloides</i>	■ ■ ■ ■ ■	trembling aspen
Shrubs	<i>Populus tremuloides</i>	■ ■ ■ ■	trembling aspen
	<i>Juniperus communis</i>	■ ■ ■ ■	common juniper
	<i>Rosa acicularis</i>	■ ■ ■	prickly rose
	<i>Shepherdia canadensis</i>	■ ■ ■ ■	soapberry
	<i>Viburnum edule</i>	■ ■ ■	highbush cranberry
Ground shrubs	<i>Arctostaphylos uva-ursi</i>	■ ■ ■	kinnikinnick
Graminoids	Poaceae	■ ■ ■ ■	grass family
Forbs	<i>Achillea millefolium</i>	■	common yarrow
	<i>Chamaenerion angustifolium</i>	■ ■ ■	fireweed
	<i>Galium boreale</i>	■ ■	northern bedstraw

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ ■ 1 – 3	■ ■ ■ 3 – 10	■ ■ ■ ■ 10 – 25	■ ■ ■ ■ ■ >25

Aspen-dominated associations

A03 Aspen / Kinnikinnick

A03 is a trembling aspen forest with abundant kinnikinnick that occurs frequently on level ground or gentle slopes in the BOL and BOH of southwest Yukon.

Vegetation: Stands of A03 have an open or closed tree canopy of trembling aspen (*Populus tremuloides*), sometimes with a small amount of white spruce (*Picea glauca*). The shrub layer often has some aspen, with low to moderate cover of prickly rose (*Rosa acicularis*). Soapberry (*Shepherdia canadensis*), when present, is of low cover. Kinnikinnick (*Arctostaphylos uva-ursi*) characterizes the understorey and is usually >20% cover; when of lower cover, all plants are of low cover. Fireweed (*Chamaenerion angustifolium*) and grasses, mostly purple reedgrass (*Calamagrostis purpurascens*), are often present, but generally of low cover. The forest floor is poorly developed, sometimes with scattered bryophytes or lichens, but with abundant leaf litter.

Environment: This association is mostly found in the BOL, where it occurs on level to gently sloping sites, but it also occurs in the BOH, particularly on steep middle to upper slopes of warm to neutral aspects. Soils are rapidly drained to moderately well drained, from mostly lacustrine or colluvial parent materials, but sometimes glaciofluvial or morainal. Soils are usually classified as Brunisols or Grey Luvisols. Occasionally, the forest floor can have moderate cover of decaying wood or rocks or exposed mineral soil.

Dynamics: Stands are dominated by aspen, often with aspen in the regeneration. White spruce is often a very minor component in the canopy or understorey. The stands are likely stable, since aspen would sucker after wildfire to form aspen stands again.

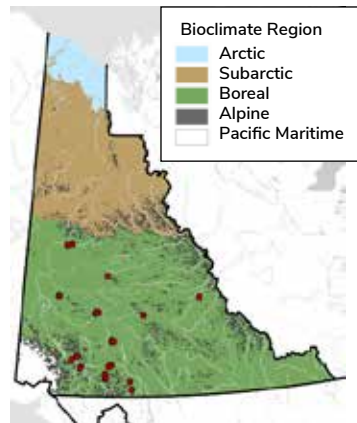
Comments

- Key characteristics: aspen-dominated tree/tall shrub canopy; kinnikinnick mostly >20% cover; grass cover low (mostly <6%); if common juniper present, <2% cover (if >2%, see A02)
- Equivalent to CNVC00385 *Populus tremuloides* / *Arctostaphylos uva-ursi*



A03 Environment table

Zone	BOL, BOH
Elevation (m)	533 – 797 – 1155
Aspect	warm, neutral, level
Slope (%)	0 – 20 – 75
Soil moisture regime	subxeric, submesic
Soil drainage	rapid to moderately well
Permafrost presence/depth (cm)	not observed
Unvegetated cover (%)	0 – 5 – 58
Soil class	Eutric Brunisols, Grey Luvisols

**A03 Vegetation summary (%)**

Trees	1 – 38 – 76	Shrubs	1 – 39 – 81	Ground shrubs	20 – 44 – 81
Graminoids and forbs	0 – 12 – 34	Bryophytes	0 – 1 – 15	Lichens	0 – 2 – 20

Layer	Scientific name	A03	Common name
		n=27	
Trees	<i>Picea glauca</i>	■ ■	white spruce
	<i>Populus tremuloides</i>	■ ■ ■ ■ ■	trembling aspen
Shrubs	<i>Rosa acicularis</i>	■ ■ ■	prickly rose
	<i>Salix</i> spp.	■ ■	willow
	<i>Shepherdia canadensis</i>	■ ■	soapberry
Ground shrubs	<i>Arctostaphylos uva-ursi</i>	■ ■ ■ ■ ■	kinnikinnick
Graminoids	Poaceae	■ ■ ■	grass family
Forbs	<i>Chamaenerion angustifolium</i>	■ ■ ■	fireweed

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ ■ 1 – 3	■ ■ ■ 3 – 10	■ ■ ■ ■ 10 – 25	■ ■ ■ ■ ■ >25

Aspen-dominated associations

A04 Aspen / Prickly rose / Grass

A04 is a trembling aspen woodland and forest with a grassy understorey that occurs frequently on dry to mesic sites in the BOL in the southwest Yukon.

Vegetation: Stands of A04 have an open or closed tree canopy of trembling aspen (*Populus tremuloides*) of tree height or tall shrub height, sometimes with a small amount of white spruce (*Picea glauca*). The shrub layer is mostly of prickly rose (*Rosa acicularis*) and soapberry (*Shepherdia canadensis*). Kinnikinnick (*Arctostaphylos uva-ursi*) can also be abundant. A moderate to high cover of grasses, mostly purple reedgrass (*Calamagrostis purpurascens*) characterizes the understorey. The forest floor is poorly developed, with some cover of *Peltigera* or *Cladonia* lichens, or scattered bryophytes and abundant leaf litter.

Environment: This association occurs at lower elevations on mostly rapidly drained to well-drained sites, but sometimes also on very rapidly drained or moderately well drained sites. Sites are mostly on moderate to steep warm aspects. Soils vary in texture, from mostly colluvial or glaciofluvial parent materials and are usually classified as Brunisols. Occasionally, the forest floor can have moderate cover of decaying wood or exposed mineral soil.

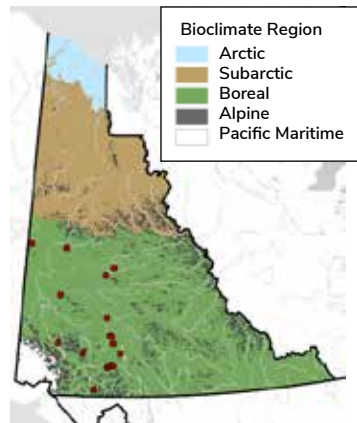
Dynamics: A04 stands are dominated by aspen, often in both the tree and shrub layers. White spruce is often a very minor component of the canopy, but is only occasionally regenerating. The stands are mostly stable, since they are aspen-dominated and would likely sucker after wildfire to form aspen stands again.

**Comments**

- Key characteristics: aspen-dominated tree/tall shrub canopy; grasses, mostly purple reedgrass >15% cover, usually with kinnikinnick; similar to A20, but occurs on slightly moister sites with more fireweed and less prickly rose
- Equivalent to CNVC00386 *Populus tremuloides* / Poaceae – *Arctostaphylos uva-ursi*

A04 Environment table

Zone	BOL
Elevation (m)	503 – 760 – 953
Aspect	warm (neutral)
Slope (%)	15 – 32 – 60
Soil moisture regime	xeric, subxeric (submesic)
Soil drainage	very rapidly to moderately well
Permafrost presence/depth (cm)	not observed
Unvegetated cover (%)	0 – 6 – 40
Soil class	Eutric Brunisols

**A04** Vegetation summary (%)

Trees	0 – 34 – 65	Shrubs	6 – 43 – 100	Ground shrubs	0 – 25 – 67
Graminoids and forbs	18 – 50 – 95	Bryophytes	0 – 4 – 20	Lichens	0 – 3 – 20

Layer	Scientific name	A04	Common name
		n = 18	
Trees	<i>Populus tremuloides</i>	■■■■■	trembling aspen
Shrubs	<i>Populus tremuloides</i>	■■■■	trembling aspen
	<i>Rosa acicularis</i>	■■■■	prickly rose
	<i>Shepherdia canadensis</i>	■■■	soapberry
Ground shrubs	<i>Arctostaphylos uva-ursi</i>	■■■■	kinnikinnick
Graminoids	Poaceae	■■■■	grass family
Forbs	<i>Galium boreale</i>	■	northern bedstraw

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

A09 Aspen / Shrub birch / Altai fescue

A09 is a trembling aspen woodland or forest, with shrub birch characterizing the understorey, that occurs frequently on steep warm aspects in the BOH and at upper elevations of the BOL in the southern Yukon.

Vegetation: Stands of A09 have an open or closed tree canopy of trembling aspen (*Populus tremuloides*) of tree height or tall shrub height, sometimes with a small amount of white spruce (*Picea glauca*). The shrub layer is dominated by shrub birch (*Betula glandulosa*), often with some aspen as well. Common juniper (*Juniperus communis*) or common Labrador tea (*Rhododendron groenlandicum*) can be present and moderately abundant. Low to moderate cover of Altai fescue (*Festuca altaica*), fireweed (*Chamaenerion angustifolium*), kinnikinnick (*Arctostaphylos uva-ursi*), black crowberry (*Empetrum nigrum*) and/or low-bush cranberry (*Vaccinium vitis-idaea*) characterizes the understorey. The forest floor is commonly poorly developed, although feathermoss or reindeer lichen can be abundant.

Environment: A09 occurs on very rapidly drained to well-drained sites, mostly on moderate to steep warm aspects, but can occur on gentle slopes. Soils are medium-textured to coarse-textured, mostly on colluvial or glaciofluvial parent materials and usually classified as Brunisols. The forest floor can have low cover of decaying wood, rocks or exposed mineral soil.

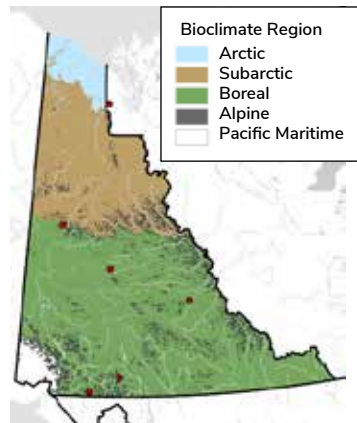
Dynamics: Stands are strongly dominated by aspen of varying density, usually in both the tree and shrub layers. White spruce is often a minor component of the canopy, but conifer regeneration is sparse. The stands are likely stable, since aspen would likely sucker after wildfire to form aspen stands again.

**Comments**

- Key characteristics: aspen-dominated tree/tall shrub canopy; shrub birch >10%; occurs on steep warm slopes
- Equivalent to CNVC00389 *Populus tremuloides* / *Betula glandulosa* / *Festuca altaica*

A09 Environment table

Zone	BOH (BOL)
Elevation (m)	518 – 1060 – 1570
Aspect	warm
Slope (%)	5 – 37 – 60
Soil moisture regime	xeric, subxeric (submesic)
Soil drainage	very rapid to well
Permafrost presence/depth (cm)	not observed
Unvegetated cover (%)	0 – 18 – 70
Soil class	Eutric or Dystric Brunisols

**A09 Vegetation summary (%)**

Trees	0 – 33 – 70	Shrubs	20 – 70 – 100	Ground shrubs	8 – 30 – 76
Graminoids and forbs	9 – 23 – 50	Bryophytes	0 – 23 – 75	Lichens	0 – 15 – 51

Layer	Scientific name	A09	Common name
		n = 8	
Trees	<i>Picea glauca</i>	■ ■	white spruce
	<i>Populus tremuloides</i>	■ ■ ■ ■ ■	trembling aspen
Shrubs	<i>Betula glandulosa</i>	■ ■ ■ ■	shrub birch
	<i>Juniperus communis</i>	■ ■ ■	common juniper
	<i>Populus tremuloides</i>	■ ■ ■ ■	trembling aspen
	<i>Rhododendron groenlandicum</i>	■ ■ ■	common Labrador tea
	<i>Rosa acicularis</i>	■	prickly rose
	<i>Salix</i> spp.	■ ■ ■	willows
Ground shrubs	<i>Arctostaphylos uva-ursi</i>	■ ■ ■	kinnikinnick
	<i>Empetrum nigrum</i>	■ ■ ■ ■	black crowberry
	<i>Vaccinium vitis-idaea</i>	■ ■ ■	lowbush cranberry
Graminoids	<i>Festuca altaica</i>	■ ■ ■	Altai fescue
Forbs	<i>Chamaenerion angustifolium</i>	■ ■ ■	fireweed
	<i>Cornus canadensis</i>	■ ■ ■	bunchberry
Bryophytes	<i>Hylocomium splendens</i>	■ ■ ■	step moss
Lichens	<i>Cladonia mitis</i>	■ ■ ■	green reindeer lichen

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ ■ 1 – 3	■ ■ ■ 3 – 10	■ ■ ■ ■ 10 – 25	■ ■ ■ ■ ■ >25

Aspen-dominated associations

A20 Aspen / Grass – Kinnikinnick

A20 is a trembling aspen forest with a grassy understorey that occurs frequently on submesic sites in the BOL in the southwest Yukon.

Vegetation: Most stands of A20 have a closed tree canopy of trembling aspen (*Populus tremuloides*), often with a small amount of white spruce (*Picea glauca*). The shrub layer is poorly developed to moderately developed, with one or more of prickly rose (*Rosa acicularis*), soapberry (*Shepherdia canadensis*) or willows (*Salix* spp.). Kinnikinnick (*Arctostaphylos uva-ursi*) can also be abundant. A moderate to high cover of grasses, mostly purple reed-grass (*Calamagrostis purpurascens*), characterizes the understorey. Fireweed (*Chamaenerion angustifolium*) is usually present, but mostly of low cover. The forest floor is very poorly developed, but may have abundant leaf litter.

Environment: This association occurs at lower elevations on mostly well-drained sites that are level or very gently sloping. Soils are variable in texture, from mostly lacustrine or glaciofluvial parent materials (also eolian and morainal), and are usually classified as Brunisols or Grey Luvisols. Occasionally, the forest floor can have low cover of decaying wood.

Dynamics: A20 stands are dominated by aspen, mostly in the tree layer. White spruce is often a very minor component of the canopy, but is only occasionally regenerating. The stands are mostly stable, since they are aspen-dominated and would likely sucker after wildfire to form aspen stands again.

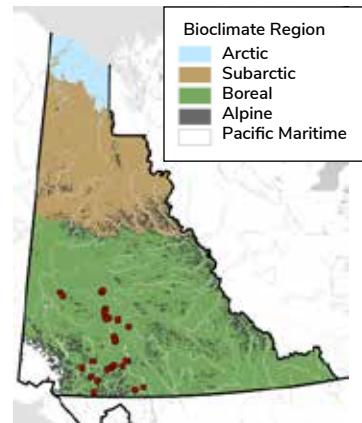
Comments

- Key characteristics: aspen-dominated tree/tall shrub canopy; grasses, mostly purple reedgrass >15% cover, usually with fireweed and kinnikinnick; slope <10%; similar to A04, but occurs on slightly drier sites with more prickly rose and less fireweed
- Equivalent to CNVC00386 *Populus tremuloides* / Poaceae – *Arctostaphylos uva-ursi*



A20 Environment table

Zone	BOL
Elevation (m)	170 – 677 – 792
Aspect	warm (neutral)
Slope (%)	0 – 2 – 10
Soil moisture regime	submesic (subxeric)
Soil drainage	well
Permafrost presence/depth (cm)	not observed
Unvegetated cover (%)	0 – 1 – 10
Soil class	Eutric and Dystric Brunisols, Grey Luvisols

**A20 Vegetation summary (%)**

Trees	0 – 56 – 81	Shrubs	1 – 24 – 100	Ground shrubs	0 – 28 – 80
Graminoids and forbs	20 – 38 – 70	Bryophytes	0 – 1 – 11	Lichens	0 – 1 – 5

Layer	Scientific name	A20	Common name
		n = 35	
Trees	<i>Picea glauca</i>	■ ■	white spruce
	<i>Populus tremuloides</i>	■ ■ ■ ■ ■	trembling aspen
Shrubs	<i>Rosa acicularis</i>	■ ■	prickly rose
	<i>Shepherdia canadensis</i>	■ ■ ■	soapberry
	<i>Salix</i> spp.	■ ■ ■	willows
Ground shrubs	<i>Arctostaphylos uva-ursi</i>	■ ■ ■ ■ ■	kinnikinnick
Graminoids	Poaceae	■ ■ ■ ■ ■	grass family
Forbs	<i>Chamaenerion angustifolium</i>	■ ■ ■	fireweed

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ ■ 1 – 3	■ ■ ■ 3 – 10	■ ■ ■ ■ 10 – 25	■ ■ ■ ■ ■ >25

Aspen-dominated associations

A21 Aspen / Soapberry / Kinnikinnick

A21 is a trembling aspen forest with a shrubby understorey characterized by soapberry that occurs frequently on circum-mesic sites in the BOL in the southwest Yukon.

Vegetation: Stands of A21 have a closed tree canopy of trembling aspen (*Populus tremuloides*) of tree height or tall shrub height, often with a small amount of white spruce (*Picea glauca*). The shrub layer is well developed, characterized by soapberry (*Shepherdia canadensis*), with prickly rose (*Rosa acicularis*), generally of lower cover. Kinnikinnick (*Arctostaphylos uva-ursi*) is usually present and may be abundant; fireweed (*Chamaenerion angustifolium*) is usually present with low cover. The forest floor is very poorly developed, but may have abundant leaf litter.

Environment: This association occurs at lower elevations on mostly well-drained sites that are level or gently to steeply sloping on warm aspects. Soils are variable in texture, from morainal, lacustrine or glaciofluvial parent materials (sometimes eolian), and are usually classified as Brunisols. Occasionally, the forest floor can have low cover of decaying wood.

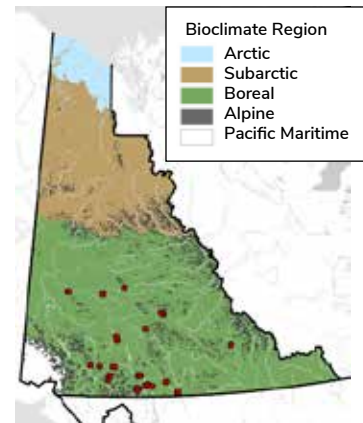
Dynamics: A21 stands are dominated by aspen, mostly in the tree layer. White spruce is often a very minor component of the canopy, but is occasionally regenerating. The stands are mostly stable, since they are aspen-dominated, have little white spruce regeneration, and would likely sucker after wildfire to form aspen stands again.

**Comments**

- Key characteristics: aspen-dominated tree/tall shrub canopy; soapberry mostly $\geq 10\%$ cover, usually with prickly rose, fireweed and kinnikinnick
- Component of CNVC00330 *Populus tremuloides* / *Shepherdia canadensis* / *Arctostaphylos uva-ursi*

A21 Environment table

Zone	BOL
Elevation (m)	240 – 765 – 1198
Aspect	warm (neutral)
Slope (%)	0 – 17 – 55
Soil moisture regime	submesic, mesic (subxeric)
Soil drainage	well
Permafrost presence/depth (cm)	not observed
Unvegetated cover (%)	0 – 4 – 45
Soil class	Eutric (Dystric) Brunisols (Grey Luvisols)

**A21 Vegetation summary (%)**

Trees	0 – 54 – 100	Shrubs	15 – 64 – 100	Ground shrubs	2 – 37 – 100
Graminoids and forbs	2 – 18 – 57	Bryophytes	0 – 3 – 29	Lichens	0 – 1 – 5

Layer	Scientific name	A21	Common name
		n = 34	
Trees	<i>Picea glauca</i>	■ ■	white spruce
	<i>Populus tremuloides</i>	■ ■ ■ ■ ■	trembling aspen
Shrubs	<i>Rosa acicularis</i>	■ ■ ■	prickly rose
	<i>Shepherdia canadensis</i>	■ ■ ■ ■	soapberry
Ground shrubs	<i>Arctostaphylos uva-ursi</i>	■ ■ ■ ■ ■	kinnikinnick
	<i>Linnaea borealis</i>	■ ■ ■	twinflower
Graminoids	Poaceae	■ ■ ■	grass family
Forbs	<i>Chamaenerion angustifolium</i>	■ ■ ■	fireweed

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ ■ 1 – 3	■ ■ ■ 3 – 10	■ ■ ■ ■ 10 – 25	■ ■ ■ ■ ■ >25

A25 Aspen / Willow / Purple reedgrass / Thread-moss

A25 is a very young trembling aspen forest or tall shrub-land with a willow and grass understory that occurs frequently on well drained, level, submesic sites in the BOL in the southwest Yukon.

Vegetation: Stands of A25 are young and are characterized by trembling aspen (*Populus tremuloides*), usually both tree-height and tall shrub-height, sometimes with a small amount of white spruce (*Picea glauca*). The shrub layer is moderately well developed, characterized by willows (*Salix planifolia*, *S. bebbiana*, *S. glauca*). Purple reedgrass (*Calamagrostis purpurascens*) and fireweed (*Chamaenerion angustifolium*) are present with low to moderate cover. The forest floor is characterized by moderate to high cover of thread-moss (*Gemmabryum caespitium*) and fire moss (*Ceratodon purpureus*).

Environment: This association occurs at lower elevations on well-drained level sites. Soils are variable in texture and are usually classified as Brunisols. Occasionally, the forest floor can have low cover of decaying wood.

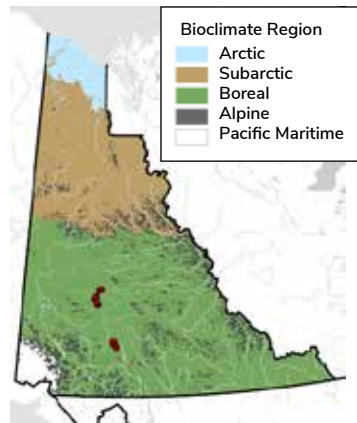
Dynamics: A25 stands are very young (averaging 13 years) and dominated by aspen in the tree and shrub layers. White spruce is usually present as a very minor component, mostly as regeneration. The stands are developing, and stand structure will change somewhat over time. If a stand is disturbed it will likely regenerate through suckering into another aspen stand.

**Comments**

- Key characteristics: aspen-dominated tree/tall shrub canopy; very young stands with willows $\geq 7\%$ cover; fire moss and thread-moss abundant; may occur on greater range of site conditions than those sampled
- Equivalent to CNVC00390 *Populus tremuloides* / *Salix* spp. / *Calamagrostis purpurascens* / *Gemmabryum caespitium*

A25 Environment table

Zone	BOL
Elevation (m)	765 (limited data)
Aspect	not applicable
Slope (%)	0 – 1 – 3
Soil moisture regime	submesic
Soil drainage	well
Permafrost presence/depth (cm)	not observed
Unvegetated cover (%)	0 – 5 – 10
Soil class	Brunisols

**A25 Vegetation summary (%)**

Trees	2 – 21 – 63	Shrubs	15 – 34 – 65	Ground shrubs	0 – 2 – 19
Graminoids and forbs	3 – 18 – 40	Bryophytes	0 – 42 – 82	Lichens	0 – 4 – 30

Layer	Scientific name	A25	Common name
		n = 26	
Trees	<i>Populus tremuloides</i>	■■■■■	trembling aspen
Shrubs	<i>Picea glauca</i>	■ ■	white spruce
	<i>Populus tremuloides</i>	■■■■■	trembling aspen
	<i>Salix</i> spp.	■■■■■	willows
Graminoids	<i>Calamagrostis purpurascens</i>	■■■	purple reedgrass
Forbs	<i>Chamaenerion angustifolium</i>	■■■	fireweed
Bryophytes	<i>Ceratodon purpureus</i>	■■■	fire moss
	<i>Gemmabryum caespitium</i>	■■■■■	thread-moss
	<i>Polytrichum juniperinum</i>	■ ■ ■	juniper haircap moss

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

Aspen-dominated associations

A26 Aspen / Highbush cranberry / Bunchberry

A26 is a trembling aspen forest with a shrubby understorey characterized by highbush cranberry and alder that occurs frequently on rapidly drained to well-drained sites in the BOL in the southeast Yukon.

Vegetation: Stands of A26 have a closed tree canopy of trembling aspen (*Populus tremuloides*) of tree height or tall shrub height, often with a small amount of white spruce (*Picea glauca*). The shrub layer is well developed, characterized by highbush cranberry (*Viburnum edule*), green alder (*Alnus alnobetula*) and prickly rose (*Rosa acicularis*). The ground shrub layer includes lowbush cranberry (*Vaccinium vitis-idaea*). Common forbs are bunchberry (*Cornus canadensis*) and fireweed (*Chamaenerion angustifolium*). The forest floor is poorly developed to moderately developed, primarily with low to moderate cover of feathermosses, but may also have scattered lichens.

Environment: This association occurs at lower elevations on mostly rapidly drained to well-drained sites that are gently sloping to moderately sloping or occasionally level. Sloping sites are on warm and neutral-aspects. Soils are sandy to loamy in texture, from morainal, colluvial or glaciofluvial parent materials, and are usually classified as Brunisols. The forest floor often has low to moderate cover of decaying wood.

Dynamics: A26 stands are dominated by aspen, mostly in the tree layer. White spruce is often a very minor component of the canopy and is occasionally regenerating. Regeneration can also include pine or black spruce. The stands may convert to spruce over the long term, but for some time after disturbance will regenerate to aspen due to suckering.

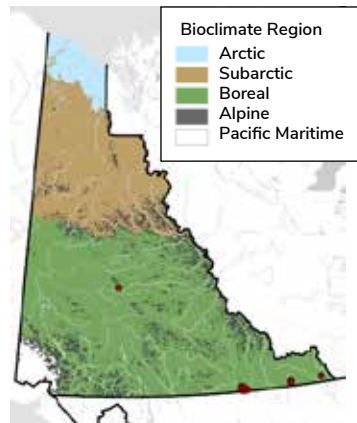
Comments

- Key characteristics: aspen-dominated tree/tall shrub canopy; highbush cranberry $\geq 1\%$ cover; alder usually $\geq 5\%$, usually with prickly rose, fireweed and bunchberry
- Component of CNVC00094 *Populus tremuloides* / *Rosa acicularis* – *Viburnum edule*



A26 Environment table

Zone	BOL
Elevation (m)	583 – 685 – 780
Aspect	warm, neutral, level
Slope (%)	0 – 17 – 80
Soil moisture regime	submesic, mesic (subxeric)
Soil drainage	rapid to well
Permafrost presence/depth (cm)	not observed
Unvegetated cover (%)	0 – 7 – 20
Soil class	Brunisols

**A26 Vegetation summary (%)**

Trees	5 – 48 – 71	Shrubs	6 – 60 – 100	Ground shrubs	0 – 15 – 50
Graminoids and forbs	4 – 12 – 32	Bryophytes	1 – 25 – 77	Lichens	0 – 4 – 15

Layer	Scientific name	A26	Common name
		n = 13	
Trees	<i>Picea glauca</i>	■ ■	white spruce
	<i>Populus tremuloides</i>	■ ■ ■ ■ ■	trembling aspen
Shrubs	<i>Rosa acicularis</i>	■ ■ ■	prickly rose
	<i>Viburnum edule</i>	■ ■ ■	highbush cranberry
Ground shrubs	<i>Linnaea borealis</i>	■ ■ ■	twinline
	<i>Vaccinium vitis-idaea</i>	■ ■ ■	lowbush cranberry
Forbs	<i>Chamaenerion angustifolium</i>	■	fireweed
	<i>Cornus canadensis</i>	■ ■ ■	bunchberry
	<i>Pyrola asarifolia</i>	■	pink pyrola
Bryophytes	<i>Hylocomium splendens</i>	■ ■ ■ ■ ■	stairstep moss

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ ■ 1 – 3	■ ■ ■ 3 – 10	■ ■ ■ ■ 10 – 25	■ ■ ■ ■ ■ >25

Aspen-dominated associations

A28 Aspen / Labrador tea

A28 is a trembling aspen forest or woodland, with an understory characterized by common Labrador tea and ground shrubs, that occurs on well-drained gentle to moderate slopes at low elevations of the BOH in the southwest Yukon.

Vegetation: Stands of A28 have an open to closed tree canopy of trembling aspen (*Populus tremuloides*), often with a small amount of white spruce (*Picea glauca*). The shrub layer is well developed, characterized by common Labrador tea (*Rhododendron groenlandicum*), often with prickly rose (*Rosa acicularis*) and soapberry (*Shepherdia canadensis*). Ground shrubs are common on the forest floor, including kinnikinnick (*Arctostaphylos uva-ursi*), lowbush cranberry (*Vaccinium vitis-idaea*) and twinflower (*Linnaea borealis*). The forest floor is poorly developed, primarily with low to moderate cover of feathermosses, but may also have scattered lichens.



Environment: This association occurs at middle elevations on mostly well-drained sites that are gently sloping to moderately sloping and of varying aspect. Soils are loamy in texture and are usually classified as Brunisols. The forest floor can have low cover of decaying wood.

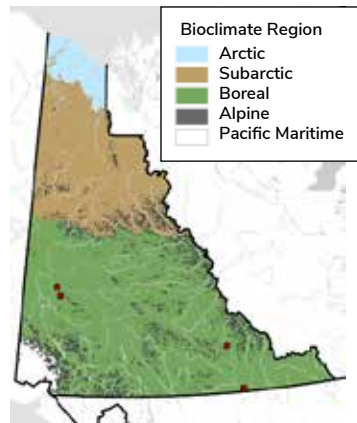
Dynamics: Stands are dominated by aspen, mostly in the tree layer. White spruce is often a very minor component of the canopy and is occasionally regenerating. Regeneration can also include black spruce. The stands may convert to spruce over the long term, but for some time following disturbance will regenerate to aspen again due to suckering.

Comments

- Key characteristics: aspen-dominated tree/tall shrub canopy; common Labrador tea $\geq 10\%$ cover
- Component of CNVC00268 *Populus tremuloides* / *Rhododendron groenlandicum* / *Vaccinium vitis-idaea* / *Hylocomium splendens*

A28 Environment table

Zone	BOH
Elevation (m)	640 – 807 – 960
Aspect	variable
Slope (%)	7 – 18 – 34
Soil moisture regime	submesic, mesic
Soil drainage	well
Permafrost presence/depth (cm)	not observed
Unvegetated cover (%)	0 – 4 – 6
Soil class	Brunisols

**A28 Vegetation summary (%)**

Trees	10 – 42 – 58	Shrubs	19 – 42 – 84	Ground shrubs	18 – 29 – 57
Graminoids and forbs	12 – 18 – 22	Bryophytes	0 – 7 – 16	Lichens	0 – 2 – 6

Layer	Scientific name	A28	Common name
		n = 5	
Trees	<i>Picea glauca</i>	■ ■	white spruce
	<i>Populus tremuloides</i>	■ ■ ■ ■ ■	trembling aspen
Shrubs	<i>Rhododendron groenlandicum</i>	■ ■ ■ ■	common Labrador tea
	<i>Rosa acicularis</i>	■ ■ ■	prickly rose
	<i>Salix</i> spp.	■ ■	willows
	<i>Shepherdia canadensis</i>	■ ■	soapberry
	<i>Viburnum edule</i>	■ ■	highbush cranberry
Ground shrubs	<i>Arctostaphylos uva-ursi</i>	■ ■ ■	kinnikinnick
	<i>Linnaea borealis</i>	■ ■ ■	twinline
	<i>Vaccinium vitis-idaea</i>	■ ■ ■ ■	lowbush cranberry
Forbs	<i>Chamaenerion angustifolium</i>	■ ■	fireweed
	<i>Diphysastrum complanatum</i>	■ ■	northern ground-cedar
	<i>Geocaulon lividum</i>	■ ■	bastard toadflax
	<i>Mertensia paniculata</i>	■	tall lungwort
	<i>Pyrola asarifolia</i>	■	pink wintergreen
Bryophytes	<i>Hylocomium splendens</i>	■ ■ ■	step moss

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ ■ 1 – 3	■ ■ ■ 3 – 10	■ ■ ■ ■ 10 – 25	■ ■ ■ ■ ■ >25

Aspen-dominated associations

A29 Aspen / Prickly rose / Fireweed

A29 is a trembling aspen forest characterized more by what it doesn't have in the understorey than what it has. It lacks the moderate to high cover of soapberry, alder, highbush cranberry, shrub birch, Labrador teas, grasses or kinnikinnick that characterize other circum-mesic aspen associations in the BOL and sometimes in the BOH.

Vegetation: Stands of A29 have a closed tree canopy of trembling aspen (*Populus tremuloides*) of tree height or tall shrub height, often with a small amount of white spruce (*Picea glauca*). The shrub layer is poorly developed to moderately well developed, with prickly rose (*Rosa acicularis*) and/or soapberry (*Shepherdia canadensis*) the most consistent. Kinnikinnick (*Arctostaphylos uva-ursi*) and fireweed (*Chamaenerion angustifolium*) are usually present with low cover. The forest floor is generally very poorly developed, but may have abundant leaf litter.

Environment: This association occurs in the BOL, or sometimes in the BOH, on well-drained to moderately well drained sites that are level or sloping, usually on warm aspects. Soils are variable in texture, from morainal, lacustrine, glaciofluvial or colluvial parent materials and are usually classified as Brunisols or Grey Luvisols. Occasionally, the forest floor can have low cover of decaying wood.

Dynamics: Stands are dominated by aspen, mostly in the tree layer. White spruce is often a very minor component of the canopy and is occasionally regenerating (sometimes black spruce or pine may be in the regeneration). The stands are mostly stable, since they are aspen-dominated, have little conifer regeneration, and would likely sucker after wildfire to form aspen stands again.

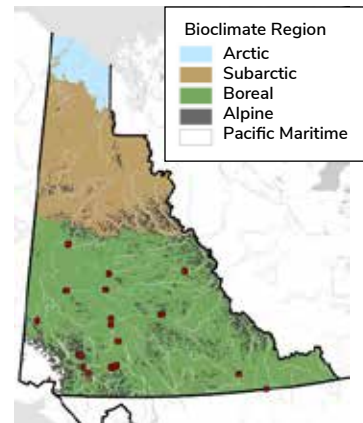
Comments

- Key characteristics: aspen-dominated tree/tall shrub canopy; soapberry, alder, highbush cranberry, shrub birch, Labrador teas, grasses or kinnikinnick all <15%; prickly rose is sometimes abundant; kinnikinnick, twinflower and fireweed are usually present with low cover; fireweed is the most consistent forb
- Equivalent to CNVC00387 Trembling Aspen / Prickly Rose / Fireweed



A29 Environment table

Zone	BOL (BOH)
Elevation (m)	152 – 764 – 1097
Aspect	variable, mostly warm or level
Slope (%)	0 – 12 – 55
Soil moisture regime	submesic, mesic
Soil drainage	well to moderately well
Permafrost presence/depth (cm)	not observed
Unvegetated cover (%)	0 – 5 – 26
Soil class	Eutric and Dystric Brunisols, Grey Luvisols

**A29 Vegetation summary (%)**

Trees	6 – 41 – 65	Shrubs	0 – 29 – 82	Ground shrubs	0 – 11 – 50
Graminoids and forbs	1 – 13 – 38	Bryophytes	0 – 3 – 25	Lichens	0 – 2 – 16

Layer	Scientific name	A29	Common name
		n = 33	
Trees	<i>Populus tremuloides</i>	■■■■■	trembling aspen
Shrubs	<i>Rosa acicularis</i>	■■■	prickly rose
	<i>Shepherdia canadensis</i>	■■	soapberry
Ground shrubs	<i>Arctostaphylos uva-ursi</i>	■■■	kinnikinnick
	<i>Linnaea borealis</i>	■■	twinline
Graminoids	Poaceae	■■	grass family
Forbs	<i>Chamaenerion angustifolium</i>	■■■	fireweed

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

Aspen-dominated associations

A34 Aspen / Horsetail

A34 is a trembling aspen forest, usually with balsam poplar and with common horsetail in the understory, that is associated with floodplain sites in the BOL, mostly in the southeast Yukon.

Vegetation: Stands of A34 have a closed tree canopy of trembling aspen (*Populus tremuloides*) of tree height or tall shrub height, often combined with balsam poplar (*Populus balsamifera*) and sometimes with paper birch (*Betula papyrifera*). Some white spruce (*Picea glauca*) occurs in the canopy and the shrub layer. The shrub layer is well developed, mostly with tree regeneration and prickly rose (*Rosa acicularis*), but may include highbush cranberry (*Viburnum edule*), willows (*Salix* spp.) and/or currants (*Ribes lacustre*, *R. oxycanthoides*). Common horsetail (*Equisetum arvense*) is characteristic and dominates the forb layer. The forest floor is generally poorly developed, but may have abundant leaf litter.



Environment: This association occurs in the BOL on moderately well drained to imperfectly drained floodplains that are level or very gently sloping. Soils are sandy to loamy in texture, from fluvial parent materials, and are usually classified as Brunisols or Regosols. The forest floor often has low to moderate cover of decaying wood.

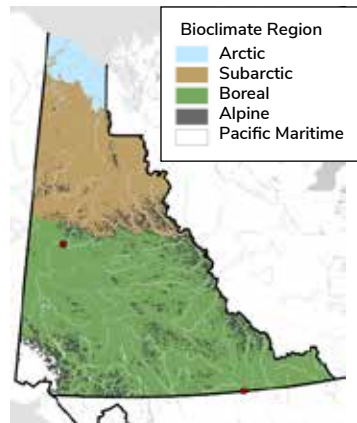
Dynamics: Stands are dominated by aspen, mostly in the tree layer, but often have a minor component of balsam poplar, paper birch and white spruce. All species can occur in regeneration. The stands are drier floodplains and will likely maintain deciduous cover, although dominance may vary over time. If disturbed by fire, they would regenerate to deciduous cover, the dominant species depending on the intensity of the fire and availability of seeds and suckering capability.

Comments

- Key characteristics: aspen-dominated tree/tall shrub canopy, often with balsam poplar; common horsetail $\geq 15\%$; prickly rose often abundant; paper birch present in southeast; subsurface seepage important to site moisture; likely floods annually; may occur on gentle toe slopes influenced by seepage
- Component of CNVC00078 *Populus balsamifera* – *P. tremuloides* / *Equisetum arvense* – *E. pratense*

A34 Environment table

Zone	BOL
Elevation (m)	411 – 509 – 607
Aspect	level
Slope (%)	0 – 2 – 5
Soil moisture regime	mesic, subhygric
Soil drainage	moderately well to imperfect
Permafrost presence/depth (cm)	not observed
Unvegetated cover (%)	15 – 22 – 36
Soil class	Brunisols, Regosols

**A34 Vegetation summary (%)**

Trees	1 – 38 – 65	Shrubs	24 – 53 – 77	Ground shrubs	0 – 3 – 10
Graminoids and forbs	23 – 32 – 42	Bryophytes	3 – 6 – 10	Lichens	0 – 1 – 1

Layer	Scientific name	A34	Common name
		n = 4	
Trees	<i>Betula papyrifera</i>	■ ■ ■ ■	paper birch
	<i>Picea glauca</i>	■ ■	white spruce
	<i>Populus balsamifera</i>	■ ■ ■ ■	balsam poplar
	<i>Populus tremuloides</i>	■ ■ ■ ■	trembling aspen
Shrubs	<i>Betula papyrifera</i>	■ ■ ■	paper birch
	<i>Picea glauca</i>	■	white spruce
	<i>Populus tremuloides</i>	■ ■ ■	trembling aspen
	<i>Rhododendron groenlandicum</i>	■	common Labrador tea
	<i>Ribes</i> spp.	■	currants
	<i>Rosa acicularis</i>	■ ■ ■ ■	prickly rose
	<i>Salix</i> spp.	■ ■	willows
	<i>Viburnum edule</i>	■ ■ ■ ■	highbush cranberry
Forbs	<i>Chamaenerion angustifolium</i>	■ ■	fireweed
	<i>Cornus canadensis</i>	■ ■ ■	bunchberry
	<i>Equisetum arvense</i>	■ ■ ■ ■	common horsetail
	<i>Mertensia paniculata</i>	■	tall bluebells
	<i>Rubus pubescens</i>	■ ■	dwarf raspberry
Bryophytes	<i>Hylocomium splendens</i>	■ ■ ■	step moss

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ ■ 1 – 3	■ ■ ■ 3 – 10	■ ■ ■ ■ 10 – 25	■ ■ ■ ■ ■ >25

A35 **Aspen / Ostrich fern**

A35 is a trembling aspen forest, with some paper birch and with ostrich fern as the characteristic forb in the understorey, that is associated with floodplain sites in the BOL in the southeast Yukon.

No photo
available

Vegetation: Stands of A35 have an open tree canopy of trembling aspen (*Populus tremuloides*), often with some paper birch (*Betula papyrifera*) and river alder (*Alnus incana*). The shrub layer is moderately well developed, with river alder, red osier dogwood (*Cornus sericea*) and red raspberry (*Rubus idaeus*) as the main species. Ostrich fern (*Matteuccia struthiopteris*) is characteristic and dominates the forb layer. The forest floor is very poorly developed, but may have abundant leaf litter.

Environment: This association occurs in the BOL on imperfectly drained floodplains that are level or very gently sloping. Soils are on fluvial parent materials. The forest floor often has some decaying wood.

Dynamics: Stands are dominated by aspen, with minor paper birch. The stands are on floodplains and could be disturbed by the river, or, in a very dry season, by fire. If disturbed by fire, they would regenerate with aspen due to suckering.

Comments

- Key characteristics: aspen-dominated tree/tall shrub canopy, often with river alder; ostrich fern $\geq 15\%$; subsurface seepage important to site moisture; likely floods annually
- CNVC association not yet determined

A35 Environment table

Zone	BOL
Elevation (m)	no data available
Aspect	level
Slope (%)	0
Soil moisture regime	subhygric
Soil drainage	imperfect
Permafrost presence/depth (cm)	not observed
Unvegetated cover (%)	no data available
Soil class	no data available

No map
available

A35 Vegetation summary (%)

Trees	16	Shrubs	10	Ground shrubs	0
Graminoids and forbs	47	Bryophytes	1	Lichens	0

Layer	Scientific name	A35	Common name
		n = 1	
Trees	<i>Alnus incana</i>	■■■	river alder
	<i>Betula papyrifera</i>	■■	paper birch
	<i>Populus tremuloides</i>	■■■■	trembling aspen
Shrubs	<i>Alnus incana</i>	■■	river alder
	<i>Cornus sericea</i>	■■	red osier dogwood
	<i>Ribes</i> sp.	■■	currant
	<i>Rubus idaeus</i>	■■■	red raspberry
Forbs	<i>Adoxa moschatellina</i>	■	muskroot
	<i>Aralia nudicaulis</i>	■	wild sarsaparilla
	<i>Chamaenerion angustifolium</i>	■	fireweed
	<i>Chrysosplenium tetrandrum</i>	■■	northern golden-saxifrage
	<i>Circaea alpina</i>	■	small enchanter's nightshade
	<i>Coptis trifolia</i>	■	goldthread
	<i>Delphinium glaucum</i>	■	tall larkspur
	<i>Equisetum arvense</i>	■■	common horsetail
	<i>Matteuccia struthiopteris</i>	■■■■■	ostrich fern
	<i>Mitella nuda</i>	■	naked mitrewort
	<i>Rubus pubescens</i>	■■	dwarf raspberry

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

AB03 Aspen – Balsam poplar / Rocky mountain fescue – Yukon lupine

AB03 is a trembling aspen woodland with Rocky Mountain fescue in the understorey that occurs frequently on dunes in the BOL in the southwest Yukon.

Vegetation: Stands of AB03 have an open tree canopy of trembling aspen (*Populus tremuloides*) or balsam poplar (*Populus balsamifera*), with denser cover of shrub-height trees below, in rare cases with a small amount of white spruce (*Picea glauca*). The shrub layer may also have common juniper (*Juniperus communis*). Low cover of Rocky Mountain fescue (*Festuca saximontana*), northern wormwood (*Artemisia campestris*), Yukon lupine (*Lupinus kuschei*) and/or showy Jacob's-ladder (*Polemonium pulcherrimum*) commonly occur. Kinnikinnick (*Arctostaphylos uva-ursi*) can be abundant. The forest floor is poorly developed, sometimes with scattered bryophytes or lichens.

Environment: This association occurs on rapidly drained to very rapidly drained sand dunes. Soils are sandy to sandy loam in texture, from eolian parent materials and usually classified as Regosols or Brunisols. Exposed mineral soil is usually present and can be dominant. Wind can be a factor.

Dynamics: Stands are strongly dominated by aspen or balsam poplar, usually in both the tree and shrub layers. White spruce is rare. The stands are on dunes and although they are relatively stable, are at risk of wind disturbance. If they burn, the aspen/balsam poplar would likely sucker to form deciduous hardwood stands again.

Comments

- Key characteristics: aspen-dominated tree/tall shrub canopy; presence of Rocky Mountain fescue, usually also Baikal sedge and Yukon lupine; occurs on dunes
- Equivalent to CNVC00388 *Populus tremuloides* – *P. balsamifera* / *Festuca saximontana* – *Lupinus kuschei*



AB03 Environment table

Zone	BOL
Elevation (m)	700
Aspect	warm
Slope (%)	2 – 12 – 30
Soil moisture regime	subxeric
Soil drainage	rapid to very rapid
Permafrost presence/depth (cm)	not observed
Unvegetated cover (%)	1 – 30 – 85
Soil class	Eutric Brunisols or Regosol

No map
available

AB03 Vegetation summary (%)

Trees	5 – 10 – 18	Shrubs	14 – 34 – 50	Ground shrubs	0 – 42 – 80
Graminoids and forbs	9 – 37 – 55	Bryophytes	3 – 7 – 15	Lichens	0 – 6 – 17

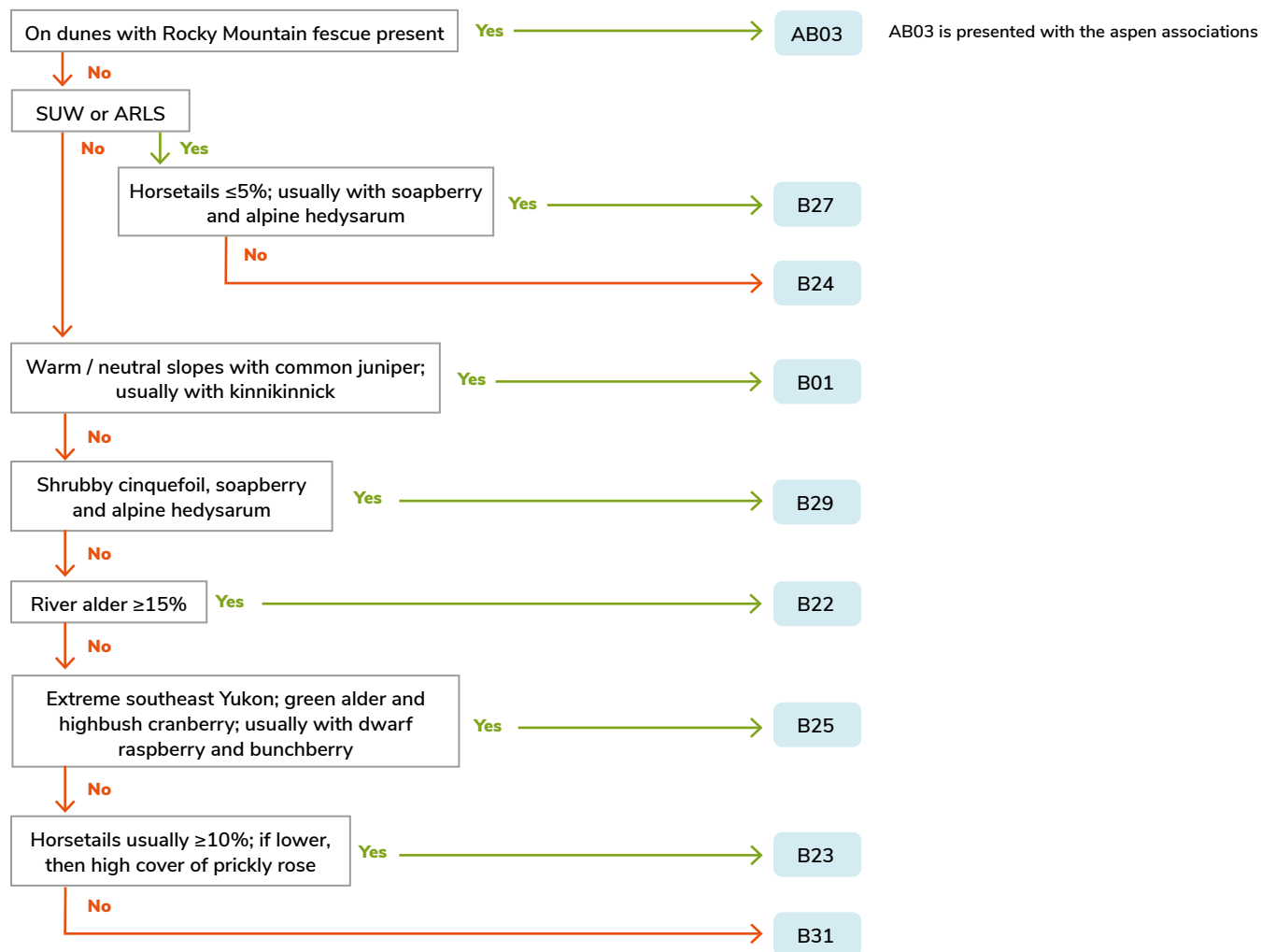
Layer	Scientific name	AB03	Common name
		n = 4	
Trees	<i>Populus tremuloides</i>	■■■	trembling aspen
Shrubs	<i>Populus balsamifera</i>	■■■	balsam poplar
	<i>Populus tremuloides</i>	■■■■	trembling aspen
Ground shrubs	<i>Arctostaphylos uva-ursi</i>	■■■■	kinnikinnick
Graminoids	<i>Bromus pumpellianus</i>	■■	Pumpelly brome
	<i>Calamagrostis canadensis</i>	■	bluejoint reedgrass
	<i>Carex sabulosa</i>	■■	Baikal sedge
	<i>Festuca saximontana</i>	■■■	Rocky Mountain fescue
Forbs	<i>Artemisia campestris</i>	■■	northern wormwood
	<i>Eurybia sibirica</i>	■■	Siberian aster
	<i>Lupinus kuschei</i>	■■■	Yukon lupine
	<i>Polemonium pulcherrimum</i>	■■	showy Jacob's-ladder
	<i>Solidago spathulata</i> ssp. <i>glutinosa</i>	■■	spikelike goldenrod
Bryophytes	<i>Bryophyta</i>	■■■	mosses
Lichens	<i>Cladonia</i> spp.	■■	clad lichens
	<i>Flavocetraria nivalis</i>	■■	ragged paperdoll

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

Balsam poplar associations

Balsam poplar (B)-dominated stands, which may include some white spruce (Sw), fir (F), aspen (A), paper birch (Wp) or Alaska birch (Wa)

Flowchart Balsam poplar associations



Summary of features: Balsam poplar associations

	B01	B22	B23	B24	B25	B27	B29	B31
Zone	BOH	BOL	BOL	SUW	BOL	SUW, ARLS	BOL	BOL (BOH)
Geography	southwest, south-central	southeast (south-central, west-central)	west-central, south	north	southeast	north	central, southeast	south (east-central)
Important site features	warm or neutral-aspect slopes	floodplains; subsurface flooding	floodplains; subsurface flooding	floodplains; subsurface flooding	floodplains; subsurface flooding	along rivers; may be some subsurface flooding	floodplains; annual flooding; maybe some subsurface flooding	mesic to moist; may be influenced by subsurface flooding
Drainage	well	well to moderately well	well to moderately well	well to moderately well	well to moderately well	rapid to well	rapid to imperfect	well to imperfect
Tree canopy	balsam poplar – aspen (fir)	balsam poplar (paper birch or Alaska birch)	balsam poplar (paper birch or white spruce)	balsam poplar	balsam poplar (paper birch or aspen)	balsam poplar	balsam poplar	balsam poplar
Key understorey species	juniper, kinnikinnick, fireweed	river alder, prickly rose, red-osier dogwood, horsetails	prickly rose, horsetails	horsetails (river alder, prickly rose)	green alder, prickly rose, highbush cranberry, bunchberry, dwarf raspberry	willow, soapberry, alpine hedysarum	soapberry, shrubby cinquefoil, alpine hedysarum	willow, yarrow (river alder), fireweed

Balsam poplar associations

Vegetation table for balsam poplar associations

Layer	Scientific name	B01	B22	B23	B24	B25	B27	B29	B31	Common name
	n =	12	20	20	6	6	22	3	5	
Trees	<i>Betula papyrifera</i>					■ ■ ■				paper birch
	<i>Picea glauca</i>	□	□	□ □	□	■ ■				white spruce
	<i>Populus balsamifera</i>	■ ■ ■ ■ ■	■ ■ ■ ■ ■	■ ■ ■ ■ ■	■ ■ ■ ■ ■	■ ■ ■ ■ ■	■ ■ ■ ■ ■	□ □ □ □	■ ■ ■ ■ ■	balsam poplar
	<i>Populus tremuloides</i>	□ □ □				■ ■				trembling aspen
Shrubs	<i>Betula papyrifera</i>					■ ■ ■				paper birch
	<i>Larix laricina</i>							■ ■		larch
	<i>Picea glauca</i>		□	□			□	■ ■	□	white spruce
	<i>Populus balsamifera</i>	■ ■ ■ ■	□ □	■ ■		■ ■ ■	■ ■ ■	■ ■ ■ ■ ■	■ ■ ■	balsam poplar
	<i>Populus tremuloides</i>	□ □				■				trembling aspen
	<i>Alnus alnobetula</i>					■ ■ ■ ■	□ □	■		green alder
	<i>Alnus incana</i>		■ ■ ■ ■		■ ■ ■ ■ ■		■ ■ ■	□ □	□ □	river alder
	<i>Cornus sericea</i>		■ ■ ■	■ ■ ■	□ □	■ ■ ■				red-osier dogwood
	<i>Dasiphora fruticosa</i>						□	■ ■ ■		shrubby cinquefoil
	<i>Juniperus communis</i>	■ ■ ■								common juniper
	<i>Rosa acicularis</i>	■ ■ ■	■ ■ ■	■ ■ ■ ■ ■	■ ■ ■	■ ■ ■ ■			□	prickly rose
	<i>Salix</i> spp.	■ ■ ■	■ ■ ■	■ ■ ■	■ ■ ■ ■		■ ■ ■ ■	□ □	■ ■ ■ ■	willows
	<i>Shepherdia canadensis</i>	■ ■			□ □	□ □	■ ■ ■ ■	■ ■ ■ ■	■	soapberry
	<i>Sorbus scopulina</i>					■ ■				mountain-ash
	<i>Viburnum edule</i>	□ □ □	■ ■ ■	■ ■ ■ ■	□ □	■ ■ ■ ■			□ □	highbush cranberry
Ground shrubs	<i>Arctostaphylos uva-ursi</i>	■ ■ ■								kinnikinnick
	<i>Rubus pubescens</i>		■			■ ■ ■ ■				dwarf raspberry
Graminoids	<i>Carex aurea</i>							■		golden sedge
	<i>Carex capillaris</i>							■		hair-like sedge
	Poaceae	■ ■ ■	■ ■	■ ■ ■	■ ■ ■	■ ■ ■	■ ■	■ ■ ■ ■	■ ■ ■	grass family

Table continues on facing page

Vegetation table for balsam poplar associations, continued

Layer	Scientific name	B01	B22	B23	B24	B25	B27	B29	B31	Common name
Forbs	<i>Achillea millefolium</i>	■	□					□	■	common yarrow
	<i>Aralia nudicaulis</i>					■■■				wild sarsaparilla
	<i>Artemisia tilesii</i>		■					■		Tilesius' wormwood
	<i>Chamaenerion angustifolium</i>	■■■	■	□□		■■	□□		■■■	fireweed
	<i>Cornus canadensis</i>	□				■■■■				bunchberry
	<i>Cypripedium passerinum</i>							■■		sparrow's-egg lady's-slipper
	<i>Equisetum arvense / pratense</i>		■■■	■■■■	■■■■■		■■			common / meadow horsetail
	<i>Equisetum scirpoides</i>				□	■	□			dwarf scouring-rush
	<i>Equisetum variegatum</i>							■■		variegated scouring-rush
	<i>Eurybia sibirica</i>						□	■		Siberian wood-aster
	<i>Fragaria virginiana</i>		□					■■■		wild strawberry
	<i>Hedysarum alpinum</i>				□□		■■■	■■■		alpine hedysarum
	<i>Lupinus arcticus</i>	□□							■■	arctic lupine
	<i>Maianthemum stellatum</i>		■							star-flowered false Solomon's-seal
	<i>Mertensia paniculata</i>	■■	■■	□	□□				□	tall bluebells
	<i>Mitella nuda</i>					■■				naked mitrewort
	<i>Parnassia palustris</i>						□	■		marsh grass-of-Parnassus
	<i>Platanthera hyperborea</i>							■■		northern green orchid
	<i>Vicia americana</i>		■							American vetch
Bryophytes	<i>Bryophyta</i>	■■■	■■	□	■■	■■■	□□□		■■■■	mosses

Note: gold cells highlight key diagnostic species

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

Fact sheets: Balsam poplar associations

B01 Balsam poplar / Juniper / Kinnikinnick

B01 is a balsam poplar forest or woodland, often with a minor cover of aspen or fir, with common juniper and usually Altai fescue, kinnikinnick, fireweed and tall bluebells, that occurs on well-drained sites in the BOH.

Vegetation: Stands of B01 have a tree canopy of balsam poplar (*Populus balsamifera*), often with a minor cover of trembling aspen (*P. tremuloides*) and/or fir (*Abies lasiocarpa*). Stands can be of low stature, or with most of the balsam poplar cover in the shrub layer. Common juniper (*Juniperus communis*) occurs, usually with moderate cover. Other common understorey species are fireweed (*Chamaenerion angustifolium*), kinnikinnick (*Arctostaphylos uva-ursi*), tall bluebells (*Mertensia paniculata*) and Altai fescue (*Festuca altaica*). Bryophyte and lichen cover are low to moderate.

Environment: B01 occurs at moderate to high elevations on warm or neutral-aspect slopes with well-drained soils. Soil data are very limited. The forest floor has low to moderate cover of woody debris.

Dynamics: With balsam poplar and often aspen on these sites, they are most likely to regenerate after disturbance to balsam poplar and/or aspen. Resulting stands may also be dominated by aspen (A02).

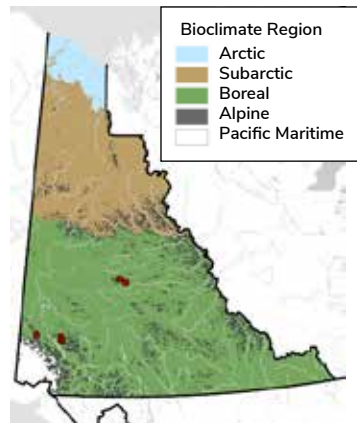
Comments

- Key characteristics: balsam poplar stand, often with a minor cover of aspen or fir; well-drained slope; common juniper, usually with Altai fescue, kinnikinnick, fireweed, tall bluebells; similar stands in the subarctic may be a separate association — data are too limited to differentiate at this time
- Component of CNVC00412 Balsam Poplar / Common Juniper / Tall Bluebells – Altai Fescue



B01 Environment table

Zone	BOH
Elevation (m)	760 – 1105 – 1310
Aspect	warm, neutral
Slope (%)	22 – 41 – 78
Soil moisture regime	submesic
Soil drainage	well
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	1 – 5 – 15 (wood)
Soil class	Brunisols (limited data)

**B01 Vegetation summary (%)**

Trees	0 – 46 – 85	Shrubs	15 – 58 – 99	Ground shrubs	0 – 10 – 35
Graminoids and forbs	5 – 32 – 75	Bryophytes	0 – 4 – 15	Lichens	0 – 3 – 20

Layer	Scientific name	B01	Common name
		n = 12	
Trees	<i>Populus balsamifera</i>	■■■■■	balsam poplar
Shrubs	<i>Populus balsamifera</i>	■■■■■	balsam poplar
	<i>Juniperus communis</i>	■■■	common juniper
	<i>Rosa acicularis</i>	■■■	prickly rose
	<i>Salix</i> spp.	■■■	willows
	<i>Shepherdia canadensis</i>	■■	soapberry
Ground shrubs	<i>Arctostaphylos uva-ursi</i>	■■■	kinnikinnick
Graminoids	<i>Festuca altaica</i>	■■■	Altai fescue
Forbs	<i>Achillea millefolium</i>	■	common yarrow
	<i>Chamaenerion angustifolium</i>	■■■	fireweed
	<i>Mertensia paniculata</i>	■■	tall bluebells
Bryophytes	<i>Bryophyta</i>	■■■	mosses

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

B22 Balsam poplar / River alder – Red-osier dogwood / Horsetail

B22 is a balsam poplar floodplain forest with horsetails and moderately high to high river alder cover that occurs on floodplains in the BOL.

No photo
available

Vegetation: Stands of B22 have a tree canopy of balsam poplar (*Populus balsamifera*), sometimes with some birch (*Betula papyrifera*, *B. neoalaskana*), and often with white spruce (*Picea glauca*) regeneration. River alder (*Alnus incana*) of moderately high to high cover, red-osier dogwood (*Cornus sericea*) and horsetails (*Equisetum arvense*, *E. pratense*) characterize the understorey. Other common species are prickly rose (*Rosa acicularis*), tall bluebells (*Mertensia paniculata*) and Tilesius' wormwood (*Artemisia tilesii*). Bryophyte cover is low.

Environment: B22 occurs primarily at low elevations on well-drained to moderately well drained river floodplains influenced by flooding and subsurface water. Parent materials are fluvial. Soil data are very limited, but soils are likely classified as Cumulic Regosols, or where flooding is infrequent, Brunisols. The forest floor usually has a moderate cover of woody debris.

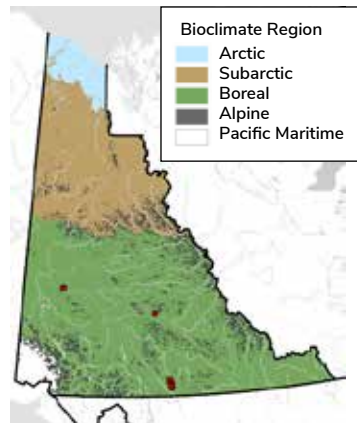
Dynamics: River floodplains undergo continual erosion and deposition processes. B22 stands are mostly influenced by deposition of sediment during annual flooding events. Over time, white spruce will succeed balsam poplar on these sites (SwB30, Sw18, Sw36).

Comments

- Key characteristics: balsam poplar stand; BOL; river floodplain; river alder ≥15%; horsetails
- Component of CNVC00077 Balsam Poplar (White Spruce) / River Alder – Red-osier Dogwood

B22 Environment table

Zone	BOL
Elevation (m)	400 – 635 – 700
Aspect	neutral
Slope (%)	0 – 0 – 3
Soil moisture regime	mesic to subhygric
Soil drainage	well to moderately well
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	2 – 6 – 10 (wood)
Soil class	Regosols (Brunisols) (limited data)

**B22 Vegetation summary (%)**

Trees	11 – 40 – 90	Shrubs	11 – 46 – 99	Ground shrubs	0 – 1 – 6
Graminoids and forbs	5 – 25 – 70	Bryophytes	0 – 3 – 10	Lichens	0

Layer	Scientific name	B22	Common name
		n = 20	
Trees	<i>Populus balsamifera</i>	■■■■■	balsam poplar
Shrubs	<i>Alnus incana</i>	■■■■	river alder
	<i>Cornus sericea</i>	■■■	red-osier dogwood
	<i>Rosa acicularis</i>	■■■	prickly rose
	<i>Salix</i> spp.	■■■	willows
	<i>Viburnum edule</i>	■■■	highbush cranberry
Graminoids	Poaceae	■■	grass family
Forbs	<i>Artemisia tilesii</i>	■	Tilesius' wormwood
	<i>Chamaenerion angustifolium</i>	■	fireweed
	<i>Equisetum arvense</i>	■■■	common horsetail
	<i>Maianthemum stellatum</i>	■	star-flowered false Solomon's-seal
	<i>Mertensia paniculata</i>	■■	tall bluebells
	<i>Rubus pubescens</i>	■	dwarf raspberry
	<i>Vicia americana</i>	■	American vetch
Bryophytes	<i>Bryophyta</i>	■■	mosses

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

B23 Balsam poplar / Highbush cranberry / Horsetail

B23 is a balsam poplar floodplain forest with horsetails and little to no river alder that occurs on floodplains in the BOL.

Vegetation: Stands of B23 have a tree canopy of balsam poplar (*Populus balsamifera*), sometimes with a minor component of Alaska birch (*Betula neoalaskana*) or white spruce (*Picea glauca*). Prickly rose (*Rosa acicularis*) is almost always present; red-osier dogwood (*Cornus sericea*) and highbush cranberry (*Viburnum edule*) are often present. Horsetails (*Equisetum arvense*, *E. pratense*) characterize the understorey, although the cover is highly variable. Bluejoint reedgrass (*Calamagrostis canadensis*) is common. Bryophyte cover is low.

Environment: B23 occurs primarily at low elevations on well-drained to moderately well drained river floodplains influenced by flooding and subsurface water. Parent materials are medium-textured to coarse-textured fluvial sediments. Soil data are very limited, but soils are classified as Regosols, or where flooding is infrequent, Brunisols. The forest floor usually has a moderate cover of woody debris.

Dynamics: River floodplains undergo continual erosion and deposition processes. B23 stands are mostly influenced by deposition of sediment during annual flooding events. Over time, white spruce will succeed balsam poplar on these sites (SwB30, Sw18, Sw36).

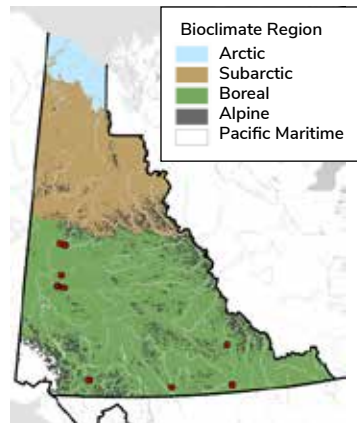
Comments

- Key characteristics: balsam poplar stand; BOL; river floodplain; horsetails usually $\geq 10\%$; river alder, if present, $< 15\%$
- CNVC association not yet determined



B23 Environment table

Zone	BOL
Elevation (m)	350 – 595 – 900
Aspect	neutral
Slope (%)	0 – 1 – 5
Soil moisture regime	mesic to subhygric
Soil drainage	well to moderately well
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	1 – 8 – 20 (wood)
Soil class	Regosols (Brunisols)

**B23** Vegetation summary (%)

Trees	16 – 50 – 85	Shrubs	5 – 59 – 99	Ground shrubs	0 – 1 – 6
Graminoids and forbs	1 – 33 – 65	Bryophytes	0 – 2 – 10	Lichens	0 – 0.5 – 1

Layer	Scientific name	B23	Common name
		n = 20	
Trees	<i>Populus balsamifera</i>	■■■■■	balsam poplar
Shrubs	<i>Populus balsamifera</i>	■ ■	balsam poplar
	<i>Cornus sericea</i>	■ ■ ■	red-osier dogwood
	<i>Rosa acicularis</i>	■■■■■	prickly rose
	<i>Salix</i> spp.	■ ■ ■	willows
	<i>Viburnum edule</i>	■ ■ ■ ■	highbush cranberry
Graminoids	<i>Calamagrostis canadensis</i>	■ ■ ■	bluejoint reedgrass
Forbs	<i>Equisetum arvense</i> / <i>pratense</i>	■■■■■	horsetails

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ ■ 1 – 3	■ ■ ■ 3 – 10	■ ■ ■ ■ 10 – 25	■ ■ ■ ■ ■ >25

B24 Balsam poplar / River alder / Horsetail

B24 is a balsam poplar floodplain forest or woodland with horsetails and usually with high cover of river alder that occurs on floodplains in the SUW.

Vegetation: Stands of B24 have a tree canopy of balsam poplar (*Populus balsamifera*) and sometimes, white spruce (*Picea glauca*). High cover of river alder (*Alnus incana*) is typical. Prickly rose (*Rosa acicularis*) is often present. Horsetail cover (*Equisetum arvense*, *E. pratense*) is moderately high to high. Bryophyte cover is low to moderate.

Environment: B24 occurs primarily at low elevations on well-drained to moderately well drained river floodplains influenced by flooding and subsurface water. Parent materials are fluvial. Soil data are very limited, but soils are likely classified as Cumulic Regosols, or where flooding is infrequent, Brunisols. The forest floor usually has some cover of woody debris.

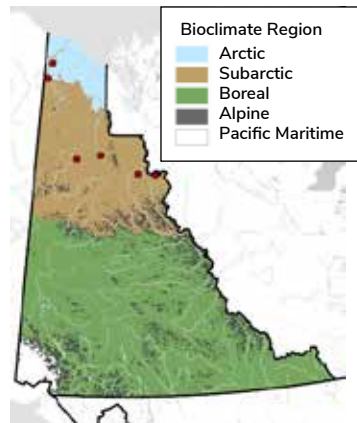
Dynamics: River floodplains undergo continual erosion and deposition processes. B24 stands are mostly influenced by deposition of sediment during annual flooding events. Over time, white spruce may gain in prominence.

**Comments**

- Key characteristics: balsam poplar stand; SUW; river floodplain; river alder usually $\geq 15\%$; horsetails $\geq 15\%$
- Component of CNVC00425 Balsam Poplar / River Alder / Horsetail

B24 Environment table

Zone	SUW
Elevation (m)	25 – 265 – 390
Aspect	neutral
Slope (%)	none
Soil moisture regime	mesic to subhygric
Soil drainage	well to moderately well
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	1 – 10 – 20 (wood)
Soil class	Regosols (limited data)

**B24** Vegetation summary (%)

Trees	0 – 25 – 85	Shrubs	22 – 63 – 99	Ground shrubs	0
Graminoids and forbs	40 – 61 – 95	Bryophytes	0 – 3 – 10	Lichens	0 – 0 – 0.5

Layer	Scientific name	B24	Common name
		n = 6	
Trees	<i>Populus balsamifera</i>	■■■■■	balsam poplar
Shrubs	<i>Alnus incana</i>	■■■■■	river alder
	<i>Rosa acicularis</i>	■■■	prickly rose
	<i>Salix</i> spp.	■■■■	willows
Graminoids	Poaceae	■■■	grass family
Forbs	<i>Aster</i> spp.	■	asters
	<i>Equisetum arvense / pratense</i>	■■■■■	common / meadow horsetail
Bryophytes	<i>Bryophyta</i>	■■	mosses

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

B25 Balsam poplar / Alder – Highbush cranberry / Dwarf raspberry – Bunchberry

B25 is a balsam poplar forest with a small cover of paper birch and/or aspen, and with green alder, prickly rose, highbush cranberry, bunchberry and dwarf raspberry, that occurs in the extreme southeast Yukon in the BOL.

Vegetation: Stands of B25 have a tree canopy dominated by balsam poplar (*Populus balsamifera*), with a component of paper birch (*Betula papyrifera*) and/or aspen (*P. tremuloides*) and white spruce (*Picea glauca*). The shrub layer is very well developed, with green alder (*Alnus alnobetula*), prickly rose (*Rosa acicularis*), highbush cranberry (*Viburnum edule*) and red-osier dogwood (*Cornus sericea*). The ground shrub layer is also well developed, with dwarf raspberry (*Rubus pubescens*); forbs include bunchberry (*Cornus canadensis*), wild sarsaparilla (*Aralia nudicaulis*) and naked mitrewort (*Mitella nuda*). Bryophyte cover is usually absent or of low cover.

No photo
available

Environment: B25 occurs primarily at low elevations on level sites or gentle slopes. Data on soil characteristics are absent.

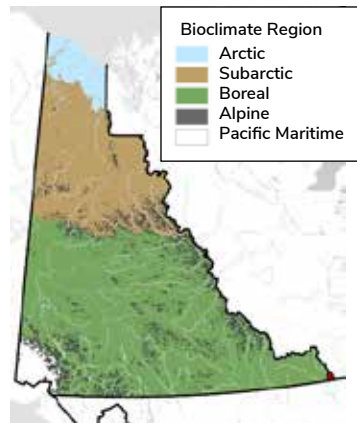
Dynamics: With a combination of balsam poplar, aspen and birch on these sites, they are most likely to regenerate after disturbance to one or more of these species. Resulting stands may be aspen (A26), birch (W25, W26) or balsam poplar or a combination with white spruce (such as ASw21 SwB25, SwW25), depending on seed sources.

Comments

- Key characteristics: balsam poplar stand, usually with some aspen and/or paper birch; extreme southeast Yukon; green alder, prickly rose, highbush cranberry, bunchberry and dwarf raspberry
- Component of CNVC00094 Aspen / Prickly Rose – Highbush Cranberry; Green Alder subassociation

B25 Environment table

Zone	BOL
Elevation (m)	360 – 415 – 600
Aspect	neutral (neutral)
Slope (%)	0 – 4 – 16
Soil moisture regime	mesic
Soil drainage	well to moderately well
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	no data
Soil class	no data

**B25** Vegetation summary (%)

Trees	15 – 33 – 65	Shrubs	45 – 70 – 99	Ground shrubs	0 – 17 – 25
Graminoids and forbs	10 – 35 – 55	Bryophytes	0 – 5 – 20	Lichens	0

Layer	Scientific name	B25	Common name
		n = 6	
Trees	<i>Betula papyrifera</i>	■ ■ ■	paper birch
	<i>Picea glauca</i>	■ ■	white spruce
	<i>Populus balsamifera</i>	■ ■ ■ ■ ■	balsam poplar
	<i>Populus tremuloides</i>	■ ■	trembling aspen
Shrubs	<i>Betula papyrifera</i>	■ ■ ■	paper birch
	<i>Populus balsamifera</i>	■ ■ ■	balsam poplar
	<i>Alnus alnobetula</i>	■ ■ ■ ■	green alder
	<i>Cornus sericea</i>	■ ■ ■	red-osier dogwood
	<i>Rosa acicularis</i>	■ ■ ■ ■	prickly rose
	<i>Sorbus scopulina</i>	■ ■	mountain-ash
	<i>Viburnum edule</i>	■ ■ ■ ■	highbush cranberry
Ground shrubs	<i>Rubus pubescens</i>	■ ■ ■ ■	dwarf raspberry
Graminoids	Poaceae	■ ■ ■	grass family
Forbs	<i>Aralia nudicaulis</i>	■ ■ ■	wild sarsaparilla
	<i>Cornus canadensis</i>	■ ■ ■ ■	bunchberry
	<i>Mitella nuda</i>	■ ■	naked mitrewort
Bryophytes	<i>Bryophyta</i>	■ ■ ■	mosses

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ ■ 1 – 3	■ ■ ■ 3 – 10	■ ■ ■ ■ 10 – 25	■ ■ ■ ■ ■ >25

B27 Balsam poplar / Willow – Soapberry / Alpine hedysarum

B27 is a balsam poplar woodland or forest with willow, soapberry, alpine hedysarum and low cover of horsetails that occurs in the SUW and ARLS.

Vegetation: Stands of B27 have a tree canopy dominated by balsam poplar (*Populus balsamifera*). The shrub layer is well developed, with willows (*Salix* spp.), soapberry (*Shepherdia canadensis*) and often, green or river alder (*Alnus alnobetula*, *A. incana*). Alpine hedysarum (*Hedysarum alpinum*) and low cover of horsetails (*Equisetum arvense*, *E. pratense*) characterize the forb layer. Bryophytes are usually absent or of low cover.

Environment: B27 occurs primarily at low elevations on rapidly drained to well-drained level sites along rivers. Parent materials are coarse-textured fluvial deposits, and soils are classified as Regosols. Subsurface water may be high enough to have some influence on the plant species present. The forest floor usually has a moderate cover of woody debris.

Dynamics: With balsam poplar on these sites, they are most likely to regenerate after disturbance back to balsam poplar, perhaps with some white spruce (SwB20), depending on seed sources.

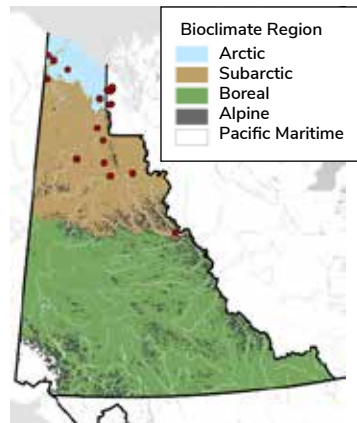
Comments

- Key characteristics: balsam poplar stand; SUW and ARLS; willows, soapberry, alpine hedysarum and low cover of horsetails
- Component of CNVC00415 Balsam Poplar / Willow – Soapberry / Alpine Hedysarum



B27 Environment table

Zone	SUW, ARLS
Elevation (m)	160 – 370 – 520
Aspect	neutral
Slope (%)	0 – 0 – 2
Soil moisture regime	mesic
Soil drainage	rapid to well
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	0.5 – 7 – 15
Soil class	Regosols (limited data)

**B27** Vegetation summary (%)

Trees	15 – 33 – 65	Shrubs	45 – 70 – 99	Ground shrubs	0 – 17 – 25
Graminoids and forbs	10 – 35 – 55	Bryophytes	0 – 5 – 20	Lichens	0

Layer	Scientific name	B27	Common name
		n = 22	
Trees	<i>Populus balsamifera</i>	■■■■■	balsam poplar
Shrubs	<i>Populus balsamifera</i>	■■■	balsam poplar
	<i>Alnus alnobetula / incana</i>	■■■	green / river alder
	<i>Salix</i> spp.	■■■■■	willows
	<i>Shepherdia canadensis</i>	■■■■■	soapberry
Graminoids	Poaceae	■■■	grass family
Forbs	<i>Equisetum arvense / pratense</i>	■■■	common / meadow horsetail
	<i>Hedysarum alpinum</i>	■■■	alpine hedysarum

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

B29 Balsam poplar / Shrubby cinquefoil – Soapberry / Alpine hedysarum

B29 is a balsam poplar floodplain forest or shrubland with soapberry, shrubby cinquefoil and alpine hedysarum that occurs in the BOL.

Vegetation: Stands of B29 have a tree-height or shrub-height tree canopy dominated by balsam poplar (*Populus balsamifera*). Some shrubby white spruce (*Picea glauca*) or larch (*Larix laricina*) may be present. Soapberry (*Shepherdia canadensis*) and shrubby cinquefoil (*Dasiphora fruticosa*) characterize the shrub layer, often with some green alder (*Alnus alnobetula*) or willow (*Salix* spp.). Alpine hedysarum (*Hedysarum alpinum*) and Siberian wood-aster (*Eurybia sibirica*) are common forbs. Bryophyte cover varies.

No photo
available

Environment: B29 occurs primarily at low elevations on rapidly drained to imperfectly drained floodplain sites along rivers. Parent materials are coarse-textured fluvial deposits, and soils (based on limited data) are classified as Regosols. Annual flooding likely occurs, along with some influence of the subsurface water table. The forest floor may have some cover of woody debris.

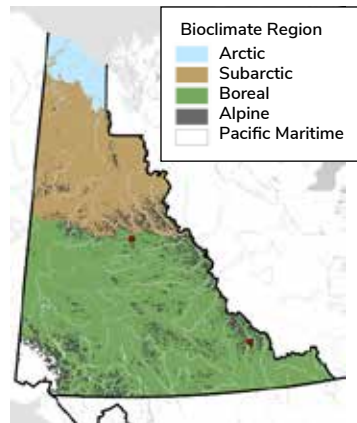
Dynamics: River floodplains undergo continual erosion and deposition processes. B29 stands are mostly influenced by deposition of sediment during annual flooding events. Over time, white spruce will gain in prominence.

Comments

- Key characteristics: balsam poplar stand; BOL; soapberry, shrubby cinquefoil, alpine hedysarum and grasses; with additional data, the association characterization may change somewhat
- CNVC association not yet determined

B29 Environment table

Zone	BOL
Elevation (m)	675 – 765 – 810
Aspect	neutral
Slope (%)	0 – 0 – 1
Soil moisture regime	submesic to mesic
Soil drainage	rapid to imperfect
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	0 – 2 – 5
Soil class	Regosols (limited data)

**B29 Vegetation summary (%)**

Trees	0 – 15 – 40	Shrubs	50 – 60 – 70	Ground shrubs	0 – 1 – 3
Graminoids and forbs	15 – 33 – 60	Bryophytes	0 – 0 – 80	Lichens	0

Layer	Scientific name	B29	Common name
		n = 3	
Shrubs	<i>Larix laricina</i>	■ ■	larch
	<i>Picea glauca</i>	■ ■	white spruce
	<i>Populus balsamifera</i>	■ ■ ■ ■ ■	balsam poplar
	<i>Alnus alnobetula</i>	■	green alder
	<i>Dasiphora fruticosa</i>	■ ■ ■	shrubby cinquefoil
	<i>Shepherdia canadensis</i>	■ ■ ■ ■	soapberry
Graminoids	<i>Carex aurea</i>	■	golden sedge
	<i>Carex capillaris</i>	■	hair-like sedge
	<i>Cypripedium passerinum</i>	■ ■	sparrow's-egg lady's-slipper
	Poaceae	■ ■ ■ ■	grass family
Forbs	<i>Artemisia tilesii</i>	■	Tilesius' wormwood
	<i>Equisetum variegatum</i>	■ ■	variegated scouring-rush
	<i>Eurybia sibirica</i>	■	Siberian wood-aster
	<i>Fragaria virginiana</i>	■ ■ ■	wild strawberry
	<i>Hedysarum alpinum</i>	■ ■ ■	alpine hedysarum
	<i>Parnassia palustris</i>	■	marsh grass-of-Parnassus
	<i>Platanthera hyperborea</i>	■ ■	northern green orchid

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ ■ 1 – 3	■ ■ ■ 3 – 10	■ ■ ■ ■ 10 – 25	■ ■ ■ ■ ■ >25

B31 Balsam poplar / Willow / Fireweed

B31 is a balsam poplar forest with willows and yarrow, often with river alder, fireweed or arctic lupine, that occurs in the BOL and sometimes in the BOH.

Vegetation: Stands of B31 have a tree-height or shrub-height tree canopy dominated by balsam poplar (*Populus balsamifera*), sometimes with minor white spruce (*Picea glauca*). Willows (*Salix* spp.) characterize the shrub layer, often with river alder (*Alnus incana*). Common yarrow (*Achillea millefolium*), fireweed (*Chamaenerion angustifolium*) and arctic lupine (*Lupinus arcticus*) are the most common forbs. Bryophyte cover varies, but can be high.

Environment: B31 occurs primarily at low elevations on well-drained to imperfectly drained floodplain sites along rivers or on gentle lower slopes. Parent materials are mostly coarse-textured fluvial deposits, and soils (based on limited data) are classified as Regosols. Some sites may be influenced by the subsurface water table. The forest floor may have low cover of woody debris.

Dynamics: River floodplains undergo continual erosion and deposition processes. B31 stands can be influenced by deposition of sediment during flooding events, which vary in frequency. Over time, white spruce will gain in prominence.

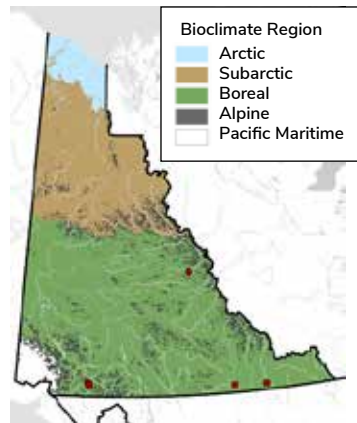
Comments

- Key characteristics: balsam poplar stand; mesic to moist upland or river floodplain; willows, yarrow, often with river alder, fireweed or arctic lupine
- Component of CNVC00414 Balsam Poplar / Willow / Arctic Lupine – Fireweed



B31 Environment table

Zone	BOL (BOH)
Elevation (m)	640 – 735 – 930
Aspect	neutral (warm)
Slope (%)	0 – 2 – 12
Soil moisture regime	mesic (subhygric)
Soil drainage	well to imperfect
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	0 – 1 – 1
Soil class	Regosols

**B31** Vegetation summary (%)

Trees	0 – 38 – 50	Shrubs	10 – 35 – 55	Ground shrubs	0 – 1 – 5
Graminoids and forbs	10 – 30 – 70	Bryophytes	0 – 25 – 75	Lichens	0

Layer	Scientific name	B31	Common name
		n = 5	
Trees	<i>Populus balsamifera</i>	■■■■■	balsam poplar
Shrubs	<i>Populus balsamifera</i>	■■■	balsam poplar
	<i>Salix</i> spp.	■■■■	willows
	<i>Shepherdia canadensis</i>	■	soapberry
Graminoids	Poaceae	■■■	grass family
Forbs	<i>Achillea millefolium</i>	■	common yarrow
	<i>Chamaenerion angustifolium</i>	■■■	fireweed
	<i>Lupinus arcticus</i>	■■	arctic lupine
Bryophytes	<i>Bryophyta</i>	■■■■	mosses

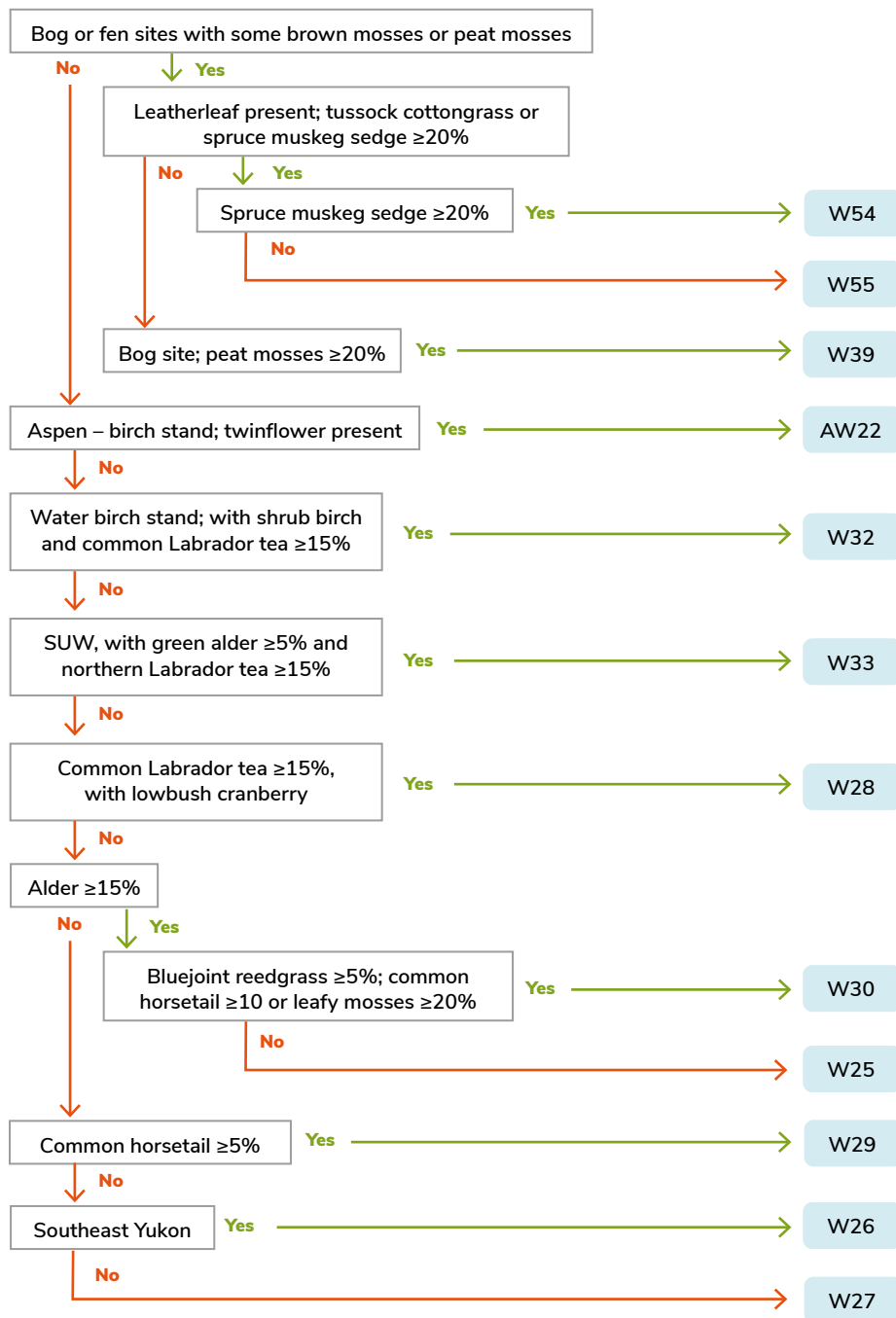
Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

Birch and aspen – birch associations

Birch and aspen – birch associations

Birch-dominated stands (either Alaska birch (Wa), paper birch (Wp) or water birch (Ww) or aspen (A) – birch stands) may include some pine (P), white spruce (Sw) or black spruce (Sb).

Flowchart Birch and aspen – birch associations



Summary of features: Birch or aspen – birch associations**Mesic associations**

	AW22	W25	W26	W27	W28	W32	W33
Zone	BOL	BOL (SUW)	BOL	BOL (BOH, SUW)	BOL	BOH	SUW
Geography	southeast	south, west-central (north-central)	southeast	west-central (north)	west-central	west-central	north-central
Important site features	subxeric to submesic slopes and level	submesic to mesic slopes	subxeric to submesic slopes	submesic to mesic slopes	submesic to mesic slopes	mesic	mesic, colluvial slopes; permafrost
Drainage	rapid to well	well to moderately well	rapid to moderately well	well to moderately well	well	well to moderately well	well to moderately well
Tree canopy	aspen – paper birch (Alaska birch)	Alaska birch (paper birch)	Alaska birch (paper birch)	Alaska birch	Alaska birch	water birch	Alaska birch
Key understorey species	highbush cranberry, green alder, twinflower	green alder, currants	prickly rose, highbush cranberry	prickly rose, bluejoint reedgrass	common Labrador tea, lowbush cranberry, step moss	green alder, common Labrador tea, shrub birch	green alder, northern Labrador tea

Moist and wet (bog, fen) associations

	W29	W30	W39	W54	W55
Zone	BOL	BOL	SUW, ARLS	BOL	BOL
Geography	west-central	west-central	north	west-central	west-central
Important site features	moist, level	moist slopes	bog wetland	fen wetland	fen wetland
Drainage	moderately well to imperfect	moderately well to imperfect	poor	poor to very poor	poor to very poor
Tree canopy	Alaska birch (paper birch)	Alaska birch	Alaska birch	Alaska birch – water birch (black spruce)	Alaska birch
Key understorey species	prickly rose, horsetails	alder, bluejoint reedgrass, horsetails	northern Labrador tea, peat moss	leatherleaf, spruce muskeg sedge, brown moss, step moss	leatherleaf, common Labrador tea, tussock cottongrass

Vegetation tables for birch or aspen – birch associations

Mesic associations

Layer	Scientific name	AW22	W25	W26	W27	W28	W32	W33	Common name
	n =	8	9	2	5	7	3	4	
Trees	<i>Betula neoalaskana</i> / <i>papyrifera</i>	■■■■	■■■■■	■■■■■	■■■■■	■■■■■		■■■■■	Alaska / paper birch
	<i>Picea glauca</i>	■	■■	■■	□	■■		■	white spruce
	<i>Pinus contorta</i>	■							lodgepole pine
	<i>Populus tremuloides</i>	■■■■■							trembling aspen
Shrubs	<i>Betula occidentalis</i>						■■■■■	□	water birch
	<i>Betula neoalaskana</i> / <i>papyrifera</i>	■		■	□	■■		■■■	Alaska / paper birch
	<i>Picea glauca</i>	□		■■		□□			white spruce
	<i>Picea mariana</i>			■					black spruce
	<i>Alnus alnobetula</i>	■■■■	■■■■■			□□□	■■■■■	■■■■■	green alder
	<i>Rhododendron groenlandicum</i>				□	■■■■■	■■■■■		common Labrador tea
	<i>Rhododendron tomentosum</i>							■■■■■	northern Labrador tea
	<i>Ribes</i> spp.	□	■■■	■■	□	□	□	□	currants
	<i>Rosa acicularis</i>	■■■	■■■■■	■■■	■■■■■	■■■	□□	■■■	prickly rose
	<i>Betula glandulosa</i>						■■■■■		shrub birch
	<i>Salix</i> spp.	■■■	□□	■■■	■■	■■	■■■■	□	willows
	<i>Spiraea stevenii</i>							■■■	Steven's spirea
	<i>Vaccinium uliginosum</i>						■■■■	□	blueberry
	<i>Viburnum edule</i>	■■■■		■■■	□□□				highbush cranberry
Ground shrubs	<i>Empetrum nigrum</i>			■		■■■	□□		crowberry
	<i>Linnaea borealis</i>	■■■■	■■	■		□			twinline
	<i>Vaccinium vitis-idaea</i>	■■■	■■■	■	■■■	■■■■	■■■	■■■	lowbush cranberry
Graminoids	<i>Calamagrostis canadensis</i>				■■■■■	■■			bluejoint reedgrass
Forbs	<i>Chamaenerion angustifolium</i>	■	□	■	□	■	□	■	fireweed
	<i>Cornus canadensis</i>	■■	□□□	■■■■					bunchberry
	<i>Geocaulon lividum</i>	■■■				■			bastard toadflax
	<i>Koenigia alaskana</i>							■■	Alaska wild rhubarb
	<i>Spinulum annotinum</i>					■■			stiff club-moss
	<i>Mertensia paniculata</i>	□	□□	■■	■■■	■■	□		tall bluebells
	<i>Pyrola asarifolia</i>	■■■	■						pink wintergreen
Bryophytes	<i>Hylocomium</i> / <i>Pleurozium</i>	■■■	■■■■■	■■■■■	■■■■■	■■■■■	■■■■■		feathermosses
Lichens	<i>Cladina</i> spp.	□		■		■■	□□		reindeer lichens
	<i>Cladonia</i> spp.	□		■■			■■■	□	clad lichens
	<i>Peltigera</i> spp.	□		■■		□	□□□		pelt lichens

Note: gold cells highlight key diagnostic species

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

Moist and wet (bog, fen) associations

Layer	Scientific name	W29	W30	W39	W54	W55	Common name
	n =	3	3	2	3	2	
Trees	<i>Betula neoalaskana</i> / <i>papyrifera</i>	■■■■■	■■■■■	■■■■■		■ ■	Alaska / paper birch
Shrubs	<i>Betula neoalaskana</i> / <i>papyrifera</i>	■ ■ ■				■■■■■	Alaska / paper birch
	<i>Betula occidentalis</i>			■ ■	■■■		water birch
	<i>Picea mariana</i>				■ ■		black spruce
	<i>Picea</i> spp.		□			■	spruces
	<i>Alnus incana</i>		□ □ □			■ ■	river alder
	<i>Betula glandulosa</i>			■■■	□ □ □		shrub birch
	<i>Chamaedaphne calyculata</i>				■■■	■■■■■	leatherleaf
	<i>Cornus sericea</i>	■ ■					red-osier dogwood
	<i>Dasiphora fruticosa</i>				■	■	shrubby cinquefoil
	<i>Rhododendron</i> spp.		□	■■■■■	■■■	■■■■■	Labrador teas
	<i>Ribes triste</i>	□	■■■				swamp red currant
	<i>Rosa acicularis</i>	■■■■■	■ ■				prickly rose
	<i>Rubus idaeus</i>	■ ■ ■					red raspberry
	<i>Salix</i> spp.	■ ■ ■	□	■ ■ ■	■■■■■	■■■■■	willows
	<i>Vaccinium uliginosum</i>				■■■	■ ■	blueberry
	<i>Viburnum edule</i>	■ ■ ■	□				highbush cranberry
	<i>Alnus alnobetula</i>		□ □ □ □	■ ■ ■ ■		■ ■ ■	green alder
Ground shrubs	<i>Arctous rubra</i>				■ ■	■	red bearberry
	<i>Linnaea borealis</i>		■ ■	■ ■			twinline
	<i>Rubus chamaemorus</i>			■	■	■ ■	cloudberry
	<i>Vaccinium vitis-idaea</i>		■ ■	■■■■■	■ ■ ■		lowbush cranberry
Graminoids	<i>Calamagrostis canadensis</i>	□ □ □	■ ■ ■		□	■ ■	bluejoint reedgrass
	<i>Carex bigelowii</i> ssp. <i>lugens</i>				■■■■■		spruce muskeg sedge
	<i>Eriophorum vaginatum</i>			■ ■	■■■	■■■■■	tussock cottongrass
Forbs	<i>Equisetum arvense</i>	■■■	■■■■■			■ ■	common horsetail
	<i>Koenigia alaskana</i>		■				Alaska wild rhubarb
	<i>Mertensia paniculata</i>	■■■	■ ■				tall bluebells
	<i>Petasites frigidus</i>		□	■ ■			arctic sweet coltsfoot
Bryophytes	<i>Aulacomnium</i> / <i>Tomentypnum</i>				■■■■■	■	brown mosses
	<i>Dicranum</i> spp.				■ ■	■	heron's-bill mosses
	<i>Hylocomium</i> / <i>Pleurozium</i>		■■■■■		■■■■■	■■■■■	feathermosses
	<i>Plagiomnium</i> / <i>Mnium</i> spp.		■ ■ ■				leafy mosses
	<i>Sphagnum</i> spp.		■	■■■■■	□ □ □	■■■	peat mosses
	<i>Bryophyta</i>	□ □ □	□ □ □	■ ■ ■ ■			mosses
Lichens	<i>Cladonia</i> spp.			■			clad lichens

Note: gold cells highlight key diagnostic species

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ ■ 1 – 3	■ ■ ■ 3 – 10	■ ■ ■ ■ 10 – 25	■ ■ ■ ■ ■ >25

Fact sheets: Birch and aspen – birch associations

AW22 Aspen – Paper birch / Highbush cranberry / Twinflower

AW22 is a forest with a combination of aspen and paper birch and with green alder, highbush cranberry, prickly rose, twinflower and light feathermoss cover that occurs on rapidly drained to well-drained sites in the BOL.

Vegetation: Stands of AW22 have a tree canopy of aspen (*Populus tremuloides*) and birch, likely paper birch (*Betula papyrifera*), but Alaska birch (*B. neoalaskana*) may occur or replace paper birch. Minor amounts of white spruce (*Picea glauca*) or pine (*Pinus contorta*) may also be present. The shrub layer is moderately well developed to well developed, with green alder (*Alnus alnobetula*), prickly rose (*Rosa acicularis*), highbush cranberry (*Viburnum edule*) and willows (*Salix* spp.). The ground shrub layer is usually dominated by twinflower (*Linnaea borealis*) or lowbush cranberry (*Vaccinium vitis-idaea*). Common forbs are bastard toadflax (*Geocaulon lividum*), pink wintergreen (*Pyrola asarifolia*) and bunchberry (*Cornus canadensis*). Bryophyte cover is light to moderate.

Environment: AW22 occurs at moderate elevations on rapidly drained to well-drained level sites or gentle to moderate slopes. Parent materials are glaciofluvial or morainal. Based on limited data, soils are classified as Brunisols or Podzols. The forest floor has low to moderate cover of woody debris.

Dynamics: With aspen and birch on these sites, they are most likely to regenerate after disturbance to one (A26, W26) or both species.

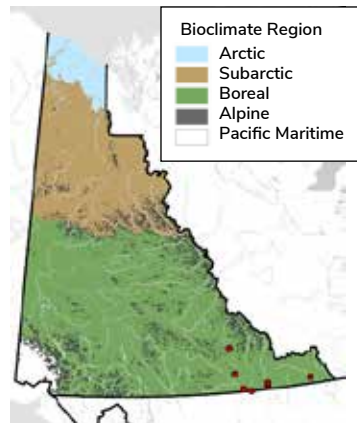
Comments

- Key characteristics: aspen – birch stand; green alder, highbush cranberry, prickly rose, twinflower, pink wintergreen
- CNVC association not yet determined



AW22 Environment table

Zone	BOL
Elevation (m)	510 – 700 – 840
Aspect	variable (neutral)
Slope (%)	0 – 16 – 36
Soil moisture regime	subxeric to mesic
Soil drainage	rapid to well
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	2 – 6 – 10 (wood)
Soil class	Brunisols, Podzols (limited data)

**AW22 Vegetation summary (%)**

Trees	30 – 60 – 85	Shrubs	10 – 50 – 99	Ground shrubs	1 – 22 – 50
Graminoids and forbs	1 – 16 – 55	Bryophytes	0 – 8 – 20	Lichens	0 – 2 – 6

Layer	Scientific name	AW22	Common name
		n = 8	
Trees	<i>Betula papyrifera</i>	■■■■■	paper birch
	<i>Picea glauca</i>	■	white spruce
	<i>Pinus contorta</i>	■	lodgepole pine
	<i>Populus tremuloides</i>	■■■■■	trembling aspen
Shrubs	<i>Alnus alnobetula</i>	■■■■■	green alder
	<i>Betula papyrifera</i>	■	paper birch
	<i>Rosa acicularis</i>	■■■	prickly rose
	<i>Salix</i> spp.	■■■	willows
	<i>Viburnum edule</i>	■■■■■	highbush cranberry
Ground shrubs	<i>Linnaea borealis</i>	■■■■■	twinflower
	<i>Vaccinium vitis-idaea</i>	■■■	lowbush cranberry
Forbs	<i>Chamaenerion angustifolium</i>	■	fireweed
	<i>Cornus canadensis</i>	■■	bunchberry
	<i>Geocaulon lividum</i>	■■■	bastard toadflax
	<i>Pyrola asarifolia</i>	■■■	pink wintergreen
Bryophytes	<i>Hylocomium</i> / <i>Pleurozium</i>	■■■	feathermosses

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

W25 Alaska birch / Alder – Prickly rose

W25 is an Alaska birch forest with green alder and prickly rose that occurs on mesic slopes in the BOL and sometimes in the SUW.

Vegetation: Stands of W25 have a tree canopy of Alaska birch (*Betula neoalaskana*) or possibly paper birch (*B. papyrifera*). Minor amounts of white spruce (*Picea glauca*) or aspen (*Populus tremuloides*) may occur. The shrub layer is dominated by green alder (*Alnus alnobetula*) and prickly rose (*Rosa acicularis*), usually with some currants (*Ribes* spp.). The ground shrub layer is lightly developed, often with some lowbush cranberry (*Vaccinium vitis-idaea*) or twinflower (*Linnaea borealis*); forbs include pink wintergreen (*Pyrola asarifolia*). Low to moderate cover of feathermosses (*Hylocomium splendens*, *Pleurozium schreberi*) is common.

Environment: W25 occurs primarily at low to moderate elevations on well-drained to moderately well drained gentle to moderate slopes. Parent materials are colluvial or morainal. Permafrost may be present. Based on limited data, soils are classified as Eutric Brunisols or Turbic Cryosols. The forest floor usually has a low to moderate cover of woody debris or rocks.

Dynamics: With birch dominating these sites, they are most likely to regenerate after disturbance back to birch. Other species may seed into sites, such as aspen or white spruce.

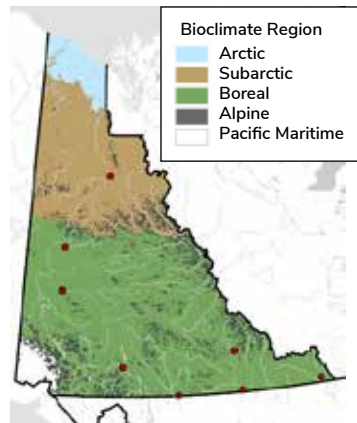
Comments

- Key characteristics: birch stand; green alder ≥10%, prickly rose; currants usually present
- Component of CNVC00416 Alaska Birch / Prickly Rose – Green Alder



W25 **Environment table**

Zone	BOL (SUW)
Elevation (m)	350 – 665 – 870
Aspect	variable
Slope (%)	5 – 28 – 50
Soil moisture regime	submesic to mesic
Soil drainage	well to moderately well
Permafrost presence/depth (cm)	infrequent to frequent
Unvegetated cover (%)	0 – 7 – 15 (wood)
Soil class	Brunisol (Eutric), Cryosols (Turbic)

**W25** **Vegetation summary (%)**

Trees	25 – 62 – 95	Shrubs	15 – 54 – 99	Ground shrubs	0 – 7 – 35
Graminoids and forbs	0.3 – 11 – 40	Bryophytes	1 – 21 – 40	Lichens	0 – 3 – 10

Layer	Scientific name	W25	Common name
		n = 9	
Trees	<i>Betula neoalaskana</i>	■■■■■	Alaska birch
	<i>Picea glauca</i>	■ ■	white spruce
Shrubs	<i>Alnus alnobetula</i>	■■■■■	green alder
	<i>Rosa acicularis</i>	■■■■	prickly rose
	<i>Ribes</i> spp.	■■■	currants
Ground shrubs	<i>Linnaea borealis</i>	■ ■	twainflower
	<i>Vaccinium vitis-idaea</i>	■ ■ ■	lowbush cranberry
Graminoids	Poaceae	■ ■	grass family
Forbs	<i>Pyrola asarifolia</i>	■	pink wintergreen
Bryophytes	<i>Hylocomium</i> / <i>Pleurozium</i>	■■■■	feathermosses

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

W26 **Alaska birch / Highbush cranberry – Prickly rose / Tall bluebells**

W26 is an Alaska birch forest with highbush cranberry, prickly rose and tall bluebells that occurs on mesic slopes in the BOL.

Vegetation: Stands of W26 have a tree canopy of Alaska birch (*Betula neoalaskana*) or possibly paper birch (*B. papyrifera*). Minor amounts of white spruce (*Picea glauca*) or black spruce (*P. mariana*) may occur. The shrub layer is lightly developed, with highbush cranberry (*Viburnum edule*) and prickly rose (*Rosa acicularis*), often with some currants (*Ribes* spp.). The ground shrub layer is usually lightly developed. Common forbs are tall bluebells (*Mertensia paniculata*) and bunchberry (*Cornus canadensis*). Low to moderate cover of feathermosses (*Hylocomium splendens*, *Pleurozium schreberi*) is common.

No photo
available

Environment: W26 occurs primarily at moderate elevations on gentle slopes. Parent materials are colluvial or shallow to bedrock. Soil data are lacking. The forest floor usually has moderate cover of woody debris.

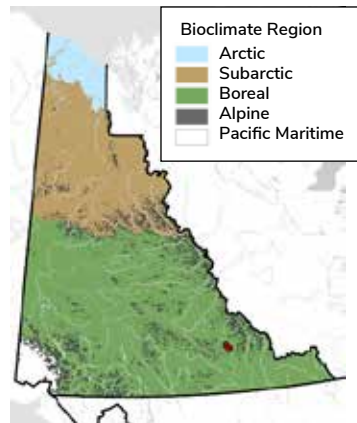
Dynamics: With birch dominating these sites, they are most likely to regenerate after disturbance back to birch. Other species may seed into sites, such as black or white spruce.

Comments

- Key characteristics: southeast Yukon; birch stand; highbush cranberry, prickly rose, tall bluebells
- CNVC association not yet determined

W26 Environment table

Zone	BOL
Elevation (m)	740 – 860 – 980
Aspect	variable
Slope (%)	4 – 8 – 12
Soil moisture regime	subxeric to submesic
Soil drainage	rapid to moderately well
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	7 – 8 – 10 (wood)
Soil class	no data

**W26 Vegetation summary (%)**

Trees	75 – 78 – 80	Shrubs	10 – 15 – 20	Ground shrubs	1 – 2 – 2
Graminoids and forbs	8 – 28 – 45	Bryophytes	2 – 19 – 35	Lichens	1 – 3 – 4

Layer	Scientific name	W26	Common name
		n = 2	
Trees	<i>Betula neoalaskana</i>	■■■■■	Alaska birch
	<i>Picea glauca</i>	■■	white spruce
Shrubs	<i>Picea glauca</i>	■■	white spruce
	<i>Picea mariana</i>	■	black spruce
	<i>Ribes hudsonianum</i>	■■	black currant
	<i>Rosa acicularis</i>	■■■	prickly rose
	<i>Salix</i> spp.	■■■	willows
	<i>Viburnum edule</i>	■■■	highbush cranberry
	<i>Cornus canadensis</i>	■■■■	bunchberry
Forbs	<i>Diphysastrum complanatum</i>	■■	ground-cedar
	<i>Mertensia paniculata</i>	■■	tall bluebells
	<i>Hylocomium splendens</i>	■■■■	step moss
Bryophytes	<i>Pleurozium schreberi</i>	■■■	red-stemmed feathermoss
	<i>Peltigera</i> spp.	■■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

W27 Alaska birch / Prickly rose / Bluejoint reedgrass

W27 is an Alaska birch forest with prickly rose and bluejoint reedgrass that occurs on mesic slopes in the BOL and sometimes in the BOH or SUW.

Vegetation: Stands of W27 have a tree canopy of Alaska birch (*Betula neoalaskana*). Minor amounts of white spruce (*Picea glauca*) or aspen (*Populus tremuloides*) may occur. The shrub layer is lightly developed to moderately developed, mostly with prickly rose (*Rosa acicularis*) and sometimes with Labrador teas (*Rhododendron* spp.). Bluejoint reedgrass (*Calamagrostis canadensis*) is usually dominant in the understorey, often with some lowbush cranberry (*Vaccinium vitis-idaea*) or tall bluebells (*Mertensia paniculata*). Moderate to high cover of step moss (*Hylocomium splendens*) is common.

Environment: W27 occurs primarily at low to moderate elevations on moderate to steep colluvial slopes. Soil data are lacking. The forest floor usually has some cover of woody debris.

Dynamics: With birch dominating these sites, they are most likely to regenerate after disturbance back to birch. Other species may seed into sites, such as aspen or white spruce.

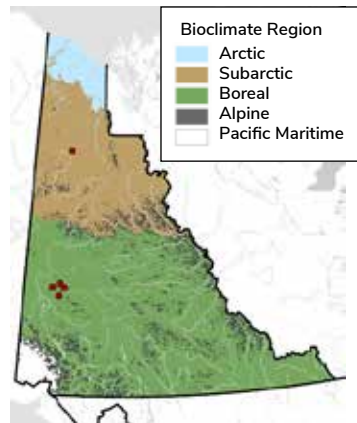
Comments

- Key characteristics: birch stand; prickly rose, bluejoint reedgrass, step moss
- CNVC association not yet determined



W27 Environment table

Zone	BOL (BOH, SUW)
Elevation (m)	390 – 715 – 1095
Aspect	variable
Slope (%)	1 – 37 – 65
Soil moisture regime	submesic to mesic
Soil drainage	well to moderately well
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	no data
Soil class	no data

**W27** Vegetation summary (%)

Trees	10 – 55 – 80	Shrubs	5 – 25 – 50	Ground shrubs	0 – 6 – 20
Graminoids and forbs	2 – 25 – 50	Bryophytes	0 – 17 – 50	Lichens	0

Layer	Scientific name	W27	Common name
		n = 5	
Trees	<i>Betula neoalaskana</i>	■■■■■	Alaska birch
Shrubs	<i>Rhododendron</i> spp.	■	Labrador teas
	<i>Rosa acicularis</i>	■■■■	prickly rose
	<i>Salix</i> spp.	■■■	willows
Ground shrubs	<i>Vaccinium vitis-idaea</i>	■■■	lowbush cranberry
Graminoids	<i>Calamagrostis canadensis</i>	■■■■	bluejoint reedgrass
Forbs	<i>Mertensia paniculata</i>	■■■	tall bluebells
Bryophytes	<i>Hylocomium splendens</i>	■■■■	step moss

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

W28 **Alaska birch / Labrador tea / Lowbush cranberry / Step moss**

W28 is an Alaska birch forest with common Labrador tea, lowbush cranberry and step moss that occurs on mesic slopes in the BOL.

No photo
available

Vegetation: Stands of W28 have a tree canopy of Alaska birch (*Betula neoalaskana*), with a minor extent of white spruce (*Picea glauca*) and sometimes, aspen (*Populus tremuloides*). The shrub layer is moderately developed to very well developed, dominated by common Labrador tea (*Rhododendron groenlandicum*), with some prickly rose (*Rosa acicularis*). Lowbush cranberry (*Vaccinium vitis-idaea*) dominates the ground shrub layer, usually with some black crowberry (*Empetrum nigrum*). Graminoids include bluejoint reedgrass (*Calamagrostis canadensis*). Forbs include fireweed (*Chamaenerion angustifolium*) and tall bluebells (*Mertensia paniculata*). Moderately high to high cover of step moss (*Hylocomium splendens*) is characteristic.

Environment: W28 occurs at low to moderate elevations, mostly on moderate to steep slopes. Soil data are lacking. The forest floor likely has some cover of woody debris.

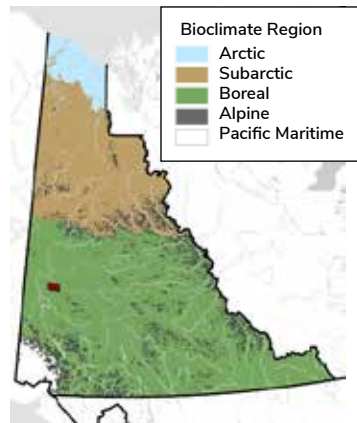
Dynamics: With birch dominating these sites, they are most likely to regenerate after disturbance back to birch. Other species may seed into sites, such as aspen or white spruce.

Comments

- Key characteristics: birch stand; common Labrador tea $\geq 15\%$; lowbush cranberry $\geq 15\%$; moderate to high cover of step moss
- CNVC association not yet determined

W28 Environment table

Zone	BOL
Elevation (m)	600 – 920 – 1040
Aspect	variable
Slope (%)	8 – 36 – 62
Soil moisture regime	submesic to mesic
Soil drainage	well
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	no data
Soil class	no data

**W28** Vegetation summary (%)

Trees	50 – 60 – 70	Shrubs	20 – 43 – 95	Ground shrubs	20 – 30 – 40
Graminoids and forbs	1 – 8 – 12	Bryophytes	10 – 40 – 55	Lichens	0 – 2 – 5

Layer	Scientific name	W28	Common name
		n = 7	
Trees	<i>Betula neoalaskana</i>	■■■■■	Alaska birch
	<i>Picea glauca</i>	■■	white spruce
Shrubs	<i>Betula neoalaskana</i>	■■	Alaska birch
	<i>Rhododendron groenlandicum</i>	■■■■■	common Labrador tea
	<i>Rosa acicularis</i>	■■■	prickly rose
	<i>Salix</i> spp.	■■	willows
Ground shrubs	<i>Empetrum nigrum</i>	■■■	crowberry
	<i>Vaccinium vitis-idaea</i>	■■■■■	lowbush cranberry
Graminoids	<i>Calamagrostis canadensis</i>	■■	bluejoint reedgrass
Forbs	<i>Chamaenerion angustifolium</i>	■	fireweed
	<i>Diphysastrum complanatum</i>	■	ground-cedar
	<i>Geocaulon lividum</i>	■	bastard toadflax
	<i>Spinulum annotinum</i>	■■	stiff club-moss
	<i>Mertensia paniculata</i>	■■	tall bluebells
Bryophytes	<i>Hylocomium splendens</i>	■■■■■	step moss
Lichens	<i>Cladina</i> spp.	■■	reindeer lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

W29 **Alaska birch / Prickly rose / Horsetail**

W29 is a birch forest with prickly rose and horsetail that occurs on floodplains in the BOL.

No photo
available

Vegetation: Stands of W29 have a tree canopy of Alaska birch (*Betula neoalaskana*) or paper birch (*B. papyrifera*), the latter generally restricted to sites in the extreme southeast Yukon. Minor amounts of white spruce (*Picea glauca*) or balsam poplar (*Populus balsamifera*) may occur. The shrub layer is well developed, mostly with prickly rose (*Rosa acicularis*), but potentially including some red-osier dogwood (*Cornus sericea*), red raspberry (*Rubus idaeus*), highbush cranberry (*Viburnum edule*) or willow (*Salix* spp.). Common horsetail (*Equisetum arvense*) characterizes the ground shrub layer. Tall bluebells (*Mertensia paniculata*) are also present. Bryophytes are of low cover or absent.

Environment: W29 occurs on moderately well drained to imperfectly drained river floodplains influenced by flooding and subsurface water. Soil data are very limited, but soils are likely classified as Regosols or, where flooding is infrequent, Brunisols.

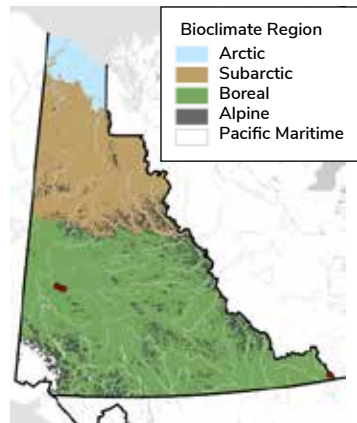
Dynamics: River floodplains undergo continual erosion and deposition processes. W29 stands are likely either less frequently flooded mid-bench floodplains or seral stands of higher bench ecosystems. The degree of flooding likely varies. With birch dominating these sites, they are most likely to regenerate back to birch after stand disturbance, but other species such as balsam poplar or white spruce may seed into the sites.

Comments

- Key characteristics: floodplain site; birch stand; prickly rose, common horsetail $\geq 5\%$
- CNVC association not yet determined

W29 Environment table

Zone	BOL
Elevation (m)	375 – 400 – 435
Aspect	neutral
Slope (%)	0 – 0 – 0
Soil moisture regime	subhygric
Soil drainage	moderately well to imperfect
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	no data
Soil class	no data

**W29 Vegetation summary (%)**

Trees	10 – 40 – 60	Shrubs	60 – 65 – 70	Ground shrubs	0
Graminoids and forbs	15 – 20 – 25	Bryophytes	0 – 5 – 15	Lichens	0

Layer	Scientific name	W29	Common name
		n = 3	
Trees	<i>Betula neoalaskana</i>	■ ■ ■ ■ ■	Alaska birch
	<i>Betula papyrifera</i>	■ ■ ■	paper birch
Shrubs	<i>Cornus sericea</i>	■ ■	red-osier dogwood
	<i>Rosa acicularis</i>	■ ■ ■ ■ ■	prickly rose
	<i>Rubus idaeus</i>	■ ■ ■	red raspberry
	<i>Salix</i> spp.	■ ■ ■	willows
	<i>Viburnum edule</i>	■ ■ ■	highbush cranberry
Forbs	<i>Equisetum arvense</i>	■ ■ ■	common horsetail
	<i>Mertensia paniculata</i>	■ ■ ■	tall bluebells

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ ■ 1 – 3	■ ■ ■ 3 – 10	■ ■ ■ ■ 10 – 25	■ ■ ■ ■ ■ >25

W30 Alaska birch / Currant / Horsetail

W30 is a birch forest with alder, swamp red currant, bluejoint reedgrass and horsetails that occurs on moist slopes in the BOL.

No photo
available

Vegetation: Stands of W30 have a tree canopy of Alaska birch (*Betula neoalaskana*), sometimes with minor white spruce (*Picea glauca*). The shrub layer is well developed, with alder (*Alnus alnobetula*, *A. incana*), swamp red currant (*Ribes triste*) and prickly rose (*Rosa acicularis*). Ground shrubs include lowbush cranberry (*Vaccinium vitis-idaea*); graminoids include bluejoint reedgrass (*Calamagrostis canadensis*). Forbs include common horsetail (*Equisetum arvense*) and tall bluebells (*Mertensia paniculata*). Step moss (*Hylocomium splendens*) is of moderate to high cover. Leafy mosses (*Plagiomnium*, *Mnium*) can be of moderately high cover. Peat moss (*Sphagnum* spp.), of low cover, is often present.

Environment: W30 occurs on moist moderately well drained to imperfectly drained gentle to moderate slopes. Based on very limited soil data, parent materials are colluvial and soils are classified as Turbic Cryosols. The forest floor usually has some cover of rocks or woody debris.

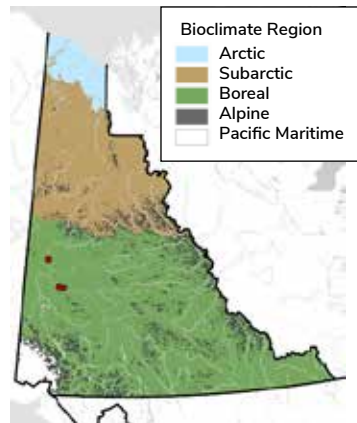
Dynamics: With birch dominating these sites, they are most likely to regenerate after disturbance back to birch. Other species may seed into sites, such as white spruce.

Comments

- Key characteristics: moist slope; birch stand; alder $\geq 15\%$; bluejoint reedgrass $\geq 5\%$; either common horsetail $\geq 10\%$ or leafy mosses $\geq 20\%$
- Component of CNVC00421 Alaska Birch / Currant / Horsetail / Step Moss

W30 Environment table

Zone	BOL
Elevation (m)	370 – 415 – 465
Aspect	variable
Slope (%)	17 – 22 – 30
Soil moisture regime	subhygric
Soil drainage	moderately well to imperfect
Permafrost presence/depth (cm)	infrequent (limited data)
Unvegetated cover (%)	1 – 5 – 10 (rocks, wood)
Soil class	Cryosols (limited data)

**W30** Vegetation summary (%)

Trees	50 – 30 – 60	Shrubs	23 – 35 – 50	Ground shrubs	0.1 – 2 – 4
Graminoids and forbs	17 – 34 – 65	Bryophytes	45 – 55 – 65	Lichens	0

Layer	Scientific name	W30	Common name
		n = 3	
Trees	<i>Betula neoalaskana</i>	■■■■■	Alaska birch
Shrubs	<i>Ribes triste</i>	■■■	swamp red currant
	<i>Rosa acicularis</i>	■■	prickly rose
Ground shrubs	<i>Linnaea borealis</i>	■■	twinline
	<i>Vaccinium vitis-idaea</i>	■■	lowbush cranberry
Graminoids	<i>Calamagrostis canadensis</i>	■■■	bluejoint reedgrass
Forbs	<i>Equisetum arvense</i>	■■■■■	common horsetail
	<i>Koenigia alaskana</i>	■	Alaska wild rhubarb
	<i>Mertensia paniculata</i>	■■	tall bluebells
Bryophytes	<i>Hylocomium splendens</i>	■■■■■	step moss
	<i>Plagiomnium / Mnium</i>	■■■	leafy mosses
	<i>Sphagnum</i> spp.	■	peat mosses

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

W32 Water birch / Shrub birch – Labrador tea

W32 is a water birch forest with shrub birch, common Labrador tea and green alder that occurs on mesic slopes in the BOH.

Vegetation: Stands of W32 have a tree canopy of water birch (*Betula occidentalis*). The shrub layer is very well developed, with shrub birch (*Betula glandulosa*), common Labrador tea (*Rhododendron groenlandicum*), green alder (*Alnus alnobetula*) and often willows (*Salix* spp.) and blueberry (*Vaccinium uliginosum*). The ground shrub layer is lightly developed to moderately developed, with lowbush cranberry (*Vaccinium vitis-idaea*), and graminoids include bluejoint reedgrass (*Calamagrostis canadensis*). Bryophytes include step moss (*Hylocomium splendens*), red-stemmed feathermoss (*Pleurozium schreberi*) and haircap mosses (*Polytrichum commune*, *P. juniperinum*).

Environment: W32 occurs at moderate elevations on well-drained to moderately well drained gentle to moderate colluvial slopes or ridge crests. Soils are classified as Brunisols or Cryosols. The forest floor has low to moderate cover of rocks and sometimes woody debris.

Dynamics: With water birch dominating these sites, they are most likely to regenerate after disturbance back to water birch.

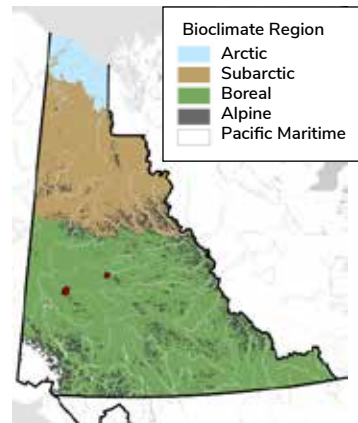
Comments

- Key characteristics: water birch stand; green alder $\geq 10\%$, shrub birch present; common Labrador tea $\geq 15\%$; step moss present
- Component of CNVC00420 Shrub Birch – Water Birch / Labrador Tea



W32 Environment table

Zone	BOH
Elevation (m)	960 – 1050 – 1110
Aspect	variable
Slope (%)	0 – 15 – 30
Soil moisture regime	mesic
Soil drainage	well to moderately well
Permafrost presence/depth (cm)	occasional
Unvegetated cover (%)	2 – 12 – 25 (rocks, wood)
Soil class	Brunisols (Dystric), Cryosols (Static)

**W32** Vegetation summary (%)

Trees	30 – 42 – 50	Shrubs	40 – 90 – 99	Ground shrubs	5 – 8 – 10
Graminoids and forbs	0 – 10 – 18	Bryophytes	10 – 35 – 50	Lichens	0.2 – 8 – 15

Layer	Scientific name	W32	Common name
		n = 3	
Trees	<i>Betula occidentalis</i>	■■■■■	water birch
Shrubs	<i>Alnus alnobetula</i>	■■■■■	green alder
	<i>Betula glandulosa</i>	■■■■■	shrub birch
	<i>Rhododendron groenlandicum</i>	■■■■	common Labrador tea
	<i>Salix</i> spp.	■■■■	willows
	<i>Vaccinium uliginosum</i>	■■■■	blueberry
Ground shrubs	<i>Vaccinium vitis-idaea</i>	■■■	lowbush cranberry
Graminoids	Poaceae	■■■	grass family
Bryophytes	<i>Hylocomium</i> / <i>Pleurozium</i>	■■■■■	feathermosses
	<i>Polytrichum</i> spp.	■■■	haircap mosses
Lichens	<i>Cladonia</i> spp.	■■■	clad lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

W33 Alaska birch / Alder – Northern Labrador tea

W33 is an Alaska birch forest with green alder, northern Labrador tea and lowbush cranberry that occurs on mesic slopes in the SUW.

Vegetation: Stands of W33 have a tree canopy of Alaska birch (*Betula neoalaskana*), with a minor extent of white spruce (*Picea glauca*) or black spruce (*P. mariana*). The shrub layer is moderately developed to very well developed, with green alder (*Alnus alnobetula*), northern Labrador tea (*Rhododendron tomentosum*), and usually some prickly rose (*Rosa acicularis*) and Steven's spirea (*Spiraea stevenii*). Lowbush cranberry (*Vaccinium vitis-idaea*) is consistent in the ground shrub layer, and usually there is some fireweed (*Chamaenerion angustifolium*) in the forb layer. Bryophyte cover is light.

Environment: W33 occurs at low to moderate elevations on gentle to moderate colluvial slopes. Soils are well drained to moderately well drained. Permafrost occurs. Soils are classified as Cryosols. The forest floor usually has some cover of woody debris.

Dynamics: With birch dominating these sites, they are most likely to regenerate after disturbance back to birch. Other species may seed into sites, such as black or white spruce.

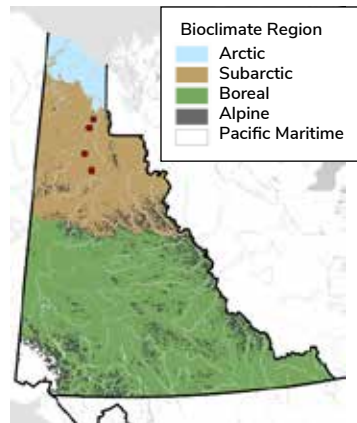
Comments

- Key characteristics: birch stand; SUW; northern Labrador tea $\geq 10\%$; green alder $\geq 5\%$; lowbush cranberry
- Component of CNVC00417 Alaska Birch / Green Alder – Northern Labrador Tea



W33 Environment table

Zone	SUW
Elevation (m)	340 – 465 – 620
Aspect	variable
Slope (%)	9 – 20 – 32
Soil moisture regime	mesic
Soil drainage	well to moderately well
Permafrost presence/depth (cm)	present
Unvegetated cover (%)	5 – 7 – 10
Soil class	Cryosols (Turbic, Static)

**W33** Vegetation summary (%)

Trees	11 – 25 – 40	Shrubs	30 – 60 – 99	Ground shrubs	1 – 5 – 10
Graminoids and forbs	7 – 11 – 20	Bryophytes	0 – 4 – 10	Lichens	0 – 1 – 1

Layer	Scientific name	W33	Common name
		n = 4	
Trees	<i>Betula neoalaskana</i>	■■■■■	Alaska birch
	<i>Picea glauca</i>	■	white spruce
	<i>Picea mariana</i>	■	black spruce
Shrubs	<i>Alnus alnobetula</i>	■■■■■	green alder
	<i>Betula neoalaskana</i>	■■■	Alaska birch
	<i>Rhododendron tomentosum</i>	■■■■■	northern Labrador tea
	<i>Rosa acicularis</i>	■■■	prickly rose
	<i>Spiraea stevenii</i>	■■■	Steven's spirea
Ground shrubs	<i>Vaccinium vitis-idaea</i>	■■■	lowbush cranberry
Forbs	<i>Chamaenerion angustifolium</i>	■	fireweed
	<i>Koenigia alaskana</i>	■■	Alaska wild rhubarb

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

W39 Alaska birch / Northern Labrador tea / Peat moss

W39 is a birch forest with northern Labrador tea, lowbush cranberry and peat moss that occurs in the SUW and ARLS. This association may be a component of the Sb – Labrador Tea – Peat Moss Bog ecosite (B03).

Vegetation: Stands of W39 have a tree canopy of Alaska birch (*Betula neoalaskana*), sometimes with minor white spruce (*Picea glauca*) or water birch (*B. occidentalis*). The shrub layer is very well developed, mostly with northern Labrador tea (*Rhododendron tomentosum*), but it can include green alder (*Alnus alnobetula*) and shrub birch (*Betula glandulosa*). Lowbush cranberry (*Vaccinium vitis-idaea*) is the dominant ground shrub. Cloudberry (*Rubus chamaemorus*) and arctic sweet coltsfoot (*Petasites frigidus*) also occur. Peat mosses (*Sphagnum* spp.) are prominent.

Environment: W39 occurs on boggy sites. Soil data are very limited. The forest floor usually has some cover of woody debris.

Dynamics: With birch dominating these sites, they are most likely to regenerate after disturbance back to birch. However, over time black or white spruce will establish and eventually dominate.

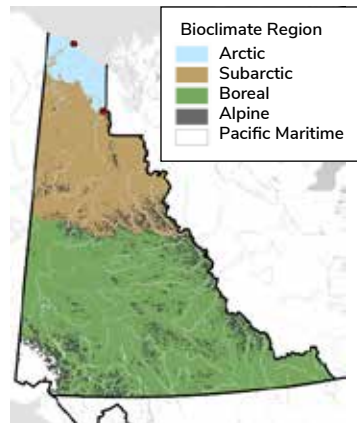
Comments

- Due to the low number of plots and the limited soil data, it is uncertain how well this association fits with the B03 bog ecosite
- Key characteristics: boggy site; birch stand; northern Labrador tea, lowbush cranberry and peat moss, each of moderate to high cover
- CNVC association not yet determined



W39 Environment table

Zone	SUW, ARLS
Elevation (m)	2 – 320
Aspect	neutral, cool
Slope (%)	0 – 12
Soil moisture regime	subhydic
Soil drainage	poor
Permafrost presence/depth (cm)	likely (no data)
Unvegetated cover (%)	0 – 10 (wood)
Soil class	Cryosols (no data)

**W39 Vegetation summary (%)**

Trees	25 – 28 – 30	Shrubs	65 – 70 – 75	Ground shrubs	18 – 19 – 20
Graminoids and forbs	5 – 6 – 7	Bryophytes	30 – 35 – 40	Lichens	1 – 1 – 1

Layer	Scientific name	W39	Common name
		n = 2	
Trees	<i>Betula neoalaskana</i>	■■■■■	Alaska birch
Shrubs	<i>Alnus alnobetula</i>	■■■■	green alder
	<i>Betula glandulosa</i>	■■■	shrub birch
	<i>Betula occidentalis</i>	■■	water birch
	<i>Rhododendron tomentosum</i>	■■■■■	northern Labrador tea
	<i>Ribes oxycanthoides</i>	■■	northern gooseberry
	<i>Salix</i> spp.	■■■	willows
	<i>Spiraea stevenii</i>	■■	Steven's spirea
Ground shrubs	<i>Linnaea borealis</i>	■■	twinline
	<i>Rubus chamaemorus</i>	■	cloudberry
	<i>Vaccinium vitis-idaea</i>	■■■■	lowbush cranberry
Graminoids	<i>Eriophorum vaginatum</i>	■■	tussock cottongrass
Forbs	<i>Petasites frigidus</i>	■■■	arctic sweet coltsfoot
Bryophytes	<i>Bryophyta</i>	■■■■	mosses
	<i>Sphagnum</i> spp.	■■■■	peat mosses
Lichens	<i>Cladonia</i> spp.	■	clad lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

W54 **Alaska birch / Leatherleaf / Spruce muskeg sedge**

W54 is a birch fen with leatherleaf, willow, common Labrador tea, spruce muskeg sedge, tussock cottongrass and brown mosses that occurs in the BOL. This association is a component of the Sb – Tussock Sedge Fen ecosite (F05).

No photo
available

Vegetation: Stands of W54 have a tree canopy of Alaska birch (*Betula neoalaskana*) and water birch (*B. occidentalis*) of low stature, with minor black spruce (*Picea mariana*). The shrub layer is very well developed, with leatherleaf (*Chamaedaphne calyculata*), willow (mostly *Salix glauca*, *S. planifolia*), common Labrador tea (*Rhododendron groenlandicum*), blueberry (*Vaccinium uliginosum*) and shrubby cinquefoil (*Dasiphora fruticosa*). Spruce muskeg sedge (*Carex bigelowii* ssp. *lugens*) characterizes the graminoid layer, and occurs along with tussock cottongrass (*Eriophorum vaginatum*). Brown mosses (*Aulacomnium*, *Tomentypnum*, *Drepanocladus*) and step moss (*Hylocomium splendens*) are the most common bryophytes.

Environment: W54 occurs on fen sites. Soil data are very limited, but permafrost is likely present, and soils are Cryosols.

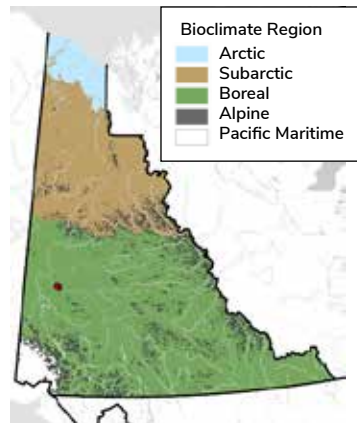
Dynamics: With birch and black spruce on these sites, they are likely to regenerate after disturbance to birch and/or black spruce. Over time, black spruce will dominate.

Comments

- Key characteristics: fen site; birch stand; leatherleaf, spruce muskeg sedge
- CNVC association not yet determined

W54 Environment table

Zone	BOL
Elevation (m)	315 – 435 – 600
Aspect	neutral
Slope (%)	0
Soil moisture regime	hygic to subhydic
Soil drainage	poor to very poor
Permafrost presence/depth (cm)	likely (no data)
Unvegetated cover (%)	no data
Soil class	Cryosols (no data)

**W54** Vegetation summary (%)

Trees	31 – 19 – 25	Shrubs	30 – 38 – 45	Ground shrubs	5 – 10 – 15
Graminoids and forbs	25 – 33 – 40	Bryophytes	3 – 47 – 65	Lichens	0 – 1 – 2

Layer	Scientific name		Common name
		n = 3	
Shrubs	<i>Betula neoalaskana</i>	■ ■ ■	Alaska birch
	<i>Betula occidentalis</i>	■ ■ ■	water birch
	<i>Picea mariana</i>	■ ■	black spruce
	<i>Chamaedaphne calyculata</i>	■ ■ ■	leatherleaf
	<i>Dasiphora fruticosa</i>	■	shrubby cinquefoil
	<i>Rhododendron groenlandicum</i>	■ ■ ■	common Labrador tea
	<i>Salix glauca</i>	■ ■ ■	grey-leaved willow
	<i>Salix planifolia</i>	■ ■ ■	tea-leaved willow
	<i>Vaccinium uliginosum</i>	■ ■ ■	blueberry
Ground shrubs	<i>Arctous rubra</i>	■ ■	red bearberry
	<i>Rubus chamaemorus</i>	■	cloudberry
	<i>Vaccinium vitis-idaea</i>	■ ■ ■	lowbush cranberry
Graminoids	<i>Carex bigelowii</i> ssp. <i>lugens</i>	■ ■ ■ ■ ■	spruce muskeg sedge
	<i>Eriophorum vaginatum</i>	■ ■ ■	tussock cottongrass
Bryophytes	<i>Aulacomnium</i> / <i>Tomentypnum</i>	■ ■ ■ ■	brown mosses
	<i>Hylocomium splendens</i>	■ ■ ■ ■	step moss

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ ■ 1 – 3	■ ■ ■ 3 – 10	■ ■ ■ ■ 10 – 25	■ ■ ■ ■ ■ >25

W55 **Alaska birch / Leatherleaf / Tussock cottongrass**

W55 is a birch fen with leatherleaf, willow, common Labrador tea, tussock cottongrass and peat mosses that occurs in the BOL. This association is a component of the Sb – Tussock Sedge Fen ecosite (F05).

No photo
available

Vegetation: Stands of W55 have a tree canopy of Alaska birch (*Betula neoalaskana*), mostly of low stature, with minor black spruce (*Picea mariana*) or white spruce (*P. glauca*). The shrub layer is well developed, with leatherleaf (*Chamaedaphne calyculata*), willow (*Salix glauca*, *S. planifolia*), common Labrador tea (*Rhododendron groenlandicum*) and alder (*Alnus alnobetula*, *A. incana*). Tussock cottongrass (*Eriophorum vaginatum*) dominates the graminoid layer. Low cover of peat mosses (*Sphagnum* spp.) occurs, along with some brown mosses (*Aulacomnium*, *Tomentypnum*, *Drepanocladus*) and feathermosses (*Hylocomium splendens*, *Pleurozium schreberi*).

Environment: W55 occurs on fen sites. Soil data are very limited, but permafrost is likely present and soils are likely Cryosols.

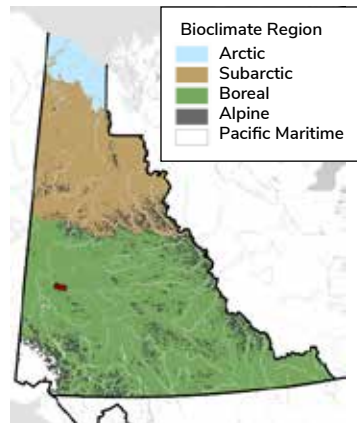
Dynamics: With birch and spruce on these sites, they are likely to regenerate after disturbance to birch and/or white spruce or black spruce. Over time, spruce will dominate.

Comments

- Key characteristics: fen site; birch stand; leatherleaf, high cover of tussock cottongrass
- CNVC association not yet determined

W55 Environment table

Zone	BOL
Elevation (m)	390
Aspect	neutral
Slope (%)	0
Soil moisture regime	hygric to subhydryc
Soil drainage	poor to very poor
Permafrost presence/depth (cm)	likely (no data)
Unvegetated cover (%)	no data
Soil class	Cryosols (no data)

**W55** Vegetation summary (%)

Trees	23 – 25 – 28	Shrubs	35 – 60 – 80	Ground shrubs	0 – 1 – 3
Graminoids and forbs	58 – 59 – 60	Bryophytes	9 – 12 – 15	Lichens	0 – 0.1 – 0.1

Layer	Scientific name	W55	Common name
		n = 2	
Trees	<i>Betula neoalaskana</i>	■ ■	Alaska birch
Shrubs	<i>Betula neoalaskana</i>	■ ■ ■ ■	Alaska birch
	<i>Picea</i> spp.	■	spruces
	<i>Alnus alnobetula</i>	■ ■ ■	green alder
	<i>Alnus incana</i>	■ ■	river alder
	<i>Chamaedaphne calyculata</i>	■ ■ ■ ■ ■	leatherleaf
	<i>Rhododendron groenlandicum</i>	■ ■ ■ ■	common Labrador tea
	<i>Salix glauca</i>	■ ■ ■	grey-leaved willow
	<i>Salix planifolia</i>	■ ■	tea-leaved willow
	<i>Vaccinium uliginosum</i>	■ ■	blueberry
Ground shrubs	<i>Rubus chamaemorus</i>	■ ■	cloudberry
Graminoids	<i>Eriophorum vaginatum</i>	■ ■ ■ ■ ■	tussock cottongrass
	<i>Calamagrostis canadensis</i>	■ ■	bluejoint reedgrass
Forbs	<i>Equisetum arvense</i>	■ ■	common horsetail
Bryophytes	<i>Aulacomnium</i> / <i>Drepanocladus</i>	■	brown mosses
	<i>Hylocomium</i> / <i>Pleurozium</i>	■ ■ ■	feathermosses
	<i>Sphagnum</i> spp.	■ ■ ■	peat mosses

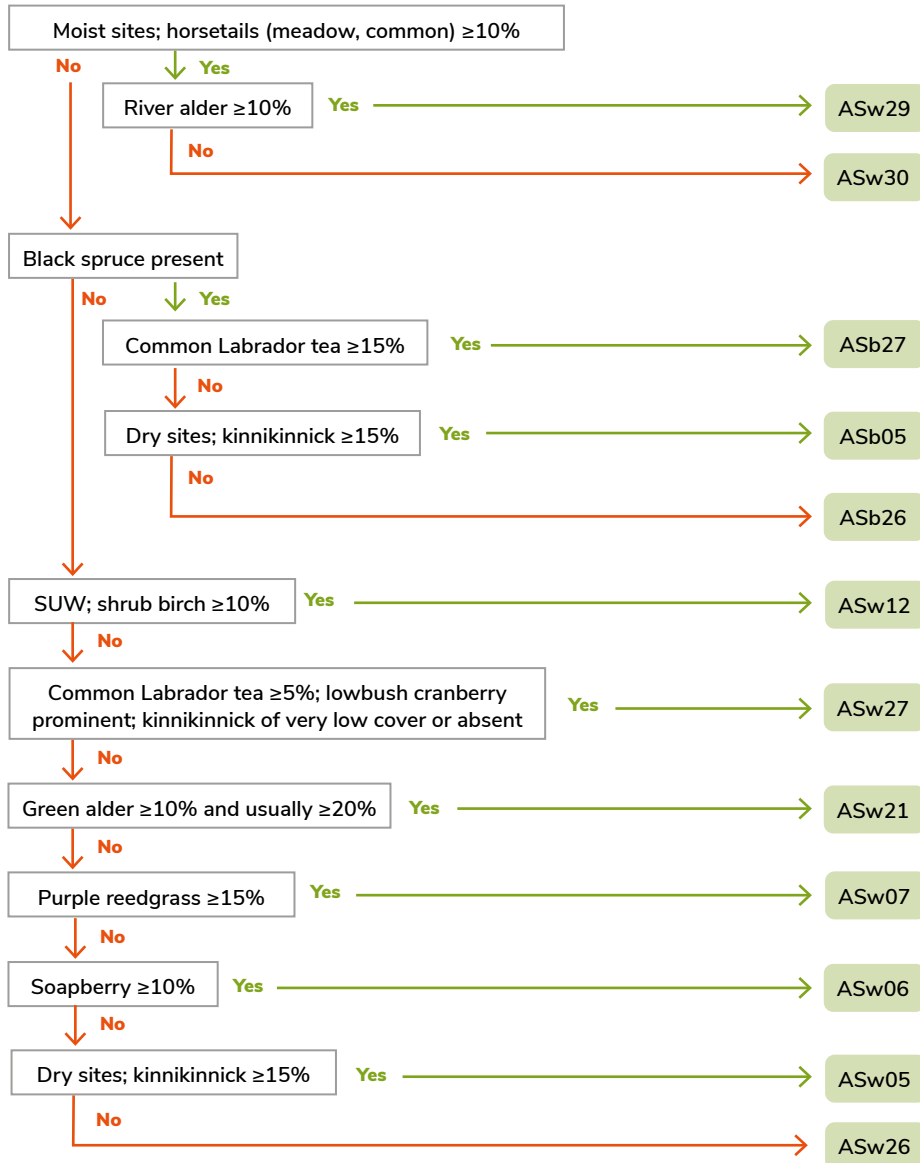
Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ ■ 1 – 3	■ ■ ■ 3 – 10	■ ■ ■ ■ 10 – 25	■ ■ ■ ■ ■ >25

7.0 Mixed-wood associations

Aspen – spruce associations

Aspen (A) and spruce (white spruce – Sw; black spruce – Sb) in mixed-wood stands that may include some fir (F), pine (P), balsam poplar (B), paper birch (Wp) or Alaska birch (Wa).

Flowchart Aspen – spruce associations



Summary of features: Aspen – spruce associations**Dry sites**

	ASb05	ASw05	ASw07
Zone	BOL (BOH)	BOL (BOH)	BOL
Geography	west-central, central	southwest, west-central	southwest, west-central
Important site features	shallow or coarse-textured soil	coarse-textured soil or neutral- to warm-aspect slope	coarse- to medium-textured soil or neutral- to warm-aspect slope
Drainage	(rapid) well	rapid to well	(rapid) well
Tree canopy	aspen – black spruce (white spruce)	aspen – white spruce (Alaska birch), (balsam poplar), (pine)	aspen – white spruce (black spruce), (balsam poplar)
Key understorey species	kinnikinnick, lowbush cranberry	kinnikinnick	grass family (mostly purple reedgrass)

Moist sites

	ASw29	ASw30
Zone	BOL	BOL (BOH)
Geography	southeast	southeast (central)
Important site features	moist slope or floodplain	floodplain
Drainage	imperfect	well to imperfect
Tree canopy	aspen – white spruce (paper birch), (balsam poplar)	aspen – white spruce (balsam poplar)
Key understorey species	river alder	horsetails

Aspen – spruce associations

Mesic sites

	ASw06	ASw12	ASw21	ASw26	ASb26	ASw27	ASb27
Zone	BOL	BOH (SUW)	BOL	BOL (BOH)	BOL	BOL, BOH	BOL
Geography	south, west-central, central	west-central, central, south-west, south-central	southeast	west-central, central, south-west, south-central	west-central, south	west-central, central	west-central, central, southeast
Important site features	level site or gentle to moderate, neutral- or warm-aspect slope	gentle to moderate, neutral- or warm-aspect slope	level site or gentle to moderate, neutral-aspect, middle or upper slope	level site or gentle to moderate slope	level site or gentle to moderate, neutral- or warm-aspect, middle or upper slope	level site or gentle to moderate, neutral- or warm-aspect, middle or upper slope	level site or gentle to moderate, neutral or warm-aspect, lower slope
Drainage	well to moderately well	well to moderately well	moderately well	well to moderately well	well to moderately well	well to moderately well	well to moderately well
Tree canopy	aspen – white spruce (balsam poplar), (Alaska birch)	aspen – white spruce (fir), (Alaska birch)	aspen – white spruce (balsam poplar), (paper birch), (pine)	aspen – white spruce (balsam poplar), (Alaska birch)	aspen – black spruce (white spruce), (Alaska birch)	aspen – white spruce (Alaska birch)	aspen – black spruce (white spruce), (Alaska birch)
Key understorey species	soapberry	shrub birch, crowberry	green alder, prickly rose, highbush cranberry, bunchberry	none	lowbush cranberry, feathermoss	common Labrador tea, lowbush cranberry	common Labrador tea, lowbush cranberry, crowberry

Vegetation tables for Aspen – spruce associations

Dry sites

Layer	Scientific name	ASb05	ASw05	ASw07	Common name
	n =	6	31	67	
Trees	<i>Picea glauca</i>	■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	white spruce
	<i>Picea mariana</i>	■ ■ ■ ■			black spruce
	<i>Populus tremuloides</i>	■ ■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■ ■	trembling aspen
Shrubs	<i>Picea glauca</i>	■ ■ ■	■ ■	□	white spruce
	<i>Picea mariana</i>	■ ■ ■ ■			black spruce
	<i>Populus tremuloides</i>	■ ■ ■	■ ■ ■	■ ■	trembling aspen
	<i>Rhododendron groenlandicum</i>	■ ■			common Labrador tea
	<i>Rosa acicularis</i>	□	■ ■	■ ■	prickly rose
	<i>Salix</i> spp.	■ ■ ■	□ □	■ ■	willows
	<i>Shepherdia canadensis</i>	■ ■	■ ■	■ ■ ■	soapberry
	<i>Vaccinium uliginosum</i>	■			blueberry
Ground shrubs	<i>Arctostaphylos uva-ursi</i>	■ ■ ■ ■ ■	■ ■ ■ ■ ■	■ ■ ■ ■	kinnikinnick
	<i>Empetrum nigrum</i>	■			crowberry
	<i>Linnaea borealis</i>		■ ■ ■	■ ■	twinline
	<i>Vaccinium vitis-idaea</i>	■ ■ ■ ■	□ □ □		lowbush cranberry
Graminoids	Poaceae	■ ■ ■	■ ■ ■	■ ■ ■ ■ ■	grass family
Forbs	<i>Chamaenerion angustifolium</i>	□	■	■ ■	fireweed
	<i>Geocaulon lividum</i>	■ ■ ■	■ ■	□	bastard toadflax
	<i>Lupinus arcticus</i>	■ ■	□	□ □	arctic lupine
	<i>Pedicularis</i> spp.	■ ■			louseworts
Bryophytes	<i>Hylocomium / Pleurozium</i>	■ ■ ■ ■			feathermosses
Lichens	<i>Cladina</i> spp.	■ ■ ■	□ □ □		reindeer lichens
	<i>Cladonia</i> spp.	■ ■ ■	□	□	clad lichens
	<i>Peltigera</i> spp.	■ ■	□	■	pelt lichens
	<i>Stereocaulon</i> spp.	■ ■ ■			foam lichens

Note: gold cells highlight key diagnostic species

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ ■ 1 – 3	■ ■ ■ 3 – 10	■ ■ ■ ■ 10 – 25	■ ■ ■ ■ ■ >25

Mesic sites

Layer	Scientific name	ASw06	ASw12	ASw21	ASb26	ASw26	ASb27	ASw27	Common name
	n =	40	8	9	13	51	8	9	
Trees	<i>Abies lasiocarpa</i>		■ ■ ■						subalpine fir
	<i>Betula papyrifera</i>		□ □	■ ■ ■			□		paper birch
	<i>Picea glauca</i>	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■ ■	■ ■ ■	■ ■ ■ ■ ■	white spruce
	<i>Picea mariana</i>				■ ■ ■ ■		■ ■ ■ ■		black spruce
	<i>Populus tremuloides</i>	■ ■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■ ■	■ ■ ■ ■	trembling aspen
Shrubs	<i>Betula papyrifera</i>		□ □	■ ■					paper birch
	<i>Picea glauca</i>	■ ■ ■	□ □	■ ■	■ ■ ■	■ ■		□ □	white spruce
	<i>Picea mariana</i>				■ ■ ■ ■		□ □ □		black spruce
	<i>Populus tremuloides</i>	■ ■	■ ■ ■	■ ■	■ ■	□ □	■ ■ ■	□ □	trembling aspen
	<i>Alnus alnobetula</i>			■ ■ ■ ■ ■					green alder
	<i>Betula glandulosa</i>		■ ■ ■ ■						shrub birch
	<i>Cornus sericea</i>			■ ■					red-osier dogwood
	<i>Juniperus communis</i>		■						common juniper
	<i>Rhododendron</i> spp.		■ ■ ■	□	■ ■ ■		■ ■ ■ ■ ■	■ ■ ■ ■ ■	Labrador teas
	<i>Rosa acicularis</i>	■ ■ ■	□	■ ■ ■ ■		■ ■	■ ■ ■	■ ■	prickly rose
	<i>Salix</i> spp.	■ ■ ■	■ ■ ■	■ ■	■ ■ ■	■ ■	■ ■ ■	■ ■ ■ ■	willows
	<i>Shepherdia canadensis</i>	■ ■ ■ ■			□	■ ■	■	□	soapberry
	<i>Vaccinium uliginosum</i>		■ ■ ■					□	blueberry
	<i>Viburnum edule</i>	□		■ ■ ■ ■			□	□	highbush cranberry
Ground shrubs	<i>Arctostaphylos uva-ursi</i>	■ ■ ■ ■	■ ■ ■		■ ■ ■	■ ■ ■	□		kinnikinnick
	<i>Empetrum nigrum</i>		■ ■ ■ ■		■		□	■ ■ ■ ■	crowberry
	<i>Linnaea borealis</i>	■ ■ ■	□	■ ■ ■ ■	□ □	■ ■	□ □	■ ■ ■	twinline
	<i>Vaccinium vitis-idaea</i>	□ □ □	■ ■ ■ ■	■ ■ ■	■ ■ ■	□ □ □	■ ■ ■ ■	■ ■ ■ ■	lowbush cranberry
Graminoids	Poaceae	■ ■ ■	■ ■ ■	□ □	■ ■	■ ■	□	■ ■	grass family
Forbs	<i>Aralia nudicaulis</i>			■ ■					wild sarsaparilla
	<i>Chamaenerion angustifolium</i>	■ ■	■	■	■ ■	■ ■	□	■	fireweed
	<i>Cornus canadensis</i>		□	■ ■ ■ ■	□		■ ■ ■		bunchberry
	<i>Diphysastrum complanatum</i>		□				□	■	ground-cedar
	<i>Equisetum scirpoides</i>			■				□	dwarf scouring-rush
	<i>Geocaulon lividum</i>	□ □	□ □	□ □	■ ■	■ ■	■ ■	■ ■ ■	bastard toadflax
	<i>Lupinus arcticus</i>	□ □	■		■	□	□ □	□ □	arctic lupine
	<i>Spinulum annotinum</i>			□ □			■ ■		stiff club-moss
	<i>Mertensia paniculata</i>	■ ■		□	□	□		■ ■	tall bluebells
	<i>Orthilia secunda</i>	□		■					one-sided wintergreen
	<i>Rubus pubescens</i>			■ ■ ■					dwarf raspberry
Bryophytes	<i>Hylocomium / Pleurozium</i>	■ ■ ■	■ ■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■ ■	■ ■ ■ ■ ■	feathermosses
Lichens	<i>Cladina</i> spp.		■ ■ ■ ■		■ ■ ■ ■	□	■ ■ ■	■ ■ ■	reindeer lichens
	<i>Cladonia</i> spp.	□ □	□ □ □		■ ■ ■	■	□	□ □	clad lichens
	<i>Peltigera</i> spp.	■ ■	■ ■	■ ■	■ ■ ■	■ ■	■ ■	□ □	pelt lichens
	<i>Stereocaulon</i> spp.		■ ■ ■		□ □				foam lichens

Note: gold cells highlight key diagnostic species

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ ■ 1 – 3	■ ■ ■ 3 – 10	■ ■ ■ ■ 10 – 25	■ ■ ■ ■ ■ >25

Moist sites

Layer	Scientific name	ASw29	ASw30	Common name
	n =	4	3	
Trees	<i>Picea glauca</i>	■■■■■	■■■■■	white spruce
	<i>Populus tremuloides</i>	■■■■■	■■■■■	trembling aspen
Shrubs	<i>Betula papyrifera</i>	■ ■	□	paper birch
	<i>Picea glauca</i>	■ ■	■	white spruce
	<i>Populus tremuloides</i>	□ □	■■■	trembling aspen
	<i>Alnus incana</i>	■■■■■		river alder
	<i>Cornus sericea</i>	■ ■		red-osier dogwood
	<i>Rhododendron groenlandicum</i>		■ ■ ■	common Labrador tea
	<i>Ribes triste</i>		■ ■	swamp red currant
	<i>Rosa acicularis</i>	■■■	■■■■■	prickly rose
	<i>Salix</i> spp.	□ □	■ ■	willows
	<i>Shepherdia canadensis</i>	■ ■		soapberry
	<i>Viburnum edule</i>	■■■	■ ■ ■	highbush cranberry
Ground shrubs	<i>Linnaea borealis</i>	■ ■ ■	■■	twinflower
	<i>Vaccinium vitis-idaea</i>		■■■	lowbush cranberry
Forbs	<i>Aralia nudicaulis</i>	■■■		wild sarsaparilla
	<i>Chamaenerion angustifolium</i>	□	■■	fireweed
	<i>Cornus canadensis</i>	■ ■ ■ ■	■■■■■	bunchberry
	<i>Delphinium glaucum</i>		■	tall larkspur
	<i>Equisetum arvense / pratense</i>	■■■	■■■■■	common / meadow horsetail
	<i>Equisetum scirpoides</i>	■ ■		dwarf scouring-rush
	<i>Geocaulon lividum</i>	□	■ ■ ■	bastard toadflax
	<i>Goodyera repens</i>		■	dwarf rattlesnake-plantain
	<i>Mertensia paniculata</i>	■	■	tall bluebells
	<i>Mitella nuda</i>	■ ■	□	naked mitrewort
	<i>Rubus pubescens</i>	■ ■ ■	□ □	dwarf raspberry
Bryophytes	<i>Hylocomium / Pleurozium</i>	■■■■■	■ ■ ■ ■ ■	feathermosses

Note: gold cells highlight key diagnostic species

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

Fact sheets: Aspen – spruce associations

ASb05 **Aspen – Black spruce / Kinnikinnick**

ASb05 is a mixed-wood aspen – black spruce forest, often with white spruce, kinnikinnick and lowbush cranberry, that occurs on well-drained sites in the BOL and sometimes in the BOH.

Vegetation: Stands of ASb05 have a tree canopy of aspen (*Populus tremuloides*) and black spruce (*Picea mariana*) or a combination of black and white spruce (*P. glauca*). The understorey has light cover of shrubs, other than some tree regeneration. Kinnikinnick (*Arctostaphylos uva-ursi*) and lowbush cranberry (*Vaccinium vitis-idaea*) are prominent ground shrubs. Bastard toadflax (*Geocaulon lividum*), louseworts (*Pedicularis* spp.) and arctic lupine (*Lupinus arcticus*) are common forbs. Moss and lichen cover is moderately high to high, comprised of feathermosses (*Hylocomium splendens*, *Pleurozium schreberi*) and a variety of lichens.

Environment: ASb05 occurs at low to moderate elevations on level to gently sloping sites with shallow or coarse-textured soils. Soils are classified as Brunisols or Gray Luvisols. The forest floor usually has a moderate cover of woody debris.

Dynamics: With aspen on these sites, they are most likely to regenerate after disturbance to aspen. Resulting stands may be dominated by aspen (A03) or mixed-wood stands of various species (such as AP04, ASw05, APSw03).

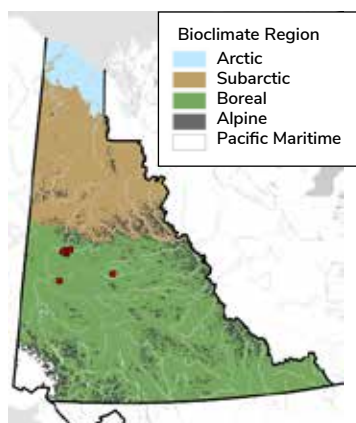
Comments

- Key characteristics: mixed-wood aspen – black spruce, often with white spruce; well-drained upland; kinnikinnick $\geq 15\%$
- CNVC association not yet determined



ASb05 Environment table

Zone	BOL (BOH)
Elevation (m)	360 – 585 – 700
Aspect	neutral (cool)
Slope (%)	0 – 4 – 6
Soil moisture regime	subxeric to submesic
Soil drainage	well
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	5 – 9 – 15 (wood)
Soil class	Brunisols (Gray Luvisols)

**ASb05 Vegetation summary (%)**

Trees	30 – 47 – 60	Shrubs	1 – 32 – 50	Ground shrubs	15 – 40 – 80
Graminoids and forbs	5 – 13 – 20	Bryophytes	0 – 17 – 30	Lichens	0 – 20 – 35

Layer	Scientific name	ASb05	Common name
		n = 6	
Trees	<i>Picea glauca</i>	■ ■ ■	white spruce
	<i>Picea mariana</i>	■ ■ ■ ■	black spruce
	<i>Populus tremuloides</i>	■ ■ ■ ■ ■	trembling aspen
Shrubs	<i>Picea glauca</i>	■ ■ ■	white spruce
	<i>Picea mariana</i>	■ ■ ■ ■	black spruce
	<i>Populus tremuloides</i>	■ ■ ■	trembling aspen
	<i>Rhododendron groenlandicum</i>	■ ■	common Labrador tea
	<i>Salix</i> spp.	■ ■ ■	willows
	<i>Shepherdia canadensis</i>	■ ■	soapberry
Ground shrubs	<i>Arctostaphylos uva-ursi</i>	■ ■ ■ ■ ■	kinnikinnick
	<i>Empetrum nigrum</i>	■	crowberry
	<i>Vaccinium vitis-idaea</i>	■ ■ ■ ■	lowbush cranberry
Graminoids	Poaceae	■ ■ ■	grass family
Forbs	<i>Geocaulon lividum</i>	■ ■ ■	bastard toadflax
	<i>Lupinus arcticus</i>	■ ■	arctic lupine
	<i>Pedicularis</i> spp.	■ ■	louseworts
Bryophytes	<i>Hylocomium</i> / <i>Pleurozium</i>	■ ■ ■ ■	feathermosses
Lichens	<i>Cladina</i> spp.	■ ■ ■	reindeer lichens
	<i>Cladonia</i> spp.	■ ■ ■	clad lichens
	<i>Peltigera</i> spp.	■ ■	pelt lichens
	<i>Stereocaulon</i> spp.	■ ■ ■	foam lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ ■ 1 – 3	■ ■ ■ 3 – 10	■ ■ ■ ■ 10 – 25	■ ■ ■ ■ ■ >25

ASw05 Aspen – White spruce / Kinnikinnick

ASw05 is a mixed-wood aspen – white spruce forest or woodland with high cover of kinnikinnick that occurs on rapidly drained to well-drained upland sites in the BOL and sometimes in the BOH.

Vegetation: Stands of ASw05 have a tree canopy of aspen (*Populus tremuloides*) and white spruce (*Picea glauca*), sometimes with a minor component of Alaska birch (*Betula neoalaskana*), balsam poplar (*Populus balsamifera*) or pine (*Pinus contorta*). The understorey has light to moderate cover of soapberry (*Shepherdia canadensis*) and often, prickly rose (*Rosa acicularis*). Kinnikinnick (*Arctostaphylos uva-ursi*) dominates the ground shrub layer. Moss and lichen cover vary, but are usually of low to moderate cover.

Environment: ASw05 occurs primarily at low to moderate elevations on level sites or gentle to steep, neutral-aspect or warm-aspect slopes. Parent materials are commonly glaciofluvial, but can be morainal, colluvial or lacustrine. Soils are classified as Brunisols or Gray Luvisols. The humus is usually a moderately thick Mor. The forest floor usually has a moderate cover of woody debris.

Dynamics: With aspen on these sites, they are most likely to regenerate after disturbance to aspen. Resulting stands may be dominated by aspen (A03) or by mixed-wood stands of various species (such as AP04, ASb05, APSw03).

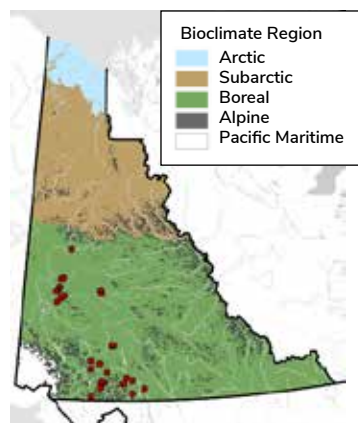
Comments

- Key characteristics: mixed-wood aspen – white spruce; rapidly drained to well-drained upland; kinnikinnick $\geq 15\%$; grass cover $< 10\%$; soapberry $< 10\%$
- Component of CNVC00404 Aspen – White Spruce / Kinnikinnick



ASw05 Environment table

Zone	BOL (BOH)
Elevation (m)	390 – 705 – 1180
Aspect	neutral, warm, neutral
Slope (%)	0 – 18 – 75
Soil moisture regime	subxeric to submesic
Soil drainage	rapid to well
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	4 – 7 – 15 (wood)
Soil class	Brunisols (Eutric, Dystric, Sombric)

**ASw05 Vegetation summary (%)**

Trees	3 – 40 – 99	Shrubs	2 – 16 – 55	Ground shrubs	20 – 45 – 75
Graminoids and forbs	2 – 16 – 50	Bryophytes	0 – 9 – 35	Lichens	0 – 10 – 50

Layer	Scientific name	ASw05	Common name
		n = 31	
Trees	<i>Picea glauca</i>	■■■■■	white spruce
	<i>Populus tremuloides</i>	■■■■■	trembling aspen
Shrubs	<i>Picea glauca</i>	■■■	white spruce
	<i>Populus tremuloides</i>	■■■	trembling aspen
	<i>Rosa acicularis</i>	■■■	prickly rose
	<i>Shepherdia canadensis</i>	■■■	soapberry
Ground shrubs	<i>Arctostaphylos uva-ursi</i>	■■■■■	kinnikinnick
	<i>Linnaea borealis</i>	■■■	twinline
Graminoids	Poaceae	■■■	grass family
Forbs	<i>Chamaenerion angustifolium</i>	■	fireweed
	<i>Geocaulon lividum</i>	■■■	bastard toadflax

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

ASw06 Aspen – White spruce / Soapberry / Fireweed

ASw06 is a mixed-wood aspen – white spruce forest with moderately high to high cover of soapberry that occurs on mesic upland sites in the BOL.

Vegetation: Stands of ASw06 have a tree canopy of aspen (*Populus tremuloides*) and white spruce (*Picea glauca*), sometimes with a minor component of Alaska birch (*Betula neoalaskana*) or balsam poplar (*Populus balsamifera*). Soapberry (*Shepherdia canadensis*) characterizes the understorey and usually occurs with prickly rose (*Rosa acicularis*). Twinflower (*Linnaea borealis*) and kinnikinnick (*Arctostaphylos uva-ursi*) are common ground shrubs. Fireweed (*Chamaenerion angustifolium*) and tall bluebells (*Mertensia paniculata*) are common forbs. Moss and lichen cover vary and are usually low to moderate.

Environment: ASw06 occurs at low to moderate elevations on level sites or gentle to moderate, neutral-aspect or warm-aspect slopes. Parent materials are varied: glaciofluvial, lacustrine, fluvial, eolian or colluvial. Soils are classified as Brunisols. The forest floor usually has a light to moderate cover of woody debris.

Dynamics: With aspen on these sites, they are most likely to regenerate after disturbance to aspen. Resulting stands may be dominated by aspen (A21) or mixed-wood stands of various species (such as APSw25).

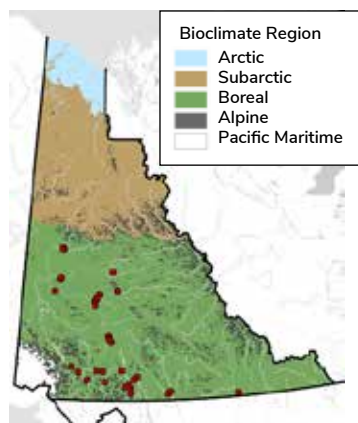
Comments

- Key characteristics: mixed-wood aspen – white spruce; mesic upland; soapberry $\geq 10\%$; grass cover $< 15\%$
- Component of CNVC00406 Aspen – White Spruce / Soapberry / Tall bluebells



ASw06 Environment table

Zone	BOL
Elevation (m)	410 – 645 – 915
Aspect	neutral, warm, neutral
Slope (%)	0 – 11 – 50
Soil moisture regime	submesic to mesic
Soil drainage	well to moderately well
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	1 – 6 – 15 (wood)
Soil class	Brunisols (Eutric, Dystric)

**ASw06 Vegetation summary (%)**

Trees	5 – 51 – 90	Shrubs	15 – 38 – 85	Ground shrubs	0 – 20 – 75
Graminoids and forbs	0.1 – 15 – 60	Bryophytes	0 – 8 – 35	Lichens	0 – 5 – 30

Layer	Scientific name	ASw06	Common name
		n = 40	
Trees	<i>Picea glauca</i>	■■■■■	white spruce
	<i>Populus tremuloides</i>	■■■■■	trembling aspen
Shrubs	<i>Picea glauca</i>	■■■	white spruce
	<i>Populus tremuloides</i>	■ ■	trembling aspen
	<i>Rosa acicularis</i>	■■■	prickly rose
	<i>Salix</i> spp.	■■■	willows
	<i>Shepherdia canadensis</i>	■■■■■	soapberry
Ground shrubs	<i>Arctostaphylos uva-ursi</i>	■■■■■	kinnikinnick
	<i>Linnaea borealis</i>	■■■	twinline
Graminoids	Poaceae	■■■	grass family
Forbs	<i>Chamaenerion angustifolium</i>	■■	fireweed
	<i>Mertensia paniculata</i>	■ ■	tall bluebells
Bryophytes	<i>Hylocomium</i> / <i>Pleurozium</i>	■■■	feathermosses
Lichens	<i>Peltigera</i> spp.	■ ■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

ASw07 Aspen – White spruce / Purple reedgrass – Kinnikinnick

ASw07 is a mixed-wood aspen – white spruce forest, with moderately high to high cover of purple reedgrass, that occurs on well-drained upland sites in the BOL.

Vegetation: Stands of ASw07 have a tree canopy of aspen (*Populus tremuloides*) and white spruce (*Picea glauca*), sometimes with a minor component of balsam poplar (*Populus balsamifera*), and, in rare cases, black spruce (*P. mariana*). The shrub layer is mostly lightly developed, with soapberry (*Shepherdia canadensis*) and prickly rose (*Rosa acicularis*), both of which can sometimes be of moderately high cover. Purple reedgrass (*Calamagrostis purpurascens*) characterizes the understory and often occurs, with some fireweed (*Chamaenerion angustifolium*), twinflower (*Linnaea borealis*) and/or kinnikinnick (*Arctostaphylos uva-ursi*). Moss and lichen cover are light.

Environment: ASw07 occurs at low to moderate elevations, mostly on level sites, but also on gentle to steep, neutral-aspect or warm-aspect slopes. Parent materials are varied: glaciofluvial, lacustrine, fluvial, eolian or colluvial. Soils are classified as Brunisols. The forest floor usually can have a light to moderate cover of woody debris.

Dynamics: With aspen on these sites, they are most likely to regenerate after disturbance to aspen. Resulting stands may be dominated by aspen (such as A04, A20, A25) or mixed-wood stands of various species (such as APSw06).

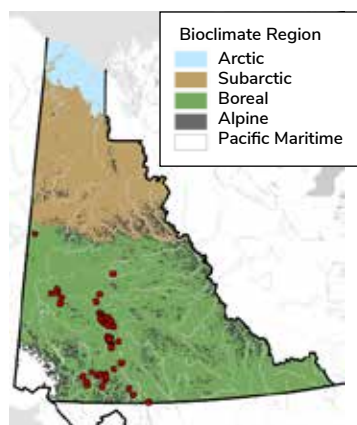
Comments

- Key characteristics: mixed-wood aspen – white spruce; mesic upland; purple reedgrass $\geq 15\%$
- Component of CNVC00405 Aspen – White Spruce / Purple Reedgrass – Kinnikinnick



ASw07 Environment table

Zone	BOL
Elevation (m)	345 – 655 – 855
Aspect	neutral, warm
Slope (%)	0 – 7 – 80
Soil moisture regime	subxeric to submesic
Soil drainage	well (rapid)
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	4 – 8 – 20 (wood)
Soil class	Brunisols (Eutric, Dystric)

**ASw07 Vegetation summary (%)**

Trees	15 – 60 – 95	Shrubs	1 – 11 – 70	Ground shrubs	0 – 22 – 90
Graminoids and forbs	15 – 35 – 99	Bryophytes	0 – 4 – 50	Lichens	0 – 3 – 30

Layer	Scientific name	ASw07	Common name
		n = 67	
Trees	<i>Picea glauca</i>	■■■■■	white spruce
	<i>Populus tremuloides</i>	■■■■■	trembling aspen
Shrubs	<i>Populus tremuloides</i>	■■	trembling aspen
	<i>Rosa acicularis</i>	■■	prickly rose
	<i>Salix</i> spp.	■■	willows
	<i>Shepherdia canadensis</i>	■■■	soapberry
Ground shrubs	<i>Arctostaphylos uva-ursi</i>	■■■■■	kinnikinnick
	<i>Linnaea borealis</i>	■■	twinline
Graminoids	<i>Calamagrostis purpurascens</i>	■■■■■	purple reedgrass
Forbs	<i>Chamaenerion angustifolium</i>	■■	fireweed
Bryophytes	<i>Hylocomium</i> / <i>Pleurozium</i>	■■	feathermosses
Lichens	<i>Peltigera</i> spp.	■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

ASw12 Aspen – White spruce / Shrub birch / Crowberry

ASw12 is a mixed-wood aspen – white spruce forest or woodland, with shrub birch, crowberry and lowbush cranberry, that occurs on mesic upland sites in the BOH and sometimes in the SUW.

Vegetation: Stands of ASw12 have a tree canopy of aspen (*Populus tremuloides*) and white spruce (*Picea glauca*), often with some fir (*Abies lasiocarpa*) or birch (*Betula neoalaskana*, *B. occidentalis*). The shrub layer is well developed, with shrub birch (*Betula glandulosa*) and various other shrubs that are not always present. Crowberry (*Empetrum nigrum*) and lowbush cranberry (*Vaccinium vitis-idaea*) are prominent ground shrubs. Fireweed (*Chamaenerion angustifolium*) and kinnikinnick (*Arctostaphylos uva-ursi*) are usually present. Total moss and lichen cover is high, and either can dominate. Step moss (*Hylocomium splendens*) and reindeer lichens (*Cladina* spp.) predominate.



Environment: This association occurs mostly at moderate to high elevations on gentle to moderate, neutral-aspect or warm-aspect slopes. Parent materials are glaciofluvial, lacustrine or colluvial. Soils are mostly classified as Brunisols. The forest floor usually has a light cover of rocks or woody debris.

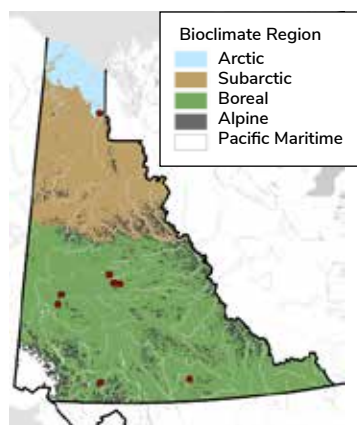
Dynamics: With aspen and birch on these sites, they are most likely to regenerate after disturbance to aspen or birch (such as SwW02), although over time fir or white spruce may form pure or mixed-wood stands.

Comments

- Key characteristics: mixed-wood aspen – white spruce; mesic upland; shrub birch, crowberry, lowbush cranberry
- Component of CNVC00392 Aspen – White Spruce / Shrub Birch / Crowberry / Reindeer Lichen

ASw12 Environment table

Zone	BOH (SUW)
Elevation (m)	520 – 1025 – 1225
Aspect	warm, neutral
Slope (%)	10 – 30 – 50
Soil moisture regime	submesic to mesic
Soil drainage	well to moderately well
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	1 – 4 – 6 (wood, rocks)
Soil class	Brunisols (Eutric, Dystric)

**ASw12 Vegetation summary (%)**

Trees	0 – 32 – 55	Shrubs	30 – 57 – 99	Ground shrubs	7 – 32 – 85
Graminoids and forbs	0 – 10 – 25	Bryophytes	0.1 – 28 – 60	Lichens	0 – 45 – 99

Layer	Scientific name	ASw12	Common name
		n = 8	
Trees	<i>Abies lasiocarpa</i>	■ ■ ■	subalpine fir
	<i>Picea glauca</i>	■ ■ ■ ■	white spruce
	<i>Populus tremuloides</i>	■ ■ ■ ■	trembling aspen
Shrubs	<i>Populus tremuloides</i>	■ ■ ■	trembling aspen
	<i>Betula glandulosa</i>	■ ■ ■ ■	shrub birch
	<i>Juniperus communis</i>	■	common juniper
	<i>Rhododendron</i> spp.	■ ■ ■	Labrador teas
	<i>Salix</i> spp.	■ ■ ■	willows
	<i>Vaccinium uliginosum</i>	■ ■ ■	blueberry
	<i>Arctostaphylos uva-ursi</i>	■ ■ ■	kinnikinnick
Ground shrubs	<i>Empetrum nigrum</i>	■ ■ ■ ■	crowberry
	<i>Vaccinium vitis-idaea</i>	■ ■ ■ ■	lowbush cranberry
Graminoids	Poaceae	■ ■ ■	grass family
Forbs	<i>Chamaenerion angustifolium</i>	■	fireweed
	<i>Lupinus arcticus</i>	■	arctic lupine
Bryophytes	<i>Hylocomium / Pleurozium</i>	■ ■ ■ ■ ■	feathermosses
Lichens	<i>Cladina</i> spp.	■ ■ ■ ■	reindeer lichens
	<i>Peltigera</i> spp.	■ ■	pelt lichens
	<i>Stereocaulon</i> spp.	■ ■ ■	foam lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ ■ 1 – 3	■ ■ ■ 3 – 10	■ ■ ■ ■ 10 – 25	■ ■ ■ ■ ■ >25

ASw21 Aspen – White spruce / Alder – Highbush cranberry / Dwarf raspberry – Bunchberry

ASw21 is a mixed-wood aspen – white spruce (paper birch) forest, with green alder, prickly rose, highbush cranberry and bunchberry, that occurs on mesic sites in the BOL in the southeast Yukon.

Vegetation: Stands of ASw21 have a tree canopy of aspen (*Populus tremuloides*) and white spruce (*Picea glauca*), usually with paper birch (*Betula papyrifera*) and sometimes with minor balsam poplar (*P. balsamifera*) or pine (*Pinus contorta*). The shrub layer is very well developed, with green alder (*Alnus alnobetula*), highbush cranberry (*Viburnum edule*) and prickly rose (*Rosa acicularis*). Ground shrubs include twinflower (*Linnaea borealis*). Prominent forbs are bunchberry (*Cornus canadensis*) and dwarf raspberry (*Rubus pubescens*). Feathermosses (*Hylocomium splendens*, *Pleurozium schreberi*, *Ptilium crista-castrensis*) can be prominent on the forest floor.

Environment: ASw21 occurs at low to moderate elevations on level sites or gentle to moderate, neutral-aspect middle or upper slopes. Parent materials are glaciofluvial, morainal or lacustrine. Soils are classified as Brunisols. The forest floor has low to moderate cover of woody debris.

Dynamics: With aspen and birch on these sites, they are most likely to regenerate after disturbance to one or both species. Resulting stands may be dominated by aspen (A26) or by mixed-wood stands of various species (such as SwW25).

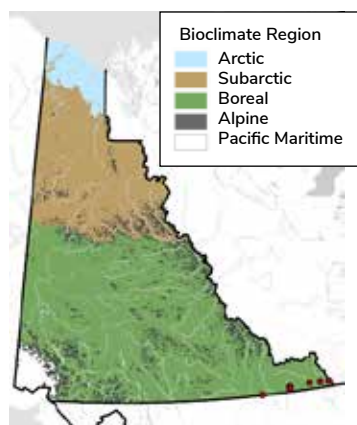
Comments

- Key characteristics: mixed-wood aspen – white spruce, often with paper birch (or Alaska birch); mesic upland; green alder $\geq 10\%$ and usually $\geq 20\%$; prickly rose, highbush cranberry, bunchberry
- Component of CNVC00095 Aspen – White Spruce / Prickly Rose – Highbush Cranberry



ASw21 Environment table

Zone	BOL
Elevation (m)	375 – 550 – 780
Aspect	neutral, neutral
Slope (%)	0 – 9 – 40
Soil moisture regime	submesic to mesic
Soil drainage	moderately well
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	2 – 4 – 10 (wood)
Soil class	Brunisols

**ASw21 Vegetation summary (%)**

Trees	25 – 54 – 85	Shrubs	45 – 80 – 99	Ground shrubs	4 – 23 – 65
Graminoids and forbs	10 – 30 – 50	Bryophytes	2 – 15 – 40	Lichens	0 – 2 – 10

Layer	Scientific name	ASw21	Common name
		n = 8	
Trees	<i>Betula papyrifera</i>	■■■	paper birch
	<i>Picea glauca</i>	■■■■	white spruce
	<i>Populus tremuloides</i>	■■■■■	trembling aspen
Shrubs	<i>Betula papyrifera</i>	■■■	paper birch
	<i>Picea glauca</i>	■■■	white spruce
	<i>Populus tremuloides</i>	■■	trembling aspen
	<i>Alnus alnobetula</i>	■■■■■	green alder
	<i>Rosa acicularis</i>	■■■■	prickly rose
	<i>Salix</i> spp.	■■	willows
	<i>Viburnum edule</i>	■■■■	highbush cranberry
Ground shrubs	<i>Linnaea borealis</i>	■■■■	twinline
	<i>Vaccinium vitis-idaea</i>	■■■	lowbush cranberry
Forbs	<i>Aralia nudicaulis</i>	■■	wild sarsaparilla
	<i>Chamaenerion angustifolium</i>	■■	fireweed
	<i>Cornus canadensis</i>	■■■■	bunchberry
	<i>Equisetum scirpoides</i>	■	dwarf scouring-rush
	<i>Orthilia secunda</i>	■	one-sided wintergreen
	<i>Rubus pubescens</i>	■■■	dwarf raspberry
Bryophytes	<i>Hylocomium / Pleurozium</i>	■■■■	feathermosses

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

ASb26 Aspen – Black spruce / Lowbush cranberry / Feathermoss

ASb26 is a mixed-wood aspen – black spruce forest, often with white spruce and with lowbush cranberry and feathermosses, that occurs on upland sites in the BOL.

Vegetation: Stands of ASb26 have a tree canopy of aspen (*Populus tremuloides*) and black spruce (*Picea mariana*) or a mix of black and white spruce (*P. glauca*), often with some Alaska birch (*Betula neoalaskana*) or balsam poplar (*P. balsamifera*). The shrub layer is lightly developed to moderately developed, with common Labrador tea (*Rhododendron groenlandicum*) and often, willows (*Salix* spp.). Lowbush cranberry (*Vaccinium vitis-idaea*) characterizes the ground shrub layer. Bastard toadflax (*Geocaulon lividum*) is usually present. Moss and lichen cover are high, and either can dominate. Step moss (*Hylocomium splendens*) cover is usually high. Lichens, including reindeer (*Cladonia* spp.), pelt (*Peltigera* spp.) and clad (*Cladonia* spp.), are also of high cover.



Environment: ASb26 occurs at low to moderate elevations on level sites or gentle to moderate, neutral-aspect or warm-aspect slopes. Parent materials vary. Soils are classified as Brunisols. The forest floor usually has a moderate cover of woody debris.

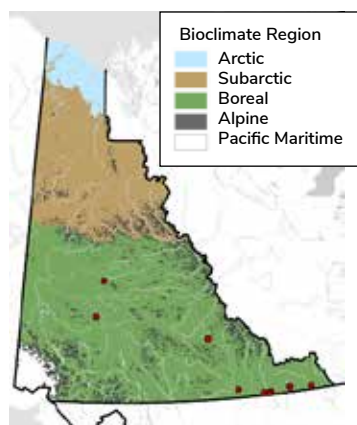
Dynamics: With aspen on these sites, they are most likely to regenerate after disturbance to aspen. Resulting stands may be dominated by aspen (A28) or mixed-wood stands of various species (such as ASw27, AP27, APSb26, APSb27).

Comments

- Key characteristics: mixed-wood aspen – black spruce, usually with white spruce; mesic upland; common Labrador tea <15%, kinnikinnick <15%
- Component of CNVC00403 Trembling Aspen – White Spruce (Black Spruce) / Common Labrador Tea / Northern Comandra

ASb26 Environment table

Zone	BOL
Elevation (m)	410 – 618 – 870
Aspect	neutral, warm, neutral
Slope (%)	0 – 8 – 36
Soil moisture regime	submesic to mesic
Soil drainage	well to moderately well
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	1 – 9 – 15 (wood)
Soil class	Brunisols

**ASb26 Vegetation summary (%)**

Trees	7 – 46 – 70	Shrubs	7 – 37 – 75	Ground shrubs	1 – 16 – 30
Graminoids and forbs	0.5 – 9 – 20	Bryophytes	5 – 37 – 80	Lichens	0 – 35 – 60

Layer	Scientific name	ASb26	Common name
		n = 13	
Trees	<i>Picea glauca</i>	■ ■ ■ ■	white spruce
	<i>Picea mariana</i>	■ ■ ■ ■	black spruce
	<i>Populus tremuloides</i>	■ ■ ■ ■	trembling aspen
Shrubs	<i>Picea glauca</i>	■ ■ ■	white spruce
	<i>Picea mariana</i>	■ ■ ■ ■	black spruce
	<i>Populus tremuloides</i>	■ ■	trembling aspen
	<i>Rhododendron groenlandicum</i>	■ ■ ■	common Labrador tea
	<i>Salix</i> spp.	■ ■ ■	willows
Ground shrubs	<i>Arctostaphylos uva-ursi</i>	■ ■ ■	kinnikinnick
	<i>Empetrum nigrum</i>	■	crowberry
	<i>Vaccinium vitis-idaea</i>	■ ■ ■	lowbush cranberry
Graminoids	Poaceae	■ ■	grass family
Forbs	<i>Chamaenerion angustifolium</i>	■ ■	fireweed
	<i>Geocaulon lividum</i>	■ ■	bastard toadflax
	<i>Lupinus arcticus</i>	■	arctic lupine
Bryophytes	<i>Hylocomium splendens</i>	■ ■ ■ ■ ■	step moss
Lichens	<i>Cladina</i> spp.	■ ■ ■ ■	reindeer lichens
	<i>Cladonia</i> spp.	■ ■ ■	clad lichens
	<i>Peltigera</i> spp.	■ ■ ■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ ■ 1 – 3	■ ■ ■ 3 – 10	■ ■ ■ ■ 10 – 25	■ ■ ■ ■ ■ >25

ASw26 Aspen – White spruce / Fireweed – Kinnikinnick

ASw26 is a mixed-wood aspen – white spruce forest, with an uncharacteristic understorey, that occurs on mesic upland sites in the BOL and sometimes in the BOH.

Vegetation: Stands of ASw26 have a tree canopy of aspen (*Populus tremuloides*) and white spruce (*Picea glauca*), sometimes with a minor component of Alaska birch (*Betula neoalaskana*) or balsam poplar (*Populus balsamifera*). The shrub layer is lightly developed, with low cover of soapberry (*Shepherdia canadensis*) and prickly rose (*Rosa acicularis*). Ground shrub cover varies; typically, it is moderate and includes twinflower (*Linnaea borealis*), kinnikinnick (*Arctostaphylos uva-ursi*) and lowbush cranberry (*Vaccinium vitis-idaea*). Fireweed (*Chamaenerion angustifolium*) is the most consistent forb. Moss and lichen cover vary and are usually of low to moderate cover, but feathermoss (*Hylocomium splendens*, *Pleurozium schreberi*) cover can be high.



Environment: ASw26 occurs at low to moderate elevations on level sites or gentle to moderate slopes. Parent materials are mostly lacustrine, but can be glaciofluvial fluvial, morainal, eolian or colluvial. Soils are classified as Brunisols or Gray Luvisols. The forest floor usually has a light to moderate cover of woody debris.

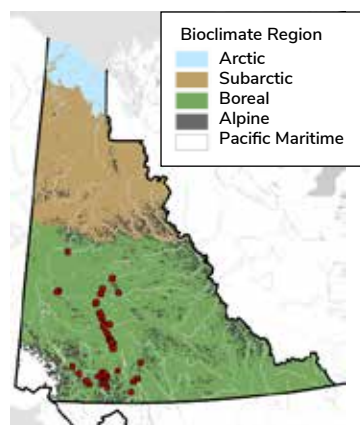
Dynamics: With aspen on these sites, they are most likely to regenerate after disturbance to aspen. Resulting stands may be dominated by aspen (A29) or mixed-wood stands of various species.

Comments

- Key characteristics: mixed-wood aspen – white spruce; mesic upland; soapberry <10%; grass cover <15%; kinnikinnick cover usually <15%
- Component of CNVC00407 Aspen – White Spruce / Fireweed – Twinflower – Kinnikinnick

ASw26 Environment table

Zone	BOL (BOH)
Elevation (m)	400 – 685 – 1120
Aspect	neutral, variable
Slope (%)	0 – 6 – 45
Soil moisture regime	submesic to mesic
Soil drainage	well to moderately well
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	2 – 9 – 25 (wood)
Soil class	Brunisols (Eutric, Dystric), Gray Luvisols

**ASw26 Vegetation summary (%)**

Trees	15 – 53 – 90	Shrubs	0 – 10 – 50	Ground shrubs	0 – 11 – 50
Graminoids and forbs	0.2 – 9 – 30	Bryophytes	0 – 23 – 90	Lichens	0 – 7 – 55

Layer	Scientific name	ASw26	Common name
		n = 51	
Trees	<i>Picea glauca</i>	■■■■■	white spruce
	<i>Populus tremuloides</i>	■■■■■	trembling aspen
Shrubs	<i>Picea glauca</i>	■■	white spruce
	<i>Rosa acicularis</i>	■■	prickly rose
	<i>Salix</i> spp.	■■	willows
	<i>Shepherdia canadensis</i>	■■	soapberry
Ground shrubs	<i>Arctostaphylos uva-ursi</i>	■■■	kinnikinnick
	<i>Linnaea borealis</i>	■■	twinflower
Graminoids	Poaceae	■■	grass family
Forbs	<i>Chamaenerion angustifolium</i>	■■	fireweed
	<i>Geocaulon lividum</i>	■■	bastard toadflax
Bryophytes	<i>Hylocomium</i> / <i>Pleurozium</i>	■■■■■	feathermosses
Lichens	<i>Cladonia</i> spp.	■	clad lichens
	<i>Peltigera</i> spp.	■■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

ASb27 Aspen – Black spruce / Labrador tea / Lowbush cranberry

ASb27 is a mixed-wood aspen – black spruce forest, often with white spruce and with common Labrador tea, lowbush cranberry and feathermosses, that occurs on upland sites in the BOL.

No photo
available

Vegetation: Stands of ASb27 have a tree canopy of aspen (*Populus tremuloides*) and black spruce (*Picea mariana*) or a mix of black and white spruce (*P. glauca*), sometimes with Alaska birch (*Betula neoalaskana*). The shrub layer is well developed, with common Labrador tea (*Rhododendron groenlandicum*) and some prickly rose (*Rosa acicularis*). Lowbush cranberry (*Vaccinium vitis-idaea*) is prominent. Bastard toadflax (*Geocaulon lividum*) is usually present. Feathermosses (*Hylocomium splendens*, *Pleurozium schreberi*) dominate the forest floor.

Environment: ASb27 occurs at low to moderate elevations on level sites or gentle to moderate, neutral-aspect or warm-aspect lower slopes. Parent materials vary. Soils are classified as Brunisols. The forest floor usually has some cover of woody debris.

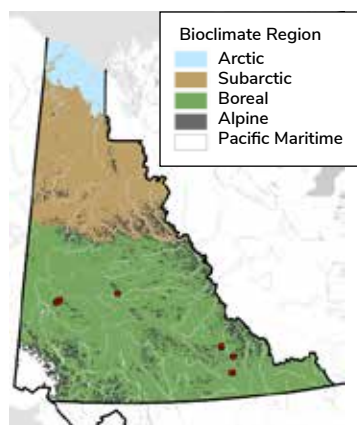
Dynamics: With aspen on these sites, they are most likely to regenerate after disturbance to aspen. Resulting stands may be dominated by aspen (A28) or mixed-wood stands of various species (such as ASw27, AP27, APSb27).

Comments

- Key characteristics: mixed-wood aspen – black spruce, usually with white spruce; mesic upland; common Labrador tea ≥15%
- Component of CNVC00403 Trembling Aspen – White Spruce (Black Spruce) / Common Labrador Tea / Northern Comandra

ASb27 Environment table

Zone	BOL
Elevation (m)	610 – 740 – 840
Aspect	neutral, warm, neutral
Slope (%)	0 – 12 – 40
Soil moisture regime	submesic to mesic
Soil drainage	well to moderately well
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	6 (wood) (limited data)
Soil class	Brunisols

**ASb27 Vegetation summary (%)**

Trees	30 – 58 – 99	Shrubs	15 – 55 – 99	Ground shrubs	2 – 19 – 40
Graminoids and forbs	0.5 – 12 – 25	Bryophytes	25 – 67 – 90	Lichens	0 – 9 – 30

Layer	Scientific name	ASb27	Common name
		n = 8	
Trees	<i>Picea glauca</i>	■ ■ ■	white spruce
	<i>Picea mariana</i>	■ ■ ■ ■	black spruce
	<i>Populus tremuloides</i>	■ ■ ■ ■ ■	trembling aspen
Shrubs	<i>Populus tremuloides</i>	■ ■ ■	trembling aspen
	<i>Rhododendron groenlandicum</i>	■ ■ ■ ■ ■	common Labrador tea
	<i>Rosa acicularis</i>	■ ■ ■	prickly rose
	<i>Salix</i> spp.	■ ■ ■	willows
	<i>Shepherdia canadensis</i>	■	soapberry
Ground shrubs	<i>Vaccinium vitis-idaea</i>	■ ■ ■ ■	lowbush cranberry
Forbs	<i>Cornus canadensis</i>	■ ■ ■	bunchberry
	<i>Geocaulon lividum</i>	■ ■	bastard toadflax
	<i>Spinulum annotinum</i>	■ ■	stiff club-moss
Bryophytes	<i>Hylocomium splendens</i>	■ ■ ■ ■ ■	step moss
Lichens	<i>Cladina mitis</i>	■ ■ ■	green reindeer lichen
	<i>Peltigera</i> spp.	■ ■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ ■ 1 – 3	■ ■ ■ 3 – 10	■ ■ ■ ■ 10 – 25	■ ■ ■ ■ ■ >25

ASw27 Aspen – White spruce / Labrador tea / Lowbush cranberry

ASw27 is a mixed-wood aspen – white spruce forest, with common Labrador tea, lowbush cranberry and feathermosses, that occurs on upland sites in the BOL and BOH.

Vegetation: Stands of ASw27 have a tree canopy of aspen (*Populus tremuloides*) and white spruce (*Picea glauca*), sometimes with some Alaska birch (*Betula neoalaskana*). The shrub layer is well developed, with common Labrador tea (*Rhododendron groenlandicum*) and some prickly rose (*Rosa acicularis*) and willow (*Salix* spp.). Lowbush cranberry (*Vaccinium vitis-idaea*) is prominent. Crowberry (*Empetrum nigrum*), bastard toadflax (*Geocaulon lividum*), twinflower (*Linnaea borealis*) and tall bluebells (*Mertensia paniculata*) are usually present. Feathermosses (*Hylocomium splendens*, *Pleurozium schreberi*) dominate the forest floor.

Environment: ASw27 occurs at low to moderate elevations on level sites or gentle to moderate, neutral-aspect or warm-aspect middle or upper slopes. Parent materials vary, but are primarily colluvial. Soils are classified as Brunisols. The forest floor has low to moderate cover of woody debris.



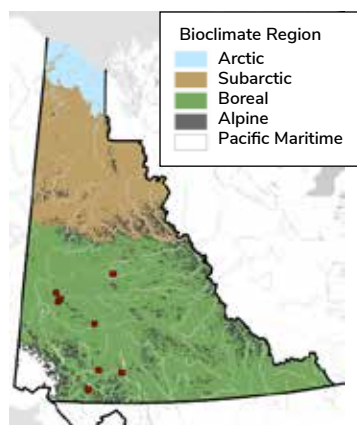
Dynamics: With aspen on these sites, they are most likely to regenerate after disturbance to aspen. Resulting stands may be dominated by aspen (A28) or by mixed-wood stands of various species (such as ASb27, AP27, APSb27).

Comments

- Key characteristics: mixed-wood aspen – white spruce; mesic upland; common Labrador tea $\geq 5\%$, lowbush cranberry, feathermoss
- Component of CNVC00403 Trembling Aspen – White Spruce (Black Spruce) / Common Labrador Tea / Northern Comandra

ASw27 Environment table

Zone	BOL, BOH
Elevation (m)	610 – 740 – 840
Aspect	neutral, warm, neutral
Slope (%)	0 – 12 – 40
Soil moisture regime	submesic to mesic
Soil drainage	well to moderately well
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	6 (wood) (limited data)
Soil class	Brunisols

**ASw27 Vegetation summary (%)**

Trees	30 – 52 – 95	Shrubs	10 – 50 – 99	Ground shrubs	15 – 38 – 70
Graminoids and forbs	1 – 14 – 40	Bryophytes	3 – 50 – 90	Lichens	0.1 – 9 – 45

Layer	Scientific name	ASw27	Common name
		n = 9	
Trees	<i>Picea glauca</i>	■■■■■	white spruce
	<i>Populus tremuloides</i>	■■■■	trembling aspen
Shrubs	<i>Rhododendron groenlandicum</i>	■■■■■	common Labrador tea
	<i>Rosa acicularis</i>	■■	prickly rose
	<i>Salix</i> spp.	■■■■	willows
Ground shrubs	<i>Empetrum nigrum</i>	■■■■	crowberry
	<i>Linnaea borealis</i>	■■■	twinline
	<i>Vaccinium vitis-idaea</i>	■■■■	lowbush cranberry
Graminoids	Poaceae	■■	grass family
Forbs	<i>Chamaenerion angustifolium</i>	■	fireweed
	<i>Diphysastrum complanatum</i>	■	ground-cedar
	<i>Geocaulon lividum</i>	■■■	bastard toadflax
	<i>Mertensia paniculata</i>	■■	tall bluebells
Bryophytes	<i>Hylocomium</i> / <i>Pleurozium</i>	■■■■■	feathermosses
Lichens	<i>Cladina</i> spp.	■■■	reindeer lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

ASw29 Aspen – White spruce / River alder / Dwarf raspberry – Horsetail

ASw29 is a mixed-wood aspen – white spruce forest, with river alder, prickly rose and highbush cranberry, and usually horsetails, that occurs on moist sites in the BOL in the southeast Yukon.

No photo
available

Vegetation: Stands of ASw29 have a tree canopy of aspen (*Populus tremuloides*) and white spruce (*Picea glauca*), often with some paper birch (*Betula papyrifera*) and sometimes with minor balsam poplar (*P. balsamifera*). The shrub layer is very well developed, with river alder (*Alnus incana*), prickly rose (*Rosa acicularis*) and highbush cranberry (*Viburnum edule*). Common horsetail (*Equisetum arvense*) usually occurs with moderate cover. Wild sarsaparilla (*Aralia nudicaulis*), bunchberry (*Cornus canadensis*), twinflower (*Linnaea borealis*), naked mitrewort (*Mitella nuda*) and dwarf raspberry (*Rubus pubescens*) are usually present. Feathermosses (*Hylocomium splendens*, *Pleurozium schreberi*) can be prominent.

Environment: ASw29 occurs at low to moderate elevations on level sites or gentle slopes. Parent materials are mostly fluvial. Soils are classified as Brunisols or Gleysols.

Dynamics: With aspen and birch on these sites, they are most likely to regenerate after disturbance to one or both species. Resulting stands may be dominated by aspen (A34) or mixed-wood stands of various species (such as ASw29).

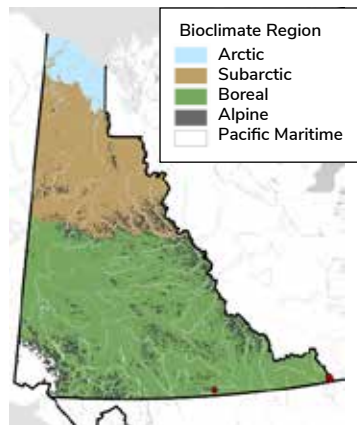
Comments

- Key characteristics: mixed-wood aspen – white spruce, often with paper birch; moist upland or river terrace; river alder ≥10%, prickly rose, usually with moderate cover of horsetails
- Component of CNVC00079 White Spruce – Paper Birch (Aspen) / Common Horsetail – Meadow Horsetail; River Alder

subassociation

ASw29 Environment table

Zone	BOL
Elevation (m)	365 – 505 – 890
Aspect	neutral (warm)
Slope (%)	0 – 4 – 12
Soil moisture regime	subhygric
Soil drainage	imperfect
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	no data
Soil class	Brunisols, Gleysols (limited data)

**ASw29 Vegetation summary (%)**

Trees	30 – 37 – 50	Shrubs	25 – 52 – 75	Ground shrubs	0 – 13 – 25
Graminoids and forbs	10 – 30 – 50	Bryophytes	0.3 – 14 – 30	Lichens	0 – 0 – 0.1

Layer	Scientific name	ASw29	Common name
		n = 4	
Trees	<i>Picea glauca</i>	■■■■■	white spruce
	<i>Populus tremuloides</i>	■■■■■	trembling aspen
Shrubs	<i>Betula papyrifera</i>	■ ■	paper birch
	<i>Picea glauca</i>	■ ■	white spruce
	<i>Alnus incana</i>	■■■■■	river alder
	<i>Cornus sericea</i>	■ ■	red-osier dogwood
	<i>Rosa acicularis</i>	■■■	prickly rose
	<i>Shepherdia canadensis</i>	■ ■	soapberry
	<i>Viburnum edule</i>	■■■	highbush cranberry
Ground shrubs	<i>Linnaea borealis</i>	■ ■ ■	twinflower
Forbs	<i>Aralia nudicaulis</i>	■■■	wild sarsaparilla
	<i>Cornus canadensis</i>	■ ■ ■ ■	bunchberry
	<i>Equisetum arvense</i>	■■■	common horsetail
	<i>Equisetum scirpoides</i>	■ ■	dwarf scouring-rush
	<i>Mertensia paniculata</i>	■	tall bluebells
	<i>Mitella nuda</i>	■ ■	naked mitrewort
	<i>Rubus pubescens</i>	■ ■ ■	dwarf raspberry
Bryophytes	<i>Hylocomium / Pleurozium</i>	■■■■■	feathermosses

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

ASw30 Aspen – White spruce / Horsetail – Bunchberry

ASw30 is a mixed-wood aspen – white spruce forest, with prickly rose and highbush cranberry, bunchberry, lowbush cranberry and horsetails, that occurs on moist sites in the BOL and sometimes in the BOH.

Vegetation: Stands of ASw30 have a tree canopy of aspen (*Populus tremuloides*) and white spruce (*Picea glauca*), sometimes with minor balsam poplar (*P. balsamifera*). The shrub layer is well developed, with prickly rose (*Rosa acicularis*), highbush cranberry (*Viburnum edule*) and minor amounts of swamp red currant (*Ribes triste*). Ground shrubs include twinflower (*Linnaea borealis*) and lowbush cranberry (*Vaccinium vitis-idaea*). Horsetails (*Equisetum arvense*, *E. pratense*) are prominent forbs; forbs also include bunchberry (*Cornus canadensis*) and fireweed (*Chamaenerion angustifolium*). Feathermosses (*Hylocomium splendens*, *Pleurozium schreberi*) can be prominent.

Environment: ASw30 occurs at low to moderate elevations on level sites or gentle slopes. Parent materials are likely fluvial, although data are not available. Soil data are limited, but soils are Cumulic Regosols or possibly Brunisols.

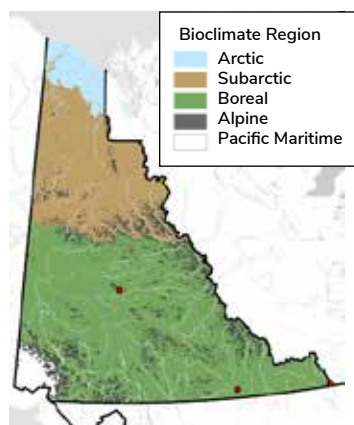
Dynamics: With aspen on these sites, they are most likely to regenerate after disturbance to aspen. Resulting stands may be dominated by aspen (A34) or mixed-wood stands of various species (such as ASw30).

**Comments**

- Key characteristics: mixed-wood aspen – white spruce, sometimes with balsam poplar; moist upland or river terrace; prickly rose, lowbush cranberry, bunchberry, moderate cover of horsetails
- Component of CNVC00079 White Spruce – Paper Birch (Aspen) / Common Horsetail – Meadow Horsetail; typic subassociation

ASw30 Environment table

Zone	BOL (BOH)
Elevation (m)	360 – 585 – 700
Aspect	neutral
Slope (%)	0 – 4 – 6
Soil moisture regime	subhygric
Soil drainage	well to imperfect
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	(limited data)
Soil class	Regosols (Brunisols) (limited data)

**ASw30 Vegetation summary (%)**

Trees	30 – 33 – 35	Shrubs	11 – 35 – 53	Ground shrubs	0.3 – 10 – 16
Graminoids and forbs	45 – 55 – 60	Bryophytes	0 – 33 – 90	Lichens	0 – 4 – 12

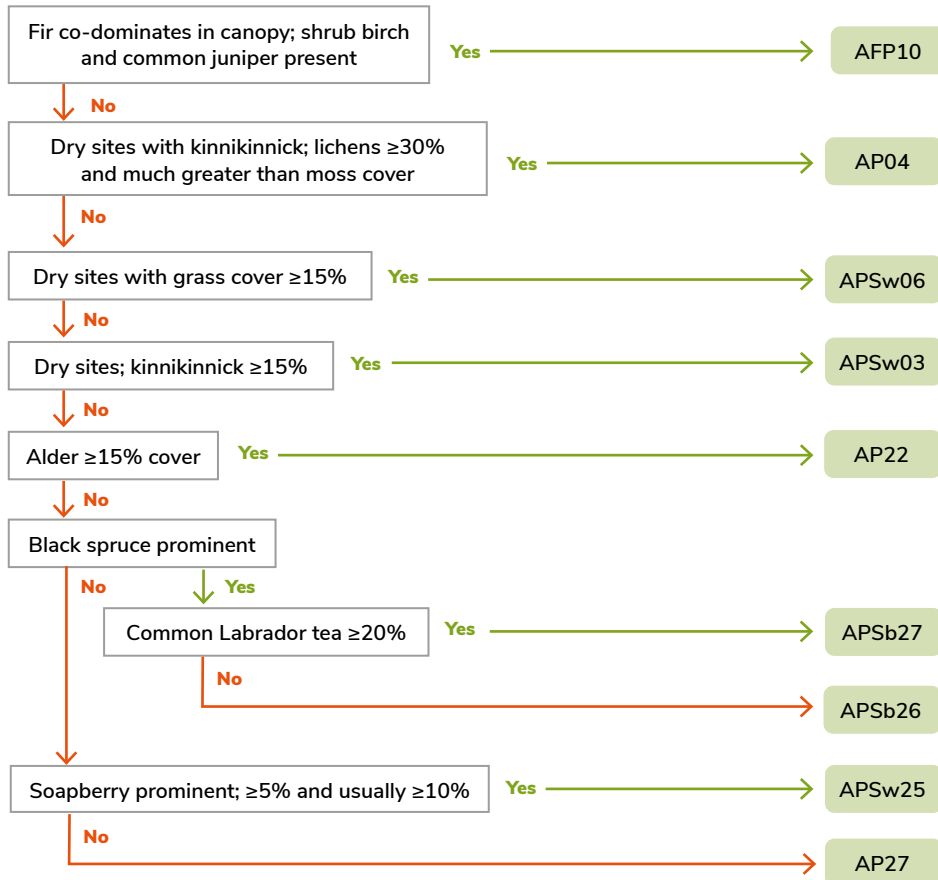
Layer	Scientific name	ASw30	Common name
		n = 3	
Trees	<i>Picea glauca</i>	■ ■ ■ ■	white spruce
	<i>Populus tremuloides</i>	■ ■ ■ ■	trembling aspen
Shrubs	<i>Picea glauca</i>	■	white spruce
	<i>Populus tremuloides</i>	■ ■ ■	trembling aspen
	<i>Rhododendron groenlandicum</i>	■ ■ ■	common Labrador tea
	<i>Ribes triste</i>	■ ■	swamp red currant
	<i>Rosa acicularis</i>	■ ■ ■ ■	prickly rose
	<i>Salix</i> spp.	■ ■	willows
	<i>Viburnum edule</i>	■ ■ ■	highbush cranberry
Ground shrubs	<i>Linnaea borealis</i>	■ ■	twinline
	<i>Vaccinium vitis-idaea</i>	■ ■ ■	lowbush cranberry
Forbs	<i>Chamaenerion angustifolium</i>	■ ■	fireweed
	<i>Cornus canadensis</i>	■ ■ ■ ■	bunchberry
	<i>Equisetum arvense / pratense</i>	■ ■ ■ ■ ■	common / meadow horsetail
	<i>Geocaulon lividum</i>	■ ■ ■	bastard toadflax
	<i>Goodyera repens</i>	■	dwarf rattlesnake-plantain
	<i>Mertensia paniculata</i>	■	tall bluebells
Bryophytes	<i>Hylocomium / Pleurozium</i>	■ ■ ■ ■ ■	feathermosses

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ ■ 1 – 3	■ ■ ■ 3 – 10	■ ■ ■ ■ 10 – 25	■ ■ ■ ■ ■ >25

Aspen – pine associations

Aspen (A) and pine (P) in mixed-wood stands, often with spruce (white spruce – Sw; black spruce – Sb) or fir (F), may include some paper birch (Wp) or Alaska birch (Wa).

Flowchart Aspen – pine associations



Summary of features: Aspen – pine associations**Dry sites**

	AP04	APSw03	APSw06	AFP10
Zone	BOL (BOH)	BOL, BOH	BOL (BOH)	BOH
Geography	south	south, central	southwest, west-central	central
Important site features	mostly level	level, neutral- to warm-aspect slopes	mostly level (warm-aspect slopes)	neutral- to warm-aspect slopes
Drainage	rapid to well	rapid to well	rapid to well	rapid to moderately well
Tree canopy	aspen – pine (white spruce)	aspen – pine – white spruce	aspen – pine (Alaska birch), (balsam poplar)	aspen – fir – pine, (white spruce)
Key understorey species	kinnikinnick, lichen	kinnikinnick (soapberry, fireweed)	kinnikinnick, grass family (fireweed)	shrub birch, common juniper, common Labrador tea, willow, kinnikinnick, fireweed, lowbush cranberry

Mesic sites

	AP22	APSw25	AP27	APSw26	APSw27
Zone	BOL (BOH)	BOL (BOH)	BOL (BOH)	BOL (BOH)	BOL
Geography	southeast	south	south, central	central, southeast	southeast
Important site features	level, warm-aspect slopes	level, neutral to warm-aspect slopes	level, neutral- to cool-aspect slopes	level, neutral to warm-aspect slopes	level
Drainage	(rapid) well	(rapid) well to moderately well	rapid to moderately well	rapid to well	rapid to moderately well
Tree canopy	aspen – pine (white spruce), (black spruce)	aspen – pine – white spruce	aspen – pine – white spruce	aspen – pine – black spruce (white spruce)	aspen – pine (black spruce)
Key understorey species	alder, lowbush cranberry, feathermoss	soapberry, prickly rose, twinflower	prickly rose, lowbush cranberry, fireweed, feathermoss	lowbush cranberry, feathermoss	common Labrador tea, bunchberry, lowbush cranberry, feathermoss

Vegetation tables for aspen – pine associations

Layer	Scientific name	AP04	APSw03	APSw06	AFP10	AP22	Common name
	n =	9	14	15	4	13	
Trees	<i>Abies lasiocarpa</i>				■■■■		subalpine fir
	<i>Picea glauca</i>	■■■	■■■	■■■	■■■	■■■	white spruce
	<i>Picea mariana</i>					□□□	black spruce
	<i>Pinus contorta</i>	■■■■	■■■■	■■■■	■■■	■■■■	lodgepole pine
	<i>Populus tremuloides</i>	■■■■	■■■■■	■■■■	■■■■	■■■■	trembling aspen
Shrubs	<i>Abies lasiocarpa</i>				■■■		subalpine fir
	<i>Picea glauca</i>	□	□□	□	□		white spruce
	<i>Picea mariana</i>						black spruce
	<i>Pinus contorta</i>	□□□	□□□		□□		lodgepole pine
	<i>Populus tremuloides</i>	■■■	□□□	□□	■■■■	□	trembling aspen
	<i>Alnus alnobetula / incana</i>					■■■■■	green / river alder
	<i>Betula glandulosa</i>				■■■■		shrub birch
	<i>Betula occidentalis</i>				■■		water birch
	<i>Juniperus communis</i>		□□		■■■		common juniper
	<i>Rhododendron groenlandicum</i>	□			■■■	□□	common Labrador tea
	<i>Rosa acicularis</i>	□□	■■■	■	■■	■■	prickly rose
	<i>Salix</i> spp.	■■	■■■	■■■	■■■■	■■■	willows
	<i>Shepherdia canadensis</i>	□	■■■	□□			soapberry
	<i>Vaccinium uliginosum</i>				■		blueberry
Ground shrubs	<i>Arctostaphylos uva-ursi</i>	■■■■	■■■■■	■■■■	■■■		kinnikinnick
	<i>Empetrum nigrum</i>		□□	□	■■■		crowberry
	<i>Linnaea borealis</i>	■■	■■■	■■■	■■■	■■	twinline
	<i>Vaccinium vitis-idaea</i>	□□□	■■■	□□	■■■	■■■	lowbush cranberry
Graminoids	Poaceae	■■■	■■■	■■■■■	■■	□	grass family
Forbs	<i>Chamaenerion angustifolium</i>	■	■■■	■■■	■■	■■	fireweed
	<i>Cornus canadensis</i>				■■■	■■	bunchberry
	<i>Diphasiastrum complanatum</i>				■	□	ground-cedar
	<i>Geocaulon lividum</i>		□		□	■■■	bastard toadflax
	<i>Lupinus arcticus</i>	■	■■	■■	■■		arctic lupine
	<i>Mertensia paniculata</i>				■■		tall bluebells
	<i>Orthilia secunda</i>					□	one-sided wintergreen
	<i>Pedicularis labradorica</i>	□					Labrador lousewort
	<i>Pyrola asarifolia</i>				□	■	pink wintergreen
Bryophytes	Bryophyta	□□	■■■	□	■■■■		mosses
	<i>Hylocomium / Pleurozium</i>		□□□	□□□	□□□	■■■■■	feathermosses
Lichens	<i>Cetraria / Flavocetraria</i> spp.	■■■	□	■	□		Iceland / snow lichens
	<i>Cladina</i> spp.	■■■■	■■	□□	□	■■	reindeer lichens
	<i>Cladonia</i> spp.	■■■■	■■■	□□□	■■■	□	clad lichens
	<i>Stereocaulon</i> spp.	■■■		□	■		foam lichens
	<i>Peltigera</i> spp.	■■■	■■	■■	■■■	■■	pelt lichens

Note: gold cells highlight key diagnostic species

Table continues on facing page

Vegetation tables for aspen – pine associations, continued

Layer	Scientific name	APSw25	AP27	APSb26	APSb27	Common name
	n =	16	21	9	3	
Trees	<i>Abies lasiocarpa</i>				□□	subalpine fir
	<i>Picea glauca</i>	■■■	■■■	□□□		white spruce
	<i>Picea mariana</i>			■■■	■■■	black spruce
	<i>Pinus contorta</i>	■■■■	■■■■	■■■■	■■■■■	lodgepole pine
	<i>Populus tremuloides</i>	■■■■	■■■■	■■■■	■■■■■	trembling aspen
Shrubs	<i>Abies lasiocarpa</i>				□	subalpine fir
	<i>Picea glauca</i>	■■■	□□	□□	□	white spruce
	<i>Picea mariana</i>			■■	□	black spruce
	<i>Pinus contorta</i>	■	□	□	□□□	lodgepole pine
	<i>Populus tremuloides</i>	□□□	□□	■■	□□	trembling aspen
	<i>Alnus alnobetula / incana</i>				■■	green / river alder
	<i>Betula glandulosa</i>					shrub birch
	<i>Betula occidentalis</i>					water birch
	<i>Juniperus communis</i>	□			□□	common juniper
	<i>Rhododendron groenlandicum</i>		■■■	■■■	■■■■■	common Labrador tea
	<i>Rosa acicularis</i>	■■■	■■	■■	■■■	prickly rose
	<i>Salix</i> spp.	■■■	■■■	■■	□	willows
	<i>Shepherdia canadensis</i>	■■■■	■■	□□□	□□□	soapberry
	<i>Vaccinium uliginosum</i>				■■■	blueberry
Ground shrubs	<i>Arctostaphylos uva-ursi</i>	■■■■	■■■	□□	■	kinnikinnick
	<i>Empetrum nigrum</i>		□□□	■■	■	crowberry
	<i>Linnaea borealis</i>	■■■	■■■	■■	■■	twinline
	<i>Vaccinium vitis-idaea</i>	■■■	■■■	■■■■	■■■■	lowbush cranberry
Graminoids	Poaceae	■■■	■■		□□	grass family
Forbs	<i>Chamaenerion angustifolium</i>	■■	■■	■	■■	fireweed
	<i>Cornus canadensis</i>	□□	□□	■■■	■■■	bunchberry
	<i>Diphysastrum complanatum</i>			□□	■	ground-cedar
	<i>Geocaulon lividum</i>	■■■	■■	■■■	■■■	bastard toadflax
	<i>Lupinus arcticus</i>	■■■	■■	■■	□	arctic lupine
	<i>Mertensia paniculata</i>	■	□	□		tall bluebells
	<i>Orthilia secunda</i>	■■	□		■	one-sided wintergreen
	<i>Pedicularis labradorica</i>	□	□	□	■■	Labrador lousewort
	<i>Pyrola asarifolia</i>	□			□	pink wintergreen
Bryophytes	Bryophyta					mosses
	<i>Hylocomium / Pleurozium</i>	■■■■	■■■■■	■■■■■	■■■■■	feathermosses
Lichens	<i>Cetraria / Flavocetraria</i> spp.				□	Iceland / snow lichens
	<i>Cladina</i> spp.	■■	■■	■■	■■■	reindeer lichens
	<i>Cladonia</i> spp.	■■	□	□	■■	clad lichens
	<i>Stereocaulon</i> spp.	□				foam lichens
	<i>Peltigera</i> spp.	■■	■■■	■■■	■■■■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

Fact sheets: Aspen – pine associations

AP04 Aspen – Pine / Kinnikinnick / Lichen

AP04 is a mixed-wood aspen – pine woodland or forest, often with white spruce, and with kinnikinnick and lichens dominating, that occurs on rapidly drained to well-drained sites in the BOL and sometimes in the BOH.

Vegetation: Stands of AP04 have a tree canopy of aspen (*Populus tremuloides*) and pine (*Pinus contorta*), often with white spruce (*Picea glauca*). The stands are often of low stature. The understorey has light cover of shrubs (except when tree canopy is of shrub height). Kinnikinnick (*Arctostaphylos uva-ursi*) characterizes the ground shrub layer, often with twinflower (*Linnaea borealis*). Fireweed (*Chamaenerion angustifolium*) characterizes the forb layer. Lichens dominate the bryophyte and lichen layers, usually a mix of reindeer (*Cladina* spp.), clad (*Cladonia* spp.) and Iceland/snow (*Cetraria*, *Flavocetraria*) lichens.

Environment: This association occurs at low to moderate elevations, mostly on level lacustrine or glaciofluvial deposits, but it can also occur on colluvial slopes. Soils are mostly classified as Brunisols, or sometimes Gray Luvisols. The forest floor usually has a moderate cover of woody debris.

Dynamics: With aspen and pine on these sites, they are most likely to regenerate after disturbance to these species. Resulting stands may be dominated by aspen (A03), pine (P01) or mixed-wood stands (such as AP04, PSw01, ASw05, APSw03).

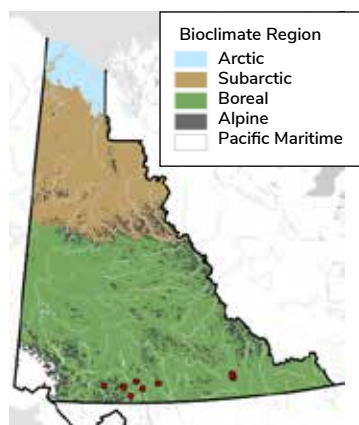
Comments

- Key characteristics: mixed-wood aspen – pine stand, often with white spruce; tree canopy may be of low stature; lichen cover $\geq 30\%$ and much greater than moss cover; kinnikinnick present
- Component of CNVC00401 Aspen – Lodgepole Pine (White Spruce) / Kinnikinnick / Reindeer Lichen



AP04 Environment table

Zone	BOL (BOH)
Elevation (m)	670 – 805 – 1065
Aspect	neutral (warm)
Slope (%)	0 – 4 – 25
Soil moisture regime	xeric to subxeric
Soil drainage	rapid to well
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	0 – 3 – 6 (wood)
Soil class	Brunisols (Gray Luvisols)

**AP04 Vegetation summary (%)**

Trees	0 – 35 – 99	Shrubs	1 – 17 – 40	Ground shrubs	10 – 25 – 85
Graminoids and forbs	2 – 12 – 35	Bryophytes	0 – 4 – 15	Lichens	30 – 50 – 60

Layer	Scientific name	AP04	Common name
		n = 9	
Trees	<i>Picea glauca</i>	■ ■ ■	white spruce
	<i>Pinus contorta</i>	■ ■ ■ ■	lodgepole pine
	<i>Populus tremuloides</i>	■ ■ ■ ■	trembling aspen
Shrubs	<i>Populus tremuloides</i>	■ ■ ■	trembling aspen
	<i>Salix</i> spp.	■ ■	willows
Ground shrubs	<i>Arctostaphylos uva-ursi</i>	■ ■ ■ ■	kinnikinnick
	<i>Linnaea borealis</i>	■ ■	twinline
Graminoids	Poaceae	■ ■ ■	grass family
Forbs	<i>Chamaenerion angustifolium</i>	■	fireweed
	<i>Lupinus arcticus</i>	■	arctic lupine
Lichens	<i>Cetraria</i> / <i>Flavocetraria</i> spp.	■ ■ ■	Iceland / snow lichens
	<i>Cladina</i> spp.	■ ■ ■ ■	reindeer lichens
	<i>Cladonia</i> spp.	■ ■ ■ ■	clad lichens
	<i>Peltigera</i> spp.	■ ■ ■	pelt lichens
	<i>Stereocaulon</i> spp.	■ ■ ■	foam lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ ■ 1 – 3	■ ■ ■ 3 – 10	■ ■ ■ ■ 10 – 25	■ ■ ■ ■ ■ >25

APSw03 Aspen – Pine – White spruce / Kinnikinnick

APSw03 is a mixed-wood aspen – pine – white spruce woodland or forest with moderately high to high cover of kinnikinnick that occurs on rapidly drained to well-drained sites in the BOL and BOH.

Vegetation: Stands of APSw03 have a tree canopy of aspen (*Populus tremuloides*), pine (*Pinus contorta*) and white spruce (*Picea glauca*). The shrub layer is lightly developed to very well developed, with tree regeneration, soapberry (*Shepherdia canadensis*) and prickly rose (*Rosa acicularis*). Kinnikinnick (*Arctostaphylos uva-ursi*) dominates the ground shrub layer, usually with fireweed (*Chamaenerion angustifolium*) and twinflower (*Linnaea borealis*). The bryophyte and lichen layers are lightly developed to well developed, with clad (*Cladonia* spp.) and pelt (*Peltigera* spp.) lichens most common.

Environment: APSw03 occurs at low to moderate elevations on level sites or on neutral-aspect to warm-aspect slopes. Parent materials vary and include morainal, eolian, lacustrine, fluvial, glaciofluvial or colluvial deposits. Soils are mostly classified as Brunisols, sometimes Regosols or Gray Luvisols. The forest floor usually has a moderate cover of woody debris.

Dynamics: With aspen and pine on these sites, they are most likely to regenerate after disturbance to these species. Resulting stands may be dominated by aspen (A03), pine (P02) or mixed-wood stands (such as PSw02, ASw05, AP04, APSw03).

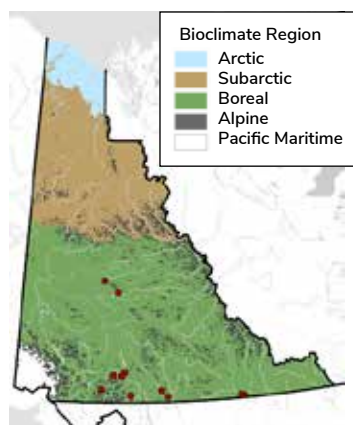
Comments

- Key characteristics: mixed-wood aspen – pine – white spruce stand; kinnikinnick cover $\geq 15\%$; grass cover $< 15\%$
- CNVC association not yet determined



APSw03 Environment table

Zone	BOL, BOH
Elevation (m)	625 – 785 – 1250
Aspect	neutral, neutral, warm
Slope (%)	0 – 17 – 78
Soil moisture regime	subxeric to submesic
Soil drainage	rapid to well
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	0.5 – 11 – 30 (wood)
Soil class	Brunisols (Eutric, Dystric), Regosols

**APSw03 Vegetation summary (%)**

Trees	10 – 43 – 99	Shrubs	1 – 37 – 99	Ground shrubs	15 – 50 – 99
Graminoids and forbs	2 – 15 – 60	Bryophytes	1 – 13 – 75	Lichens	0 – 8 – 25

Layer	Scientific name	APSw03	Common name
		n = 14	
Trees	<i>Picea glauca</i>	■ ■ ■	white spruce
	<i>Pinus contorta</i>	■ ■ ■ ■	lodgepole pine
	<i>Populus tremuloides</i>	■ ■ ■ ■ ■	trembling aspen
Shrubs	<i>Rosa acicularis</i>	■ ■ ■	prickly rose
	<i>Salix</i> spp.	■ ■ ■	willows
	<i>Shepherdia canadensis</i>	■ ■ ■	soapberry
Ground shrubs	<i>Arctostaphylos uva-ursi</i>	■ ■ ■ ■ ■	kinnikinnick
	<i>Linnaea borealis</i>	■ ■ ■	twinflower
	<i>Vaccinium vitis-idaea</i>	■ ■ ■	lowbush cranberry
Graminoids	Poaceae	■ ■ ■	grass family
Forbs	<i>Chamaenerion angustifolium</i>	■ ■ ■	fireweed
	<i>Lupinus arcticus</i>	■ ■	arctic lupine
Bryophytes	Bryophyta	■ ■ ■	mosses
Lichens	<i>Cladina</i> spp.	■ ■	reindeer lichens
	<i>Cladonia</i> spp.	■ ■ ■	clad lichens
	<i>Peltigera</i> spp.	■ ■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ ■ 1 – 3	■ ■ ■ 3 – 10	■ ■ ■ ■ 10 – 25	■ ■ ■ ■ ■ >25

APSw06 Aspen – Pine – White spruce / Purple reedgrass – Kinnikinnick

APSw06 is a mixed-wood aspen – pine – white spruce woodland or forest (sometimes just aspen – pine), with moderately high to high grass cover, that occurs on rapidly drained to well-drained sites in the BOL and sometimes in the BOH.

Vegetation: Stands of APSw06 have a tree canopy of aspen (*Populus tremuloides*) and pine (*Pinus contorta*), generally with white spruce (*Picea glauca*). The shrub layer is lightly developed to moderately well developed, with some tree regeneration, willows (*Salix* spp.) and prickly rose (*Rosa acicularis*). Kinnikinnick (*Arctostaphylos uva-ursi*) and twinflower (*Linnaea borealis*) are common in the ground shrub layer. Grasses, mostly purple reedgrass (*Calamagrostis purpurascens*), characterize the graminoid layer. Fireweed (*Chamaenerion angustifolium*) is common in the forb layer. The bryophyte and lichen layers are lightly developed to well developed, with various species dominating.



Environment: APSw06 occurs at low to moderate elevations, mostly on level sites, but sometimes on warm-aspect slopes. Parent materials are mostly glaciofluvial, but can include morainal, eolian, lacustrine, fluvial or colluvial deposits. Soils are mostly classified as Brunisols, sometimes as Gray Luvisols. The forest floor usually has a light to moderate cover of woody debris.

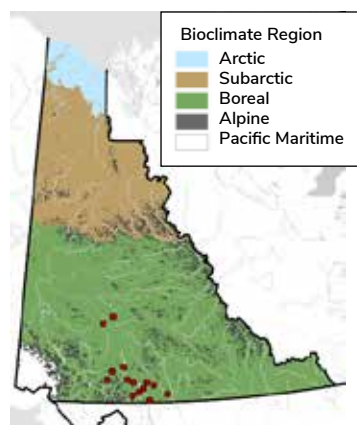
Dynamics: With aspen and pine on these sites, they are most likely to regenerate after disturbance to these species. Resulting stands may be dominated by aspen (A04, A20), pine (P26) or mixed-wood (such as ASw07, APSw06).

Comments

- Key characteristics: mixed-wood aspen – pine or aspen – pine – spruce stand; grass cover $\geq 15\%$
- Component of CNVC00399 Aspen – Lodgepole Pine (White Spruce) / Grass – Kinnikinnick

APSw06 Environment table

Zone	BOL (BOH)
Elevation (m)	610 – 775 – 1065
Aspect	neutral (warm)
Slope (%)	0 – 7 – 70
Soil moisture regime	subxeric to submesic
Soil drainage	rapid to well
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	0.5 – 6 – 10 (wood)
Soil class	Brunisols (Eutric, Dystric), Gray Luvisols

**APSw06 Vegetation summary (%)**

Trees	1 – 45 – 90	Shrubs	0 – 15 – 65	Ground shrubs	0.5 – 30 – 75
Graminoids and forbs	20 – 45 – 85	Bryophytes	0 – 7 – 25	Lichens	0 – 10 – 35

Layer	Scientific name	APSw06	Common name
		n = 15	
Trees	<i>Picea glauca</i>	■■■	white spruce
	<i>Pinus contorta</i>	■■■■	lodgepole pine
	<i>Populus tremuloides</i>	■■■■	trembling aspen
Shrubs	<i>Rosa acicularis</i>	■	prickly rose
	<i>Salix</i> spp.	■■■	willows
Ground shrubs	<i>Arctostaphylos uva-ursi</i>	■■■■	kinnikinnick
	<i>Linnaea borealis</i>	■■■	twinline
Graminoids	<i>Calamagrostis purpurascens</i>	■■■■■	purple reedgrass
Forbs	<i>Chamaenerion angustifolium</i>	■■■	fireweed
	<i>Lupinus arcticus</i>	■■	arctic lupine
Lichens	<i>Cetraria</i> / <i>Flavocetraria</i> spp.	■	Iceland / snow lichens
	<i>Peltigera</i> spp.	■■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

AFP10 Aspen – Fir – Pine / Shrub birch – Juniper / Kinnikinnick

AFP10 is a mixed-wood aspen – fir – pine forest, often with some white spruce, and with shrub birch, common juniper and kinnikinnick, that occurs on rapidly drained to moderately well drained sites in the BOH.

Vegetation: Stands of AFP10 have a tree canopy of aspen (*Populus tremuloides*), fir (*Abies lasiocarpa*) and pine (*Pinus contorta*), usually with some white spruce (*Picea glauca*). Tree regeneration is prominent and comprised mostly of aspen and fir. Shrub birch (*Betula glandulosa*), common juniper (*Juniperus communis*), willows (*Salix* spp.) and common Labrador tea (*Rhododendron groenlandicum*) are frequent shrubs. Ground shrubs are prominent, including kinnikinnick (*Arctostaphylos uva-ursi*), lowbush cranberry (*Vaccinium vitis-idaea*), crowberry (*Empetrum nigrum*) and twinflower (*Linnaea borealis*). Fireweed (*Chamaenerion angustifolium*) and bunchberry (*Cornus canadensis*) are common forbs. Moss cover is moderately high and greater than lichen cover.



Environment: This association occurs at moderate to high elevations on neutral-aspect or warm-aspect slopes. Soil data are very limited. The forest floor usually has some cover of woody debris.

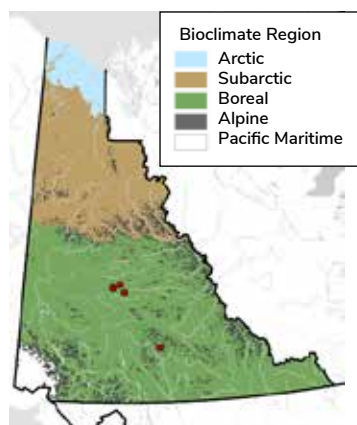
Dynamics: With aspen and pine on these sites, they are most likely to regenerate after disturbance to these species. Resulting stands may be dominated by aspen (A09), pine (P10, P31) or mixed-wood (this association).

Comments

- Key characteristics: mixed-wood aspen – fir – pine stand, usually with white spruce; shrub birch, common juniper, kinnikinnick and lowbush cranberry present
- Component of CNVC00391 Aspen – Subalpine Fir – Lodgepole Pine / Shrub Birch – Common Juniper / Kinnikinnick

AFP10 Environment table

Zone	BOH
Elevation (m)	960 – 1185 – 1340
Aspect	warm, neutral
Slope (%)	18 – 29 – 34
Soil moisture regime	subxeric to submesic
Soil drainage	rapid to well
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	0 – 4 – 5 (wood)
Soil class	no data

**AFP10 Vegetation summary (%)**

Trees	40 – 45 – 55	Shrubs	40 – 80 – 99	Ground shrubs	6 – 27 – 45
Graminoids and forbs	2 – 20 – 45	Bryophytes	10 – 25 – 45	Lichens	5 – 10 – 15

Layer	Scientific name	AFP10	Common name
		n = 4	
Trees	<i>Abies lasiocarpa</i>	■ ■ ■ ■	subalpine fir
	<i>Picea glauca</i>	■ ■ ■	white spruce
	<i>Pinus contorta</i>	■ ■ ■	lodgepole pine
	<i>Populus tremuloides</i>	■ ■ ■ ■	trembling aspen
Shrubs	<i>Abies lasiocarpa</i>	■ ■ ■	subalpine fir
	<i>Populus tremuloides</i>	■ ■ ■ ■	trembling aspen
	<i>Betula glandulosa</i>	■ ■ ■ ■	shrub birch
	<i>Juniperus communis</i>	■ ■ ■	common juniper
	<i>Rhododendron groenlandicum</i>	■ ■ ■	common Labrador tea
	<i>Salix</i> spp.	■ ■ ■ ■	willows
Ground shrubs	<i>Arctostaphylos uva-ursi</i>	■ ■ ■	kinnikinnick
	<i>Empetrum nigrum</i>	■ ■ ■	crowberry
	<i>Linnaea borealis</i>	■ ■ ■	twinline
	<i>Vaccinium vitis-idaea</i>	■ ■ ■	lowbush cranberry
Graminoids	<i>Festuca altaica</i>	■ ■	Altai fescue
Forbs	<i>Chamaenerion angustifolium</i>	■ ■	fireweed
	<i>Cornus canadensis</i>	■ ■ ■	bunchberry
	<i>Lupinus arcticus</i>	■ ■	arctic lupine
Bryophytes	Bryophyta	■ ■ ■ ■	mosses
Lichens	<i>Peltigera</i> spp.	■ ■ ■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ ■ 1 – 3	■ ■ ■ 3 – 10	■ ■ ■ ■ 10 – 25	■ ■ ■ ■ ■ >25

AP22 Aspen – Pine – White spruce / Alder / Lowbush cranberry / Feathermoss

AP22 is a mixed-wood aspen – pine forest, usually with white or black spruce, with moderately high to high cover of alder, that occurs on well-drained sites in the BOL and sometimes in the BOH.

Vegetation: Stands of AP22 have a tree canopy of aspen (*Populus tremuloides*) and pine (*Pinus contorta*), usually with white spruce (*Picea glauca*) or black spruce (*P. mariana*). Green alder (*Alnus alnobetula*) or sometimes river alder (*A. incana*), dominates the shrub layer. The understorey is lightly developed, often with lowbush cranberry (*Vaccinium vitis-idaea*), fireweed (*Chamaenerion angustifolium*), bastard toadflax (*Geocaulon lividum*) or twinflower (*Linnaea borealis*). The bryophyte layer is very well developed, primarily feathermosses (*Hylacomium splendens*, *Pleurozium schreberi*, *Ptilium crista-castrensis*).

Environment: AP22 occurs at low to moderate elevations on level sites or warm-aspect slopes. Parent materials are morainal or aeolian. Soils are classified as Brunisols. The forest floor usually has a low to moderate cover of woody debris and rocks.

Dynamics: With aspen and pine on these sites, they are most likely to regenerate after disturbance to these species. Resulting stands may be dominated by aspen (A29), pine (P23) or mixed-wood stands (such as AP22, PSb23, ASw21).

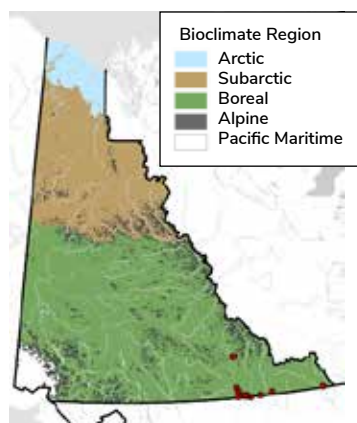
Comments

- Key characteristics: mixed-wood aspen – pine – spruce stand; alder ≥15%; feathermosses prominent
- Component of CNVC00402 Aspen – Lodgepole Pine – White Spruce / Green Alder / Lowbush Cranberry / Feathermoss



AP22 Environment table

Zone	BOL (BOH)
Elevation (m)	640 – 760 – 1000
Aspect	neutral (warm)
Slope (%)	0 – 6 – 18
Soil moisture regime	submesic to mesic
Soil drainage	well (rapid)
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	1 – 6 – 15 (wood, rocks)
Soil class	Brunisols (Dystric, Eutric)

**AP22 Vegetation summary (%)**

Trees	25 – 45 – 70	Shrubs	10 – 50 – 98	Ground shrubs	1 – 9 – 20
Graminoids and forbs	1 – 9 – 20	Bryophytes	25 – 62 – 85	Lichens	0 – 5 – 10

Layer	Scientific name	AP22	Common name
		n = 13	
Trees	<i>Picea glauca</i>	■ ■ ■	white spruce
	<i>Pinus contorta</i>	■ ■ ■ ■	lodgepole pine
	<i>Populus tremuloides</i>	■ ■ ■ ■	trembling aspen
Shrubs	<i>Alnus alnobetula / incana</i>	■ ■ ■ ■ ■	green / river alder
	<i>Rosa acicularis</i>	■ ■	prickly rose
	<i>Salix</i> spp.	■ ■ ■	willows
Ground shrubs	<i>Linnaea borealis</i>	■ ■	twainflower
	<i>Vaccinium vitis-idaea</i>	■ ■ ■	lowbush cranberry
Forbs	<i>Chamaenerion angustifolium</i>	■ ■	fireweed
	<i>Cornus canadensis</i>	■ ■	bunchberry
	<i>Geocaulon lividum</i>	■ ■ ■	bastard toadflax
	<i>Pyrola asarifolia</i>	■	pink wintergreen
Bryophytes	<i>Hylocomium splendens</i>	■ ■ ■ ■ ■	step moss
	<i>Pleurozium schreberi</i>	■ ■ ■ ■	red-stemmed feathermoss
	<i>Ptilium crista-castrensis</i>	■ ■ ■ ■	knight's plume
Lichens	<i>Cladina</i> spp.	■ ■	reindeer lichens
	<i>Peltigera</i> spp.	■ ■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ ■ 1 – 3	■ ■ ■ 3 – 10	■ ■ ■ ■ 10 – 25	■ ■ ■ ■ ■ >25

AP27 Aspen – Pine / Lowbush cranberry / Feathermoss

AP27 is a mixed-wood aspen – pine forest, usually with white spruce, and with ground shrubs (lowbush cranberry, twinflower, kinnikinnick), that occurs on upland sites in the BOL and sometimes in the BOH.

Vegetation: Stands of AP27 have a tree canopy of aspen (*Populus tremuloides*) and pine (*Pinus contorta*), usually with white spruce (*Picea glauca*). The shrub layer is lightly developed to moderately developed. Prickly rose (*Rosa acicularis*) is common. Soapberry (*Shepherdia canadensis*), willow (*Salix* spp.) and common Labrador tea (*Rhododendron groenlandicum*) are often present. The understorey is moderately well developed, with lowbush cranberry (*Vaccinium vitis-idaea*), twinflower (*Linnaea borealis*) and fireweed (*Chamaenerion angustifolium*), often with some arctic lupine (*Lupinus arcticus*) or bastard toadflax (*Geocaulon lividum*). The bryophyte layer is usually very well developed with feathermosses (*Hylocomium splendens*, *Pleurozium schreberi*, *Ptilium crista-castrensis*).



Environment: This association occurs at low to moderate elevations on level sites or neutral-aspect to cool-aspect slopes. Parent materials vary, including lacustrine, morainal, fluvial and glaciofluvial. Soils are classified as Brunisols or sometimes, Gray Luvisols. The forest floor usually has a low cover of woody debris.

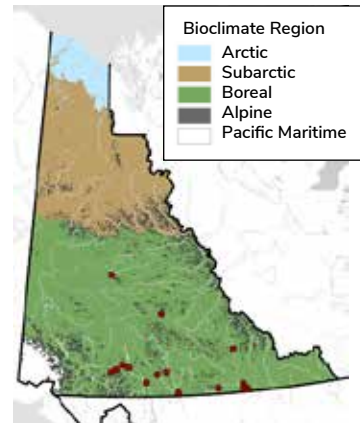
Dynamics: With aspen and pine on these sites, they are most likely to regenerate after disturbance to these species. Resulting stands may be dominated by aspen (A26, A29), pine (P21, P28) or mixed-wood stands (such as AP27, ASw26).

Comments

- Key characteristics: mixed-wood aspen – pine or aspen – pine – white spruce stand; alder <15%; soapberry <5%; feathermosses prominent
- Component of CNVC00400 Aspen – Lodgepole Pine (White Spruce) / Lowbush Cranberry – Bastard Toadflax / Step Moss

AP27 Environment table

Zone	BOL (BOH)
Elevation (m)	685 – 800 – 1015
Aspect	neutral, neutral, cool
Slope (%)	0 – 7 – 35
Soil moisture regime	submesic to mesic
Soil drainage	rapid to moderately well
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	0.5 – 4 – 20 (wood)
Soil class	Brunisols (Dystric, Eutric), (Gray Luvisol)

**AP27 Vegetation summary (%)**

Trees	10 – 55 – 99	Shrubs	0 – 17 – 55	Ground shrubs	0.1 – 20 – 50
Graminoids and forbs	0.1 – 14 – 35	Bryophytes	5 – 45 – 90	Lichens	0 – 9 – 35

Layer	Scientific name	AP27	Common name
		n = 21	
Trees	<i>Picea glauca</i>	■■■	white spruce
	<i>Pinus contorta</i>	■■■■	lodgepole pine
	<i>Populus tremuloides</i>	■■■■	trembling aspen
Shrubs	<i>Rhododendron groenlandicum</i>	■■■	common Labrador tea
	<i>Rosa acicularis</i>	■■	prickly rose
	<i>Salix</i> spp.	■■■	willows
	<i>Shepherdia canadensis</i>	■■	soapberry
Ground shrubs	<i>Arctostaphylos uva-ursi</i>	■■■	kinnikinnick
	<i>Linnaea borealis</i>	■■■	twinline
	<i>Vaccinium vitis-idaea</i>	■■■	lowbush cranberry
Graminoids	Poaceae	■■	grass family
Forbs	<i>Chamaenerion angustifolium</i>	■■	fireweed
	<i>Geocaulon lividum</i>	■■	bastard toadflax
	<i>Lupinus arcticus</i>	■■	arctic lupine
Bryophytes	<i>Hylocomium / Pleurozium</i>	■■■■■	feathermosses
Lichens	<i>Cladina</i> spp.	■■	reindeer lichens
	<i>Peltigera</i> spp.	■■■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

APSw25 Aspen – Pine – White spruce / Soapberry

APSw25 is a mixed-wood aspen – pine forest, usually with white spruce, and with moderately high to high cover of soapberry, that occurs on upland sites in the BOL and sometimes in the BOH.

Vegetation: Stands of APSw25 usually have a tree canopy of aspen (*Populus tremuloides*), pine (*Pinus contorta*) and white spruce (*Picea glauca*); sometimes, white spruce is absent. The shrub layer is usually well developed, with soapberry (*Shepherdia canadensis*) dominating. Prickly rose (*Rosa acicularis*) is common. The understorey is mostly twinflower (*Linnaea borealis*), fireweed (*Chamaenerion angustifolium*), bastard toadflax (*Geocaulon lividum*), lowbush cranberry (*Vaccinium vitis-idaea*) and kinnikinnick (*Arctostaphylos uva-ursi*). The bryophyte layer is of variable cover and often dominated by step moss (*Hylocomium splendens*).

Environment: APSw25 occurs at low to moderate elevations on level sites or neutral-aspect to warm-aspect gentle slopes. Parent materials vary, including glaciofluvial, fluvial, lacustrine, morainal or colluvial. Soils are classified as Brunisols (Eutric) or sometimes as Gray Luvisols or Melanic Brunisols. The forest floor has a low to moderate cover of woody debris.

Dynamics: With aspen and pine on these sites, they are most likely to regenerate after disturbance to these species. Resulting stands may be dominated by aspen (A21), pine (P22) or mixed-wood stands (such as APSw25, ASw06).

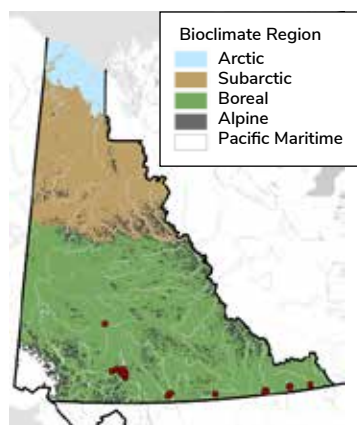
Comments

- Key characteristics: mixed-wood aspen – pine or aspen – pine – spruce stand; soapberry $\geq 5\%$ and usually $\geq 10\%$; feathermosses vary in cover
- CNVC association not yet determined



APSw25 Environment table

Zone	BOL (BOH)
Elevation (m)	460 – 715 – 1000
Aspect	neutral, warm (neutral)
Slope (%)	0 – 7 – 21
Soil moisture regime	submesic to mesic
Soil drainage	well to moderately well (rapid)
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	1 – 6 – 15 (wood)
Soil class	Brunisols (Eutric), (Gray Luvisol)

**APSw25 Vegetation summary (%)**

Trees	10 – 40 – 80	Shrubs	10 – 45 – 99	Ground shrubs	0 – 25 – 85
Graminoids and forbs	2 – 21 – 50	Bryophytes	1 – 20 – 80	Lichens	0 – 9 – 55

Layer	Scientific name	APSw25	Common name
		n = 16	
Trees	<i>Picea glauca</i>	■■■	white spruce
	<i>Pinus contorta</i>	■■■■	lodgepole pine
	<i>Populus tremuloides</i>	■■■■	trembling aspen
Shrubs	<i>Picea glauca</i>	■■■	white spruce
	<i>Pinus contorta</i>	■	lodgepole pine
	<i>Rosa acicularis</i>	■■■	prickly rose
	<i>Salix</i> spp.	■■■	willows
	<i>Shepherdia canadensis</i>	■■■■	soapberry
Ground shrubs	<i>Arctostaphylos uva-ursi</i>	■■■■	kinnikinnick
	<i>Linnaea borealis</i>	■■■	twinline
	<i>Vaccinium vitis-idaea</i>	■■■	lowbush cranberry
Graminoids	Poaceae	■■■	grass family
Forbs	<i>Chamaenerion angustifolium</i>	■■	fireweed
	<i>Geocaulon lividum</i>	■■■	bastard toadflax
	<i>Lupinus arcticus</i>	■■■	arctic lupine
	<i>Mertensia paniculata</i>	■	tall bluebells
	<i>Orthilia secunda</i>	■■	one-sided wintergreen
Bryophytes	<i>Hylocomium splendens</i>	■■■■	step moss
Lichens	<i>Cladina</i> spp.	■■	reindeer lichens
	<i>Cladonia</i> spp.	■■	clad lichens
	<i>Peltigera</i> spp.	■■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

APSB26 Aspen – Pine – Black spruce / Lowbush cranberry / Feathermoss

APSB26 is a mixed-wood aspen – pine – black spruce forest with ground shrubs (lowbush cranberry, twinflower, crowberry) that occurs on upland sites in the BOL and sometimes in the BOH.

Vegetation: Stands of APSb26 have a tree canopy of aspen (*Populus tremuloides*), pine (*Pinus contorta*) and black spruce (*Picea mariana*). The shrub layer is lightly to moderately developed, with a mix of common Labrador tea (*Rhododendron groenlandicum*), prickly rose (*Rosa acicularis*) and willows (*Salix* spp.) and sometimes, soapberry (*Shepherdia canadensis*). The understorey is moderately well developed to well developed, with lowbush cranberry (*Vaccinium vitis-idaea*), bastard toadflax (*Geocaulon lividum*), fireweed (*Chamaenerion angustifolium*), bunchberry (*Cornus canadensis*), twinflower (*Linnaea borealis*) and crowberry (*Empetrum nigrum*). Feathermosses (*Hylocomium splendens*, *Pleurozium schreberi*) dominate the forest floor.

Environment: APSb26 occurs at low to moderate elevations on level sites or neutral-aspect to warm-aspect slopes. Parent materials are mostly glacio-fluvial or colluvial. Soil data are very limited. The forest floor has low to moderate cover of woody debris.

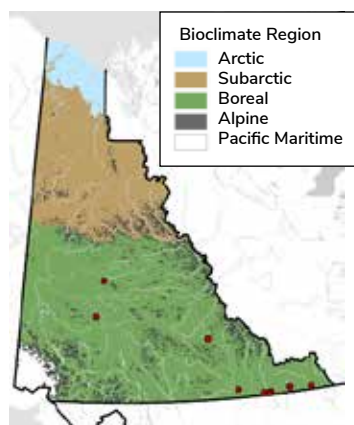
Dynamics: With aspen and pine on these sites, they are most likely to regenerate after disturbance to these species. Resulting stands may be dominated by aspen (A26, A29), pine (P21, P28) or mixed-wood stands (such as AP27, APSb26, PSbSw23).

**Comments**

- Key characteristics: mixed-wood aspen – pine – black spruce stand; feathermosses prominent; common Labrador tea <20%
- Component of CNVC00111 Black Spruce – Aspen – Lodgepole Pine / Lowbush Cranberry / Step Moss

APSb26 Environment table

Zone	BOL (BOH)
Elevation (m)	450 – 755 – 1100
Aspect	neutral, warm, neutral
Slope (%)	0 – 10 – 30
Soil moisture regime	submesic to mesic
Soil drainage	rapid to well
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	0 – 7 – 10 (wood)
Soil class	(Humo-Ferric Podzol) (limited data)

**APSb26 Vegetation summary (%)**

Trees	25 – 45 – 60	Shrubs	1 – 25 – 40	Ground shrubs	0.5 – 17 – 25
Graminoids and forbs	1 – 21 – 40	Bryophytes	15 – 65 – 90	Lichens	1 – 8 – 20

Layer	Scientific name	APSb26	Common name
		n = 9	
Trees	<i>Picea mariana</i>	■■■	black spruce
	<i>Pinus contorta</i>	■■■■	lodgepole pine
	<i>Populus tremuloides</i>	■■■■	trembling aspen
Shrubs	<i>Picea mariana</i>	■ ■	black spruce
	<i>Populus tremuloides</i>	■ ■	trembling aspen
	<i>Rhododendron groenlandicum</i>	■ ■ ■	common Labrador tea
	<i>Rosa acicularis</i>	■ ■	prickly rose
	<i>Salix</i> spp.	■ ■	willows
Ground shrubs	<i>Empetrum nigrum</i>	■ ■	crowberry
	<i>Linnaea borealis</i>	■ ■	twinline
	<i>Vaccinium vitis-idaea</i>	■■■■	lowbush cranberry
Forbs	<i>Chamaenerion angustifolium</i>	■	fireweed
	<i>Cornus canadensis</i>	■ ■ ■	bunchberry
	<i>Geocaulon lividum</i>	■■■	bastard toadflax
	<i>Lupinus arcticus</i>	■ ■	arctic lupine
Bryophytes	<i>Hylocomium splendens</i>	■■■■■	step moss
	<i>Pleurozium schreberi</i>	■ ■ ■ ■	red-stemmed feathermoss
Lichens	<i>Cladina</i> spp.	■ ■	reindeer lichens
	<i>Peltigera</i> spp.	■■■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ ■ 1 – 3	■ ■ ■ 3 – 10	■ ■ ■ ■ 10 – 25	■ ■ ■ ■ ■ >25

APSb27 Aspen – Pine – Black spruce / Labrador tea / Lowbush cranberry

APSb27 is a mixed-wood aspen – pine – black spruce forest (sometimes lacking black spruce) with high cover of common Labrador tea that occurs on upland sites in the BOL.

No photo
available

Vegetation: Stands of APSb27 have a tree canopy of aspen (*Populus tremuloides*) and pine (*Pinus contorta*), usually with black spruce (*Picea mariana*). The shrub layer is dominated by common Labrador tea (*Rhododendron groenlandicum*), often with some green alder (*Alnus alnobetula*), prickly rose (*Rosa acicularis*) or blueberry (*Vaccinium uliginosum*). The understorey is well developed, with lowbush cranberry (*Vaccinium vitis-idaea*), bastard toadflax (*Geocaulon lividum*), bunchberry (*Cornus canadensis*) and twinflower (*Linnaea borealis*). Feathermosses (*Hylocomium splendens*, *Pleurozium schreberi*) dominate the forest floor. Pelt lichens (*Peltigera aphthosa*) can be of high cover.

Environment: This association occurs at low elevations on level sites on glaciofluvial or morainal parent materials. Based on limited data, soils are classified as Brunisols. The forest floor has low cover of woody debris.

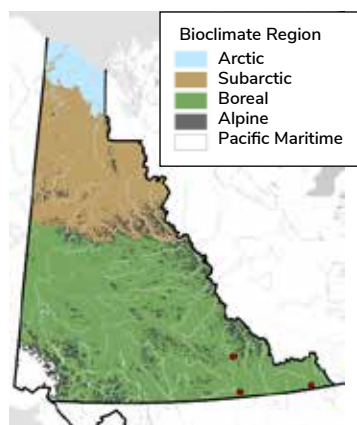
Dynamics: With aspen and pine on these sites, they are most likely to regenerate after disturbance to these species. Resulting stands may be dominated by aspen (A28), pine (P27, P29) or mixed-wood stands (such as APSb27).

Comments

- Key characteristics: mixed-wood aspen – pine – black spruce stand; common Labrador tea $\geq 20\%$; feathermosses prominent
- Component of CNVC00111 Black Spruce – Aspen – Lodgepole Pine / Lowbush Cranberry / Step Moss

APSb27 Environment table

Zone	BOL
Elevation (m)	450 – 675 – 880
Aspect	Neutral
Slope (%)	0 – 1 – 2
Soil moisture regime	submesic to mesic
Soil drainage	rapid to well
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	0 – 1 – 3 (wood)
Soil class	(Dystric Brunisol) (limited data)

**APSb27 Vegetation summary (%)**

Trees	60 – 70 – 60	Shrubs	65 – 75 – 80	Ground shrubs	7 – 27 – 53
Graminoids and forbs	6 – 19 – 30	Bryophytes	50 – 60 – 70	Lichens	5 – 20 – 55

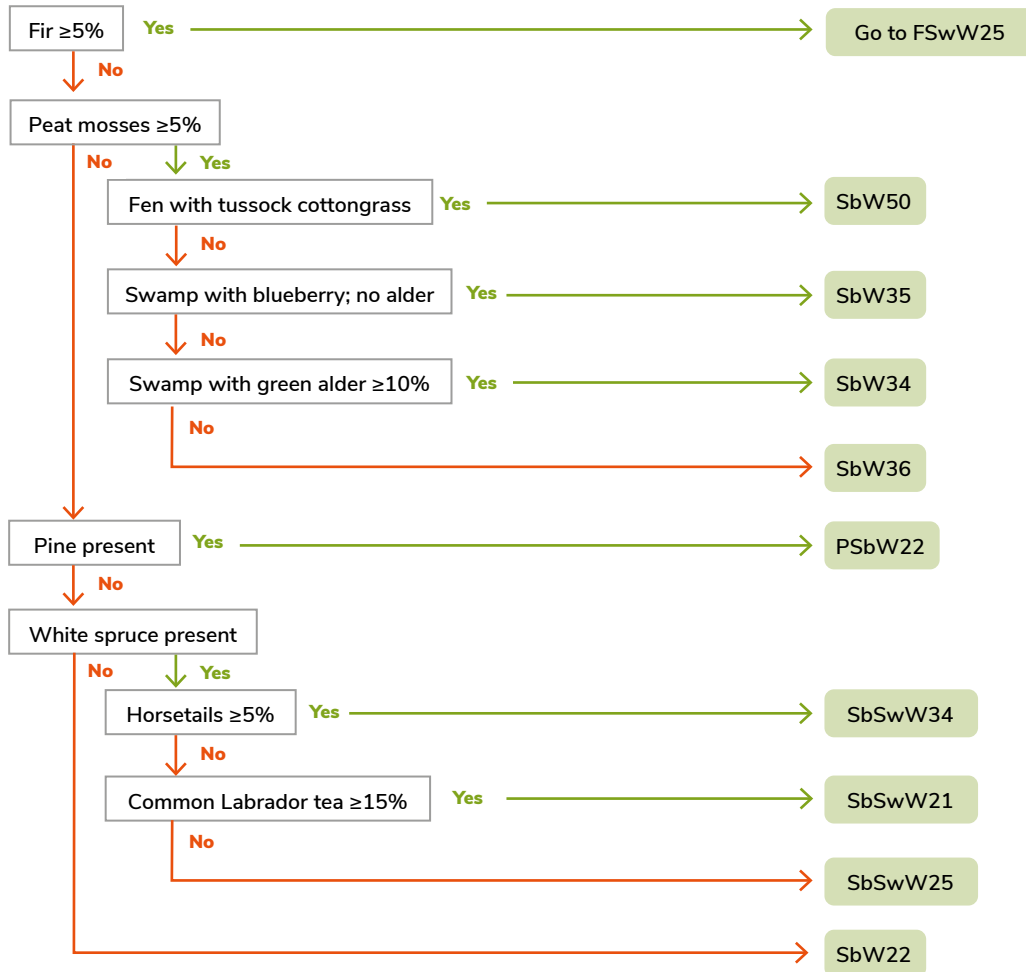
Layer	Scientific name	APSb27	Common name
		n = 3	
Trees	<i>Betula neoalaskana</i>	■ ■	Alaska birch
	<i>Picea mariana</i>	■ ■ ■	black spruce
	<i>Pinus contorta</i>	■ ■ ■ ■ ■	lodgepole pine
	<i>Populus tremuloides</i>	■ ■ ■ ■ ■	trembling aspen
Shrubs	<i>Alnus alnobetula</i>	■ ■	green alder
	<i>Rhododendron groenlandicum</i>	■ ■ ■ ■ ■	common Labrador tea
	<i>Rosa acicularis</i>	■ ■ ■	prickly rose
	<i>Vaccinium uliginosum</i>	■ ■ ■	blueberry
Ground shrubs	<i>Linnaea borealis</i>	■ ■	twinflower
	<i>Vaccinium vitis-idaea</i>	■ ■ ■ ■	lowbush cranberry
Forbs	<i>Chamaenerion angustifolium</i>	■ ■	fireweed
	<i>Cornus canadensis</i>	■ ■ ■	bunchberry
	<i>Geocaulon lividum</i>	■ ■ ■	bastard toadflax
	<i>Orthilia secunda</i>	■	one-sided wintergreen
	<i>Pedicularis labradorica</i>	■ ■	Labrador lousewort
Bryophytes	<i>Hylocomium splendens</i>	■ ■ ■ ■ ■	step moss
	<i>Pleurozium schreberi</i>	■ ■ ■ ■ ■	red-stemmed feathermoss
Lichens	<i>Cladina</i> spp.	■ ■ ■	reindeer lichens
	<i>Peltigera</i> spp.	■ ■ ■ ■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ ■ 1 – 3	■ ■ ■ 3 – 10	■ ■ ■ ■ 10 – 25	■ ■ ■ ■ ■ >25

Black spruce – birch associations

Black spruce (Sb) and birch (W) in mixed-wood stands may include white spruce (Sw), pine (P) or fir (F) and minor aspen (A) or balsam poplar (B); birch includes paper birch, Alaska birch and water birch.

Flowchart Black spruce – birch associations



Summary of features: Black spruce – birch associations**Mesic to moist sites**

	SbSwW21	PSbW22	SbW22	SbSwW25	SbSwW34	SbW34
Zone	BOL	BOL (BOH)	BOL (BOH, SUW, ARLS)	BOL (BOH)	BOL (BOH)	BOL (SUW)
Geography	west-central	central, southeast	west-central, north	west-central, southeast	west-central, southeast	west-central (southeast, north)
Important site features	mesic sites	mesic sites	mesic sites; neutral to cool aspects; permafrost possible	mesic sites; permafrost uncommon	moist sites; neutral to cool aspects; permafrost possible	moist sites; cool aspects; permafrost possible
Drainage	well to moderately well	well to moderately well	well to moderately well	well to moderately well	well to imperfect	well to imperfect
Tree canopy	black spruce – white spruce – Alaska birch, (aspen)	pine – black spruce – Alaska birch, (aspen), (white spruce)	black spruce – Alaska birch, (water birch)	black spruce – white spruce – Alaska birch, (aspen)	black spruce – white spruce – Alaska birch or paper birch	black spruce – Alaska birch, (white spruce), (water birch)
Key understorey species	willow, common Labrador tea, feathermoss, lichen	green alder, feathermoss	feathermoss	prickly rose, tall bluebells, feathermoss	green alder, (common Labrador tea), prickly rose, horsetails	green alder, Labrador teas (horsetails, peat moss)

Wetland sites

	SbW35	SbW36	SbW50
Zone	BOL, BOH	BOL	BOL
Geography	west-central	west-central, southeast	west-central
Important site features	swamp; neutral to cool aspects; permafrost likely	swamp; neutral to cool aspects; permafrost likely	fen; permafrost likely
Drainage	imperfect to poor	imperfect to poor	imperfect to poor
Tree canopy	black spruce – Alaska birch or water birch	black spruce – Alaska birch	black spruce – Alaska birch (water birch)
Key understorey species	Labrador teas, blueberry, peat moss	green alder, common Labrador tea, peat moss	tussock cottongrass, peat moss

Vegetation tables for Black spruce – Birch associations

Mesic to moist sites

Layer	Scientific name	SbSwW21	PSbW22	SbW22	SbSwW25	SbSwW34	SbW34	Common name
	n =	6	7	14	15	12	9	
Trees	<i>Betula neoalaskana</i>	■■■■	■■■■	■■■	■■■■	■■■■	■■■	Alaska birch
	<i>Picea glauca</i>	■■■■	□□		■■■■	■■■■	□□	white spruce
	<i>Picea mariana</i>	■■■■	■■■	■■■■	■■■■	■■■■	■■■■	black spruce
	<i>Pinus contorta</i>		■■■■					lodgepole pine
Shrubs	<i>Betula neoalaskana</i>	■■■	□□□	■■■	□□	■■■	■■■	Alaska birch
	<i>Picea glauca</i>	□□	■■		□	■■		white spruce
	<i>Picea mariana</i>	□□□	□□	■■■	□□	■■■	■■■■	black spruce
	<i>Populus tremuloides</i>		■■					trembling aspen
	<i>Alnus alnobetula</i>		■■■■	□□□	□□	■■■■	■■■■	green alder
	<i>Rhododendron</i> spp.	■■■■	□	■■■■	■■■	■■■■	■■■■	Labrador teas
	<i>Rosa acicularis</i>	■■	■■	■■	■■■	■■■	□□	prickly rose
	<i>Salix</i> spp.	■■■■	■■	■■■	■■	■■■■	■■■	willows
	<i>Vaccinium uliginosum</i>	■■■		■■		□□	■■	blueberry
	<i>Viburnum edule</i>		□		□□	■■		highbush cranberry
Ground shrubs	<i>Linnaea borealis</i>		■■		■■■	□□		twinline
	<i>Vaccinium vitis-idaea</i>	■■■■	■■■	■■■	■■■	■■■■	■■■■	lowbush cranberry
Graminoids	Poaceae	■■		■■	□	■■■	■■	grass family
Forbs	<i>Chamaenerion angustifolium</i>		■		□			fireweed
	<i>Cornus canadensis</i>		■■		□□	■■		bunchberry
	<i>Equisetum</i> spp.				□	■■■■	■■■	horsetails
	<i>Geocaulon lividum</i>	■■■	■■	■■	■■■	■■■		bastard toadflax
	<i>Mertensia paniculata</i>	□			■■	■■	□	tall bluebells
	<i>Orthilia secunda</i>		□		■	□		one-sided wintergreen
	<i>Petasites frigidus</i>			□		□□	■■	arctic sweet coltsfoot
Bryophytes	<i>Hylocomium / Pleurozium</i>	■■■■■	■■■■■	■■■■■	■■■■■	■■■■■	■■■■■	feathermosses
	<i>Sphagnum</i> spp.						■■■■	peat mosses
Lichens	<i>Cladina</i> spp.	■■■■	■■	■■■■	□	■■■	■■■■	reindeer lichens
	<i>Cladonia</i> spp.	■■■	■■■	■■	□	□		clad lichens
	<i>Peltigera</i> spp.	■■■	■■	■■	■■	■■■	■■	pelt lichens

Note: gold cells highlight key diagnostic species

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

Wet (swamp and fen) sites

Layer	Scientific name	SbW35	SbW36	SbW50	Common name
	n =	3	4	7	
Trees	<i>Betula neoalaskana</i>		■■■		Alaska birch
	<i>Picea mariana</i>	■■■	■■■■	□□	black spruce
Shrubs	<i>Betula neoalaskana</i>	■■	■■■	■■■	Alaska birch
	<i>Betula occidentalis</i>	■■■■	□□	□□	water birch
	<i>Picea mariana</i>	■■■■	■■■	■■■■	black spruce
	<i>Alnus alnobetula</i>		■■■	■■	green alder
	<i>Betula glandulosa</i>	■■■■		□□	shrub birch
	<i>Rhododendron</i> spp.	■■■■	■■■■■	■■■■	Labrador teas
	<i>Rosa acicularis</i>		■■		prickly rose
	<i>Salix</i> spp.	■■■■	■■■	■■	willows
	<i>Vaccinium uliginosum</i>	■■■■■	■■	■■■	blueberry
Ground shrubs	<i>Empetrum nigrum</i>	■■	■■	□	crowberry
	<i>Rubus chamaemorus</i>	□	■■■	■■■	cloudberry
	<i>Vaccinium oxycoccos</i>	□	■	■	bog cranberry
	<i>Vaccinium vitis-idaea</i>	■■■■	■■■■	■■■■	lowbush cranberry
Graminoids	<i>Carex bigelowii</i> ssp. <i>lugens</i>		□□	■■■■	spruce muskeg sedge
	<i>Eriophorum vaginatum</i>			■■■■■	tussock cottongrass
Forbs	<i>Petasites frigidus</i>	■	■	□	arctic sweet coltsfoot
Bryophytes	<i>Hylocomium splendens</i>	■■■■■	■■■■■	■■■	step moss
	<i>Pleurozium schreberi</i>	■■■■		■■■■	red-stemmed feathermoss
	<i>Sphagnum</i> spp.	■■■■	■■■■■	■■■■■	peat mosses
Lichens	<i>Cladina</i> spp.	■■■	■■■	■■■■	reindeer lichens
	<i>Cladonia</i> spp.	■■		□	clad lichens
	<i>Peltigera</i> spp.	□□□	■		pelt lichens

Note: gold cells highlight key diagnostic species

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

Fact sheets: Black spruce – birch associations

SbSwW21 Spruce – Alaska birch / Labrador tea / Lowbush cranberry / Feathermoss

SbSwW21 is a mixed-wood black – white spruce – Alaska birch forest, with common Labrador tea and high feathermoss ground cover, that occurs in the BOL.

Vegetation: Stands of SbSwW21 have a mixed-wood tree canopy of black spruce (*Picea mariana*), white spruce (*P. glauca*) and Alaska birch (*Betula neoalaskana*), sometimes with a minor component of aspen (*Populus tremuloides*). The shrub layer is well developed, comprised of moderately high to high cover of common Labrador tea (*Rhododendron groenlandicum*), usually with willows (*Salix* spp.) and prickly rose (*Rosa acicularis*). Lowbush cranberry (*Vaccinium vitis-idaea*) is a consistent ground shrub, of moderate to moderately high cover, often with some bastard toadflax (*Geocaulon lividum*). Feathermosses (*Hylocomium splendens*, *Pleurozium schreberi*) dominate the ground cover. Lichens, mostly reindeer lichens (*Cladonia* spp.), are present with variable cover.



Environment: This association occurs at low to moderate elevations, mostly on moderately steep lower to middle slopes of varying aspect. Soils are moderately well drained to well drained and of loamy texture. No information is available on parent materials. Based on very limited data, soils are classified as Brunisols. The forest floor usually has a light cover of woody debris.

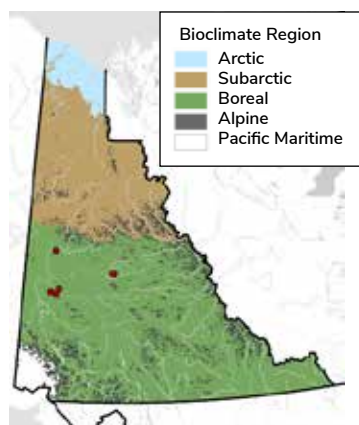
Dynamics: Stands on similar sites can be strongly dominated by black spruce (Sb23), white spruce (Sw29) or various mixes (SbSw30, SwW30). Dominance after disturbance depends on local seed sources.

Comments

- Key characteristics: mixed-wood black spruce, white spruce and Alaska birch stand; submesic to mesic upland; common Labrador tea $\geq 15\%$; high feathermoss cover
- Component of CNVC00394 Black Spruce – White Spruce – Alaska Birch / Willow – Labrador Tea / Lowbush Cranberry / Feathermoss – Lichen

SbSwW21 Environment table

Zone	BOL
Elevation (m)	565 – 725 – 950
Aspect	variable (neutral)
Slope (%)	4 – 26 – 42
Soil moisture regime	submesic to mesic
Soil drainage	well to moderately well
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	1 – 4 – 5
Soil class	Brunisols (limited data)

**SbSwW21 Vegetation summary (%)**

Trees	10 – 38 – 65	Shrubs	25 – 58 – 99	Ground shrubs	5 – 13 – 20
Graminoids and forbs	3 – 6 – 13	Bryophytes	12 – 60 – 90	Lichens	4 – 24 – 55

Layer	Scientific name	SbSwW21	Common name
		n = 6	
Trees	<i>Betula neoalaskana</i>	■ ■ ■ ■	Alaska birch
	<i>Picea glauca</i>	■ ■ ■ ■	white spruce
	<i>Picea mariana</i>	■ ■ ■ ■	black spruce
Shrubs	<i>Betula neoalaskana</i>	■ ■ ■	Alaska birch
	<i>Rhododendron groenlandicum</i>	■ ■ ■ ■	common Labrador tea
	<i>Rosa acicularis</i>	■ ■	prickly rose
	<i>Salix</i> spp.	■ ■ ■ ■	willows
	<i>Vaccinium uliginosum</i>	■ ■ ■	blueberry
Ground shrubs	<i>Vaccinium vitis-idaea</i>	■ ■ ■ ■	lowbush cranberry
Graminoids	Poaceae	■ ■	grass family
Forbs	<i>Geocaulon lividum</i>	■ ■ ■	bastard toadflax
Bryophytes	<i>Hylocomium</i> / <i>Pleurozium</i>	■ ■ ■ ■ ■	feathermosses
Lichens	<i>Cetraria</i> / <i>Flavocetraria</i>	■	Iceland / snow lichens
	<i>Cladina</i> spp.	■ ■ ■ ■	reindeer lichens
	<i>Cladonia</i> spp.	■ ■ ■	clad lichens
	<i>Peltigera</i> spp.	■ ■ ■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ ■ 1 – 3	■ ■ ■ 3 – 10	■ ■ ■ ■ 10 – 25	■ ■ ■ ■ ■ >25

PSbW22 Pine – Black spruce – Alaska birch / Alder / Lowbush cranberry – Fireweed / Feathermoss

PSbW22 is a mixed-wood pine – black spruce – Alaska birch forest, with alder, lowbush cranberry and high feathermoss ground cover, that occurs in the BOL and sometimes in the BOH.

Vegetation: Stands are a mixed-wood tree canopy of pine (*Pinus contorta*), black spruce (*Picea mariana*) and Alaska birch (*Betula neoalaskana*), often with a minor component of aspen (*Populus tremuloides*) and white spruce (*P. glauca*). The shrub layer is dominated by alder, usually green alder (*Alnus alnobetula*), but sometimes river alder (*A. incana*). Lowbush cranberry (*Vaccinium vitis-idaea*), fireweed (*Chamaenerion angustifolium*), bunchberry (*Cornus canadensis*) and bastard toadflax (*Geocaulon lividum*) are common in the understorey. Feathermosses (*Hylocomium splendens*, *Pleurozium schreberi*) dominate the ground cover. Lichens are present with low to moderate cover.

Environment: This association occurs at low to moderate elevations on level sites or gentle to moderate slopes of varying aspect. Soils are well drained to moderately well drained. Based on limited data, parent materials are morainal or colluvial. Based on very limited data, soils are classified as Brunisols. The forest floor usually has a light to moderate cover of woody debris.

Dynamics: Stands on similar sites can be strongly dominated by birch (W25), pine (P23), white spruce (Sw34) or various mixed-wood species (such as AP22, SwW28). Dominance after disturbance depends on the presence of local seed sources.

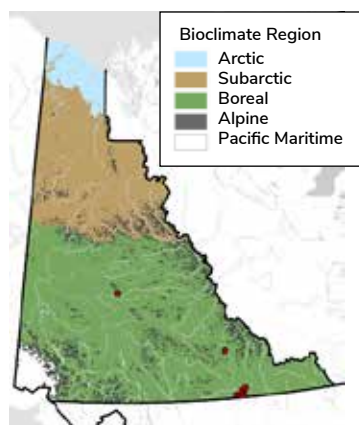
Comments

- Key characteristics: mixed-wood pine, black spruce and Alaska birch stand; submesic to mesic upland; alder; lowbush cranberry; high feathermoss cover
- Component of CNVC00402 Aspen – Lodgepole Pine – White Spruce / Green Alder / Lowbush Cranberry / Feathermoss; Paper Birch subassociation (CNVC00402b)



PSbW22 Environment table

Zone	BOL (BOH)
Elevation (m)	610 – 820 – 1140
Aspect	variable (neutral)
Slope (%)	0 – 17 – 47
Soil moisture regime	mesic
Soil drainage	well to moderately well
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	1 – 6 – 15
Soil class	Brunisols (limited data)

**PSbW22 Vegetation summary (%)**

Trees	10 – 40 – 70	Shrubs	10 – 30 – 80	Ground shrubs	1 – 7 – 25
Graminoids and forbs	1 – 9 – 24	Bryophytes	11 – 40 – 60	Lichens	1 – 7 – 30

Layer	Scientific name	PSbW22	Common name
		n = 7	
Trees	<i>Betula neoalaskana</i>	■ ■ ■ ■	Alaska birch
	<i>Picea mariana</i>	■ ■ ■	black spruce
	<i>Pinus contorta</i>	■ ■ ■ ■	lodgepole pine
Shrubs	<i>Alnus alnobetula</i>	■ ■ ■ ■	green alder
	<i>Picea glauca</i>	■ ■	white spruce
	<i>Populus tremuloides</i>	■ ■	trembling aspen
	<i>Rosa acicularis</i>	■ ■	prickly rose
	<i>Salix</i> spp.	■ ■	willows
Ground shrubs	<i>Linnaea borealis</i>	■ ■	twinflower
	<i>Vaccinium vitis-idaea</i>	■ ■ ■	lowbush cranberry
Forbs	<i>Chamaenerion angustifolium</i>	■	fireweed
	<i>Cornus canadensis</i>	■ ■	bunchberry
	<i>Geocaulon lividum</i>	■ ■	bastard toadflax
Bryophytes	<i>Hylocomium splendens</i>	■ ■ ■ ■	step moss
	<i>Pleurozium schreberi</i>	■ ■ ■ ■	red-stemmed feathermoss
Lichens	<i>Peltigera</i> spp.	■	pelt lichens
	<i>Cladina</i> spp.	■ ■	reindeer lichens
	<i>Cladonia</i> spp.	■ ■ ■	clad lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ ■ 1 – 3	■ ■ ■ 3 – 10	■ ■ ■ ■ 10 – 25	■ ■ ■ ■ ■ >25

SbW22 Black spruce – Alaska birch / Lowbush cranberry / Feathermoss

SbW22 is a mixed-wood black spruce – Alaska birch forest, with lowbush cranberry and high feathermoss ground cover, that occurs in the BOL and sometimes in the BOH, SUW or ARLS.

Vegetation: Stands are a mixed-wood tree canopy of black spruce (*Picea mariana*) and Alaska birch (*Betula neo-alaskana*), sometimes with water birch (*B. occidentalis*) and sometimes with a minor component of white spruce (*P. glauca*). The shrub layer usually has a component of Labrador tea (*Rhododendron groenlandicum*, *R. tomentosum* in the northern distribution), varying in cover from low to high. Lowbush cranberry (*Vaccinium vitis-idaea*) characterizes the ground shrub layer, often with some bastard toadflax (*Geocaulon lividum*). Feathermosses (*Hylocomium splendens*, *Pleurozium schreberi*) dominate the ground cover. Reindeer lichens (*Cladina* spp.) are present with low to moderate cover.



Environment: This association occurs at low to moderate elevations on level sites or gentle to moderately steep, neutral-aspect to cool-aspect, middle to upper slopes. Soils are well drained to moderately well drained. Based on limited data, parent materials are colluvial and soils are classified as Cryosols (Turbic) or Brunisols. The forest floor usually has a light to moderate cover of woody debris.

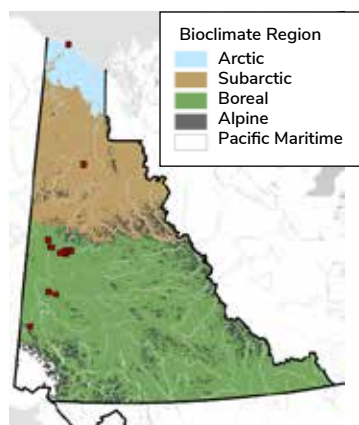
Dynamics: Stands on similar sites can be strongly dominated by black spruce (Sb22, Sb23) or birch (W28). Dominance after disturbance depends on the presence of local seed sources.

Comments

- Key characteristics: mixed-wood black spruce and Alaska birch stand; submesic to mesic upland; lowbush cranberry; high feathermoss cover
- Component of CNVC00402 Black Spruce – Alaska Birch / Lowbush Cranberry / Feathermoss

SbW22 Environment table

Zone	BOL (BOH, SUW, ARLS)
Elevation (m)	440 – 710 – 950
Aspect	neutral, neutral, cool
Slope (%)	0 – 25 – 60
Soil moisture regime	submesic to mesic
Soil drainage	well to moderately well
Permafrost presence/depth (cm)	possible (unknown frequency)
Unvegetated cover (%)	1 – 5 – 15
Soil class	Cryosols, Brunisols (limited data)

**SbW22 Vegetation summary (%)**

Trees	15 – 30 – 55	Shrubs	11 – 40 – 70	Ground shrubs	0 – 11 – 30
Graminoids and forbs	1 – 8 – 20	Bryophytes	18 – 54 – 85	Lichens	1 – 20 – 35

Layer	Scientific name	SbW22	Common name
		n = 14	
Trees	<i>Betula neoalaskana</i>	■ ■ ■	Alaska birch
	<i>Picea mariana</i>	■ ■ ■ ■	black spruce
Shrubs	<i>Betula neoalaskana</i>	■ ■ ■	Alaska birch
	<i>Picea mariana</i>	■ ■ ■	black spruce
	<i>Rhododendron groenlandicum</i>	■ ■ ■ ■	common Labrador tea
	<i>Rosa acicularis</i>	■ ■	prickly rose
	<i>Salix</i> spp.	■ ■ ■	willows
	<i>Vaccinium uliginosum</i>	■ ■	blueberry
Ground shrubs	<i>Vaccinium vitis-idaea</i>	■ ■ ■	lowbush cranberry
Graminoids	Poaceae	■ ■	grass family
Forbs	<i>Geocaulon lividum</i>	■ ■	bastard toadflax
Bryophytes	<i>Hylocomium</i> / <i>Pleurozium</i>	■ ■ ■ ■ ■	feathermosses
Lichens	<i>Cladina</i> spp.	■ ■ ■ ■	reindeer lichens
	<i>Cladonia</i> spp.	■ ■	clad lichens
	<i>Peltigera</i> spp.	■ ■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ ■ 1 – 3	■ ■ ■ 3 – 10	■ ■ ■ ■ 10 – 25	■ ■ ■ ■ ■ >25

SbSwW25 Spruce – Alaska birch / Prickly rose / Twinflower – Tall bluebells / Feathermoss

SbSwW25 is a mixed-wood black spruce – Alaska birch forest with prickly rose, tall bluebells and high feathermoss ground cover that occurs in the BOL and sometimes in the BOH.

Vegetation: Stands are a mixed-wood tree canopy of black spruce (*Picea mariana*), white spruce (*P. glauca*) and Alaska birch (*Betula neoalaskana*), often with a minor component of aspen (*Populus tremuloides*) and sometimes without white spruce. The shrub layer is comprised of prickly rose (*Rosa acicularis*), often with a component of common Labrador tea (*Rhododendron groenlandicum*). Lowbush cranberry (*Vaccinium vitis-idaea*) and twinflower (*Linnaea borealis*) characterize the ground shrub layer. Forbs include tall bluebells (*Mertensia paniculata*) and bastard toadflax (*Geocaulon lividum*). Step moss (*Hylocomium splendens*) dominates the moss cover, usually with some red-stemmed feathermoss (*Pleurozium schreberi*).



Environment: This association occurs mostly at low elevations on level sites or gentle to steep slopes. Soils are well drained to moderately well drained. Parent materials are primarily colluvial, but are variable. Soils are primarily classified as Eutric Brunisols. Cryosols, Grey Luvisols and Regosols also occur. The forest floor usually has a light to moderate cover of woody debris.

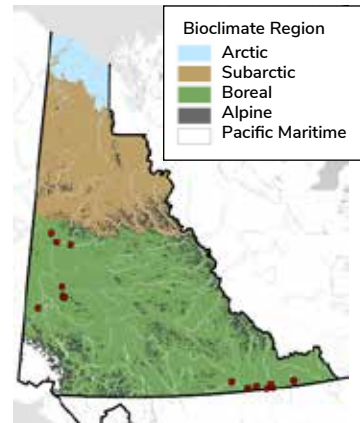
Dynamics: Stands on similar sites can be strongly dominated by birch (W26) or mixed-wood without black spruce (SwW25). Dominance after disturbance depends on the presence of local seed sources.

Comments

- Key characteristics: mixed-wood black spruce, white spruce, and Alaska birch stand; submesic to mesic upland; prickly rose; tall bluebells; high feathermoss cover
- Component of CNVC00408 Black Spruce – White Spruce – Alaska Birch / Prickly Rose / Tall Bluebells / Step Moss

SbSwW25 Environment table

Zone	BOL (BOH)
Elevation (m)	335 – 635 – 950
Aspect	neutral, variable
Slope (%)	0 – 22 – 70
Soil moisture regime	submesic to mesic
Soil drainage	well to moderately well
Permafrost presence/depth (cm)	infrequent
Unvegetated cover (%)	0 – 6 – 10
Soil class	Brunisols (Eutric, Melanic), Cryosols (Static)

**SbSwW25 Vegetation summary (%)**

Trees	25 – 60 – 99	Shrubs	11 – 40 – 70	Ground shrubs	5 – 25 – 70
Graminoids and forbs	2 – 14 – 35	Bryophytes	30 – 60 – 85	Lichens	0 – 5 – 15

Layer	Scientific name	SbSwW25	Common name
		n = 15	
Trees	<i>Betula papyrifera</i>	■■■■■	paper birch
	<i>Picea glauca</i>	■■■■■	white spruce
	<i>Picea mariana</i>	■■■■■	black spruce
Shrubs	<i>Rhododendron groenlandicum</i>	■■■	common Labrador tea
	<i>Rosa acicularis</i>	■■■	prickly rose
	<i>Salix</i> spp.	■■	willows
Ground shrubs	<i>Linnaea borealis</i>	■■■	twinline
	<i>Vaccinium vitis-idaea</i>	■■■	lowbush cranberry
Forbs	<i>Geocaulon lividum</i>	■■■	bastard toadflax
	<i>Mertensia paniculata</i>	■■	tall bluebells
	<i>Orthilia secunda</i>	■	one-sided wintergreen
Bryophytes	<i>Hylocomium splendens</i>	■■■■■	step moss
	<i>Pleurozium schreberi</i>	■■■	red-stemmed feathermoss
Lichens	<i>Peltigera</i> spp.	■■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

SbSwW34 Spruce – Alaska birch / Alder – Prickly rose / Horsetail

SbSwW34 is a mixed-wood black spruce – white spruce – Alaska birch forest, with green alder and horsetails, that occurs in the BOL and sometimes in the BOH.

No photo
available

Vegetation: Stands are a mixed-wood tree canopy of black spruce (*Picea mariana*), white spruce (*P. glauca*) and Alaska birch (*Betula neoalaskana*) or, in the extreme southeast Yukon, paper birch (*B. papyrifera*). The shrub layer is comprised of green alder (*Alnus alnobetula*) and prickly rose (*Rosa acicularis*), usually with common Labrador tea (*Rhododendron groenlandicum*) and willows (*Salix* spp.). Moderate to high cover of horsetails (*Equisetum arvense*, *pratense*, *sylvaticum*) characterizes the understorey. Lowbush cranberry (*Vaccinium vitis-idaea*), tall bluebells (*Mertensia paniculata*), bluejoint reedgrass (*Calamagrostis canadensis*) and bastard toadflax (*Geocaulon lividum*) usually occur. Step moss (*Hylocomium splendens*) dominates the moss cover.

Environment: This association occurs mostly at low elevations on level sites or on gentle to steep, neutral-aspect or cool-aspect slopes. The steeper the slope, the farther downslope the association occurs. Soils vary from well drained to imperfectly drained; they receive some seepage or soil water from thawing permafrost. Parent materials vary, with a moderately thick to thick organic capping. Based on limited data, soils are classified as Melanic Brunisols or Cryosols (Static, Turbic). The forest floor usually has a light cover of woody debris.

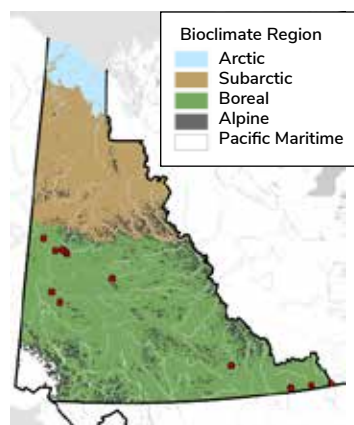
Dynamics: Stands on similar sites can be strongly dominated by birch (W29) or mixed-wood spruce (SbW34, SwW34). Dominance after disturbance depends on the presence of local seed sources.

Comments

- Key characteristics: mixed-wood black spruce, white spruce, and Alaska birch stand; mesic to moist upland; green alder $\geq 10\%$, prickly rose; horsetails $\geq 5\%$; high feathermoss cover; no peat moss
- Component of CNVC00409 Black Spruce – White Spruce – Alaska Birch / Alder / Horsetails / Step Moss

SbSwW34 Environment table

Zone	BOL (BOH)
Elevation (m)	315 – 565 – 865
Aspect	neutral, neutral, cool
Slope (%)	0 – 23--56
Soil moisture regime	mesic to subhygric
Soil drainage	well to imperfect
Permafrost presence/depth (cm)	infrequent
Unvegetated cover (%)	0 – 4 – 6
Soil class	Brunisols (Melanic), Cryosols (Static, Turbic)

**SbSwW34 Vegetation summary (%)**

Trees	20 – 40 – 75	Shrub layer	25 – 65 – 95	Ground shrubs	2 – 19 – 40
Graminoids and forbs	10 – 24 – 70	Bryophytes	10 – 25 – 70	Lichens	0 – 12 – 50

Layer	Scientific name	SbSwW34	Common name
		n = 12	
Trees	<i>Betula neoalaskana</i> / <i>papyrifera</i>	■ ■ ■ ■	Alaska / paper birch
	<i>Picea glauca</i>	■ ■ ■ ■	white spruce
	<i>Picea mariana</i>	■ ■ ■ ■	black spruce
Shrubs	<i>Betula neoalaskana</i> / <i>papyrifera</i>	■ ■ ■	Alaska / paper birch
	<i>Picea glauca</i>	■ ■	white spruce
	<i>Picea mariana</i>	■ ■ ■	black spruce
	<i>Alnus alnobetula</i>	■ ■ ■ ■	green alder
	<i>Rhododendron groenlandicum</i>	■ ■ ■ ■	common Labrador tea
	<i>Rosa acicularis</i>	■ ■ ■	prickly rose
	<i>Salix</i> spp.	■ ■ ■ ■	willows
	<i>Viburnum edule</i>	■ ■	highbush cranberry
Ground shrubs	<i>Vaccinium vitis-idaea</i>	■ ■ ■ ■	lowbush cranberry
Graminoids	<i>Calamagrostis canadensis</i>	■ ■ ■	bluejoint reedgrass
Forbs	<i>Cornus canadensis</i>	■ ■	bunchberry
	<i>Equisetum</i> spp.	■ ■ ■ ■	horsetails
	<i>Geocaldon lividum</i>	■ ■ ■	bastard toadflax
	<i>Mertensia paniculata</i>	■ ■	tall bluebells
Bryophytes	<i>Hylocomium splendens</i>	■ ■ ■ ■ ■	step moss
Lichens	<i>Peltigera</i> spp.	■ ■ ■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ ■ 1 – 3	■ ■ ■ 3 – 10	■ ■ ■ ■ 10 – 25	■ ■ ■ ■ ■ >25

SbW34 Black spruce – Alaska birch / Alder – Labrador tea / Feathermoss – Peat moss

SbW34 is a mixed-wood black spruce – Alaska birch forest, sometimes with white spruce, with green alder, Labrador teas, lowbush cranberry, feathermosses and some peat moss, that occurs in the BOL and sometimes in the SUW.

No photo
available

Vegetation: Stands are a mixed-wood tree canopy of black spruce (*Picea mariana*) and Alaska birch (*Betula neoalaskana*), sometimes with a white spruce (*P. glauca*) or water birch (*B. occidentalis*) component. The shrub layer is very well developed, with tree regeneration, Labrador teas (*Rhododendron groenlandicum*; *R. tomentosum* in the SUW), green alder (*Alnus alnobetula*) and willows (*Salix* spp.). Lowbush cranberry (*Vaccinium vitis-idaea*) is prominent. Arctic sweet coltsfoot (*Petasites frigidus*) and horsetails (*Equisetum arvense*, *pratense*, *sylvaticum*) usually occur, as well as low cover of sedge (*Carex* spp.). Feathermosses (*Hylocomium splendens*, *Pleurozium schreberi*) dominate the forest floor, accompanied by moderate to high cover of peat mosses (*Sphagnum* spp.) and reindeer lichens (*Cladina* spp.).

Environment: This association occurs mostly at low elevations on gentle to steep, cool-aspect, lower to middle slopes. Soil data are very limited. Permafrost is likely on these cool sites. The forest floor usually has a light to moderate cover of woody debris.

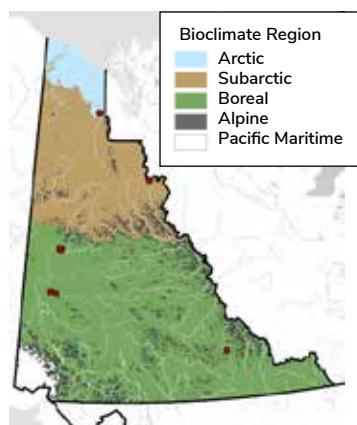
Dynamics: Stands on similar sites can be strongly dominated by birch (W29) or mixed-wood spruce (SbSwW34, SwW34). Dominance after disturbance depends on the presence of local seed sources.

Comments

- Key characteristics: mixed-wood black spruce and Alaska birch stand, sometimes with white spruce; moist upland; green alder ≥10%, Labrador teas; high feathermoss cover; peat moss
- Component of CNVC00419 Black Spruce – Alaska Birch / Alder – Labrador Tea / Step Moss – Peat Moss

SbW34 Environment table

Zone	BOL (SUW)
Elevation (m)	100 – 545 – 925
Aspect	neutral to cool
Slope (%)	9 – 31 – 52
Soil moisture regime	subhygric (mesic)
Soil drainage	well to imperfect
Permafrost presence/depth (cm)	likely
Unvegetated cover (%)	5 – 7 – 10
Soil class	Cryosols (limited data)

**SbW34** Vegetation summary (%)

Trees	0 – 25 – 40	Shrubs	55 – 75 – 99	Ground shrubs	10 – 23 – 50
Graminoids and forbs	5 – 22 – 50	Bryophytes	25 – 75 – 95	Lichens	2 – 18 – 30

Layer	Scientific name	SbW34	Common name
		n = 9	
Trees	<i>Betula neoalaskana</i>	■ ■ ■	Alaska birch
	<i>Picea mariana</i>	■ ■ ■ ■	black spruce
Shrubs	<i>Betula neoalaskana</i>	■ ■ ■	Alaska birch
	<i>Alnus alnobetula</i>	■ ■ ■ ■	green alder
	<i>Picea mariana</i>	■ ■ ■ ■	black spruce
	<i>Rhododendron</i> spp.	■ ■ ■ ■	Labrador teas
	<i>Salix</i> spp.	■ ■ ■	willows
	<i>Vaccinium uliginosum</i>	■ ■	blueberry
Ground shrubs	<i>Vaccinium vitis-idaea</i>	■ ■ ■ ■	lowbush cranberry
Graminoids	Poaceae	■ ■	grass family
Forbs	<i>Equisetum</i> spp.	■ ■ ■	horsetails
	<i>Petasites frigidus</i>	■ ■	arctic sweet coltsfoot
Bryophytes	<i>Hylocomium / Pleurozium</i>	■ ■ ■ ■ ■	feathermosses
	<i>Sphagnum</i> spp.	■ ■ ■ ■	peat mosses
Lichens	<i>Cladina</i> spp.	■ ■ ■ ■	reindeer lichens
	<i>Peltigera</i> spp.	■ ■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ ■ 1 – 3	■ ■ ■ 3 – 10	■ ■ ■ ■ 10 – 25	■ ■ ■ ■ ■ >25

SbW35 Black spruce – Alaska birch / Labrador tea – Blueberry / Peat moss

SbW35 is a mixed-wood black spruce – Alaska birch (or water birch) swamp, with Labrador tea, blueberry, lowbush cranberry, step moss and peat moss, that occurs in the BOL and BOH. This association is a component of the Sb – Labrador Tea – Peat Moss Swamp ecosite (S07).

Vegetation: Stands are a mixed-wood tree canopy of black spruce (*Picea mariana*) and birch (*Betula neoalaskana*, *B. occidentalis*). Most of the tree cover is of shrub height. The shrub layer is characterized by Labrador teas (*Rhododendron groenlandicum*; *R. tomentosum* in the BOH), blueberry (*Vaccinium uliginosum*) and willows (*Salix* spp.). Lowbush cranberry (*Vaccinium vitis-idaea*) is prominent. Arctic sweet coltsfoot (*Petasites frigidus*) and crowberry (*Empetrum nigrum*) are usually present. Step moss (*Hylocomium splendens*) and peat mosses (*Sphagnum* spp.) dominate the forest floor, often with red-stemmed feathermoss (*Pleurozium schreberi*).



Environment: This association occurs mostly at moderate elevations on gentle to moderate, neutral-aspect to cool-aspect, lower to middle slopes. Soils are characterized by a thick peaty layer over various parent materials. Soils are classified as Turbic Cryosols. The forest floor may have a light cover of woody debris.

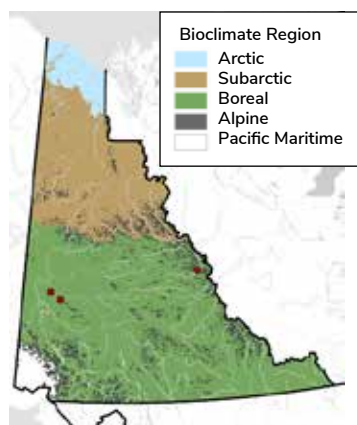
Dynamics: Stands on similar sites can be strongly dominated by black spruce (Sb34, Sb36). Dominance after disturbance depends on the presence of local seed sources.

Comments

- Key characteristics: mixed-wood black spruce and birch swamp; Labrador teas and blueberry; high feathermoss cover; moderate to high peat moss cover
- CNVC association not yet determined

SbW35 Environment table

Zone	BOL, BOH
Elevation (m)	950 – 1015 – 1055
Aspect	neutral, cool
Slope (%)	15 – 28 – 30
Soil moisture regime	subhygric to hygric
Soil drainage	imperfect to poor
Permafrost presence/depth (cm)	likely
Unvegetated cover (%)	0 (limited data)
Soil class	Cryosols (Turbic)

**SbW35** Vegetation summary (%)

Trees	0 – 9 – 11	Shrubs	50 – 85 – 99	Ground shrubs	15 – 33 – 55
Graminoids and forbs	3 – 5 – 7	Bryophytes	75 – 90 – 95	Lichens	4 – 15 – 25

Layer	Scientific name	SbW35	Common name
		n = 3	
Trees	<i>Picea mariana</i>	■ ■ ■	black spruce
Shrubs	<i>Betula occidentalis</i>	■ ■ ■ ■	water birch
	<i>Betula neoalaskana</i>	■ ■	Alaska birch
	<i>Picea mariana</i>	■ ■ ■ ■	black spruce
	<i>Betula glandulosa</i>	■ ■ ■ ■ ■	shrub birch
	<i>Rhododendron</i> spp.	■ ■ ■ ■	Labrador teas
	<i>Salix</i> spp.	■ ■ ■ ■	willows
	<i>Vaccinium uliginosum</i>	■ ■ ■ ■ ■	blueberry
Ground shrubs	<i>Empetrum nigrum</i>	■ ■	crowberry
	<i>Vaccinium vitis-idaea</i>	■ ■ ■ ■	lowbush cranberry
Forbs	<i>Petasites frigidus</i>	■	arctic sweet coltsfoot
Bryophytes	<i>Hylocomium splendens</i>	■ ■ ■ ■ ■	step moss
	<i>Pleurozium schreberi</i>	■ ■ ■ ■	red-stemmed feathermoss
	<i>Sphagnum</i> spp.	■ ■ ■ ■	peat mosses
Lichens	<i>Cladina</i> spp.	■ ■ ■	reindeer lichens
	<i>Cladonia</i> spp.	■ ■	clad lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ ■ 1 – 3	■ ■ ■ 3 – 10	■ ■ ■ ■ 10 – 25	■ ■ ■ ■ ■ >25

SbW36 Black spruce – Alaska birch / Alder – Labrador tea / Peat moss

SbW36 is a mixed-wood black spruce – Alaska birch swamp, with green alder, common Labrador tea, cloudberry, step moss and peat moss, that occurs in the BOL. This association is a component of the SbSw – Alder – Labrador tea – Peat Moss Swamp ecosite (S15).

Vegetation: Stands are a mixed-wood tree canopy of black spruce (*Picea mariana*) and Alaska birch (*Betula neoalaskana*), sometimes with white spruce (*P. glauca*) or water birch (*B. occidentalis*). The shrub layer is characterized by green alder (*Alnus alnobetula*), common Labrador tea (*Rhododendron groenlandicum*), blueberry (*Vaccinium uliginosum*) and willows (*Salix* spp.). Lowbush cranberry (*Vaccinium vitis-idaea*) and cloudberry (*Rubus chamaemorus*) characterize the ground shrub layer. Peat mosses (*Sphagnum* spp.) are of high to very high cover, accompanied by step moss (*Hylocomium splendens*).

No photo
available

Environment: This association occurs mostly at low elevations on level sites or moderate, neutral-aspect to cool-aspect middle slopes. Soils are characterized by a thick peaty layer over various parent materials. Soil data are absent, but are likely Cryosols. The forest floor may have a light cover of woody debris.

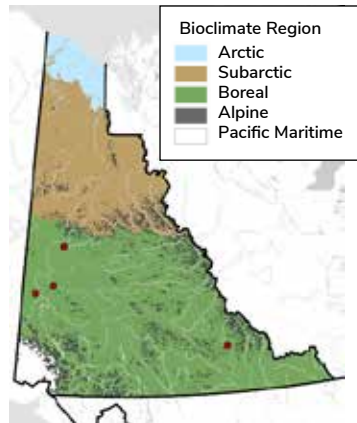
Dynamics: Stands on similar sites can be strongly dominated by black spruce (Sb35) or white spruce (Sw37) or mixed-wood (SwW37). Dominance after disturbance depends on the presence of local seed sources.

Comments

- Key characteristics: mixed-wood black spruce and Alaska birch swamp; green alder <10%, common Labrador tea; moderately high to high feathermoss cover; high to very high peat moss cover
- CNVC association not yet determined

SbW36 Environment table

Zone	BOL
Elevation (m)	490 – 650 – 820
Aspect	neutral, neutral, cool
Slope (%)	3 – 33 – 70
Soil moisture regime	subhygric to hygric
Soil drainage	imperfect to poor
Permafrost presence/depth (cm)	likely
Unvegetated cover (%)	1 (limited data)
Soil class	Cryosols (limited data)

**SbW36 Vegetation summary (%)**

Trees	0 – 30 – 45	Shrubs	70 – 80 – 90	Ground shrubs	12 – 24 – 40
Graminoids and forbs	5 – 11 – 20	Bryophytes	25 – 75 – 99	Lichens	1 – 15 – 30

Layer	Scientific name	SbW36	Common name
		n = 4	
Trees	<i>Betula neoalaskana</i>	■ ■ ■	Alaska birch
	<i>Picea mariana</i>	■ ■ ■ ■	black spruce
Shrubs	<i>Betula neoalaskana</i>	■ ■ ■	Alaska birch
	<i>Picea mariana</i>	■ ■ ■	black spruce
	<i>Alnus alnobetula</i>	■ ■ ■	green alder
	<i>Rhododendron groenlandicum</i>	■ ■ ■ ■ ■	common Labrador tea
	<i>Rosa acicularis</i>	■ ■	prickly rose
	<i>Salix</i> spp.	■ ■ ■	willows
	<i>Vaccinium uliginosum</i>	■ ■	blueberry
Ground shrubs	<i>Rubus chamaemorus</i>	■ ■ ■	cloudberry
	<i>Vaccinium vitis-idaea</i>	■ ■ ■ ■	lowbush cranberry
Bryophytes	<i>Hylocomium splendens</i>	■ ■ ■ ■ ■	step moss
	<i>Sphagnum</i> spp.	■ ■ ■ ■ ■	peat mosses
Lichens	<i>Cladina</i> spp.	■ ■ ■	reindeer lichens
	<i>Peltigera</i> spp.	■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ ■ 1 – 3	■ ■ ■ 3 – 10	■ ■ ■ ■ 10 – 25	■ ■ ■ ■ ■ >25

SbW50 Black spruce – Alaska birch / Tussock cottongrass

SbW50 is a mixed-wood black spruce – Alaska birch fen with tussock cottongrass and peat moss that occurs in the BOL. This association is a component of the Sb – Tussock Sedge Fen ecosite (F07).

No photo
available

Vegetation: Stands are short in stature, a mixed-wood forest of black spruce (*Picea mariana*) and Alaska birch (*Betula neoalaskana*), sometimes with water birch (*B. occidentalis*). The shrub layer is characterized by Labrador tea (*Rhododendron groenlandicum*, *R. tomentosum*) and blueberry (*Vaccinium uliginosum*). Ground shrubs include lowbush cranberry (*Vaccinium vitis-idaea*) and cloudberry (*Rubus chamaemorus*). Tussock cottongrass (*Eriophorum vaginatum*) and spruce muskeg sedge (*Carex bigelowii* ssp. *lugens*) characterize the graminoid layer. Peat mosses (*Sphagnum* spp.) are of high to very high cover, accompanied by feathermosses (*Hylocomium splendens*, *Pleurozium schreberi*).

Environment: This association occurs mostly at low elevations on level sites or moderately steep lower slopes. Soils are characterized by a thick peaty layer over various parent materials. Soils are classified as Cryosols. The forest floor may have a light cover of woody debris.

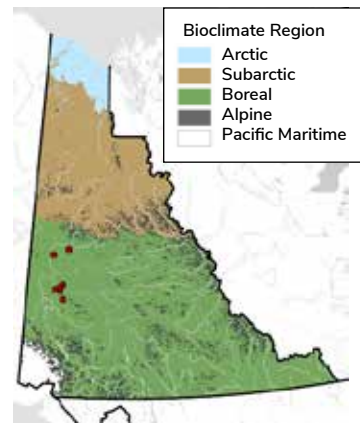
Dynamics: Stands on similar sites can be strongly dominated by black spruce (Sb50, Sb51, Sb52, Sb56), birch (W54, W55) or mixed-wood (SbW50, SbSw55). Dominance after disturbance depends on the presence of local seed sources.

Comments

- Key characteristics: mixed-wood black spruce and Alaska birch fen; common Labrador tea; moderate to high cover of tussock cottongrass; moderately high to high peat moss cover
- CNVC association not yet determined

SbW50 Environment table

Zone	BOL
Elevation (m)	350 – 635 – 830
Aspect	neutral, variable (mostly neutral or cool)
Slope (%)	0 – 37 – 63
Soil moisture regime	hygric to subhydryc
Soil drainage	imperfect to poor
Permafrost presence/depth (cm)	likely
Unvegetated cover (%)	1 (limited data)
Soil class	Cryosols (Organic; limited data)

**SbW50** Vegetation summary (%)

Trees	0 – 6 – 17	Shrubs	25 – 50 – 80	Ground shrubs	6 – 17 – 50
Graminoids and forbs	15 – 37 – 80	Bryophytes	30 – 65 – 90	Lichens	1 – 13 – 35

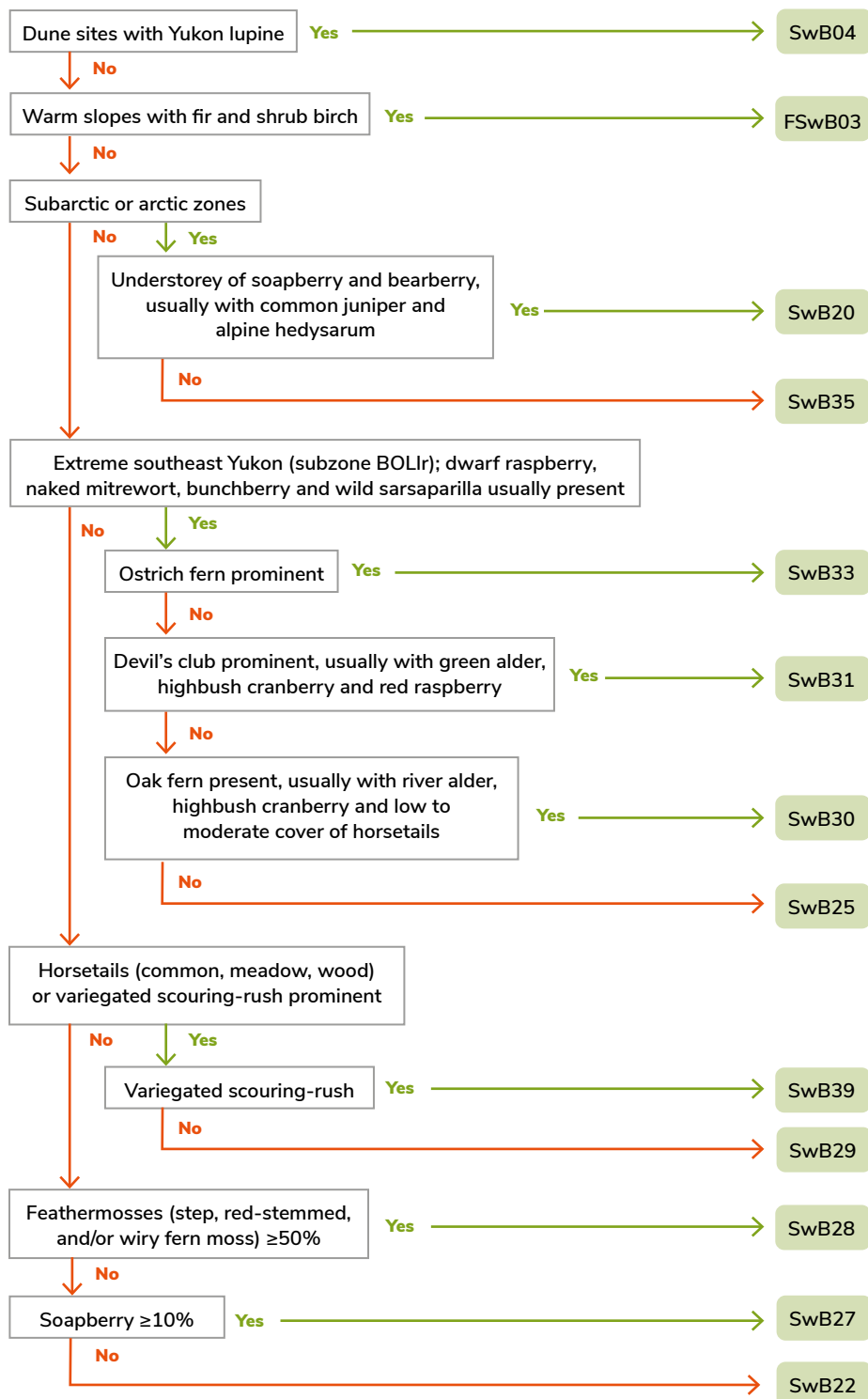
Layer	Scientific name	SbW50	Common name
		n = 7	
Trees	<i>Picea mariana</i>	□□	black spruce
Shrubs	<i>Betula neoalaskana</i>	■ ■ ■	Alaska birch
	<i>Picea mariana</i>	■ ■ ■ ■	black spruce
	<i>Alnus alnobetula</i>	■ ■	green alder
	<i>Rhododendron</i> spp.	■ ■ ■ ■	Labrador tea
	<i>Salix</i> spp.	■ ■	willows
	<i>Vaccinium uliginosum</i>	■ ■ ■	blueberry
Ground shrubs	<i>Rubus chamaemorus</i>	■ ■ ■	cloudberry
	<i>Vaccinium oxycoccos</i>	■	bog cranberry
	<i>Vaccinium vitis-idaea</i>	■ ■ ■ ■	lowbush cranberry
Graminoids	<i>Carex bigelowii</i> ssp. <i>lugens</i>	■ ■ ■ ■	spruce muskeg sedge
	<i>Eriophorum vaginatum</i>	■ ■ ■ ■ ■	tussock cottongrass
Bryophytes	<i>Hylocomium splendens</i>	■ ■ ■	step moss
	<i>Pleurozium schreberi</i>	■ ■ ■ ■	red-stemmed feathermoss
	<i>Sphagnum</i> spp.	■ ■ ■ ■ ■	peat mosses
Lichens	<i>Cladina</i> spp.	■ ■ ■ ■	reindeer lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ ■ 1 – 3	■ ■ ■ 3 – 10	■ ■ ■ ■ 10 – 25	■ ■ ■ ■ ■ >25

White spruce – balsam poplar associations

White spruce (Sw) and balsam poplar (B) mixed-wood stands may include some fir (F), aspen (A), paper birch (Wp), Alaska birch (Wa) or larch (L).

Flowchart White spruce – balsam poplar associations



Summary of features: White spruce – balsam poplar associations**Associations of extreme southeast Yukon (subzone BOLlr)**

	SwB25	SwB30	SwB31	SwB33
Zone	BOL; subzone BOLlr	BOL; subzone BOLlr	BOL; subzone BOLlr	BOL; subzone BOLlr
Geography	southeast	southeast	southeast	southeast
Important site features	mesic	moist	moist slopes	floodplains
Drainage	well to moderately well	moderately well (imperfect)	moderately well to imperfect	imperfect
Tree canopy	white spruce – balsam poplar (paper birch), (fir)	white spruce – balsam poplar (paper birch)	white spruce – balsam poplar – fir (paper birch)	white spruce – balsam poplar (paper birch)
Key understorey species	lacks oak fern	currants, oak fern	devil's club	ostrich fern

White spruce – balsam poplar associations

Other associations

	FSwB03	SwB04	SwB20	SwB22	SwB27	SwB28	SwB29	SwB35	SwB39
Zone	BOH	BOL	SUW	BOL (BOH)	BOL, BOH	BOL (BOH)	BOL (BOS)	SUW (ARLS)	BOL
Geography	central	southwest	north, east-central	south, west-central	south, east-central	southwest, west-central (central)	south, west-central	north	southeast
Important site features	warm slopes	dunes	submesic to mesic; fluvial flats or middle slopes	mesic; sandy fluvial sediments	coarse fluvial sediments or warm slopes	coarse fluvial sediments; history of flooding	coarse fluvial sediments; subsurface moisture	coarse fluvial sediments; subsurface moisture	fluvial sediments; subsurface moisture
Drainage	well	rapid	well	well to moderately well	rapid to moderately well	well to moderately well	well to moderately well	well to imperfect	poor
Tree canopy	fir – white spruce – balsam poplar	white spruce – balsam poplar	white spruce – balsam poplar	white spruce – balsam poplar	white spruce – balsam poplar	white spruce – balsam poplar (Alaska birch)	white spruce – balsam poplar (Alaska birch), (aspen)	white spruce – balsam poplar	white spruce – balsam poplar (larch)
Key understorey species	shrub birch, common juniper	Yukon lupine	soapberry, red bearberry (common juniper, alpine hedysarum)	highbush cranberry, prickly rose (alder, twin-flower, tall bluebells)	soapberry	prickly rose, step moss	prickly rose, highbush cranberry, horsetails	soapberry, prickly rose, horsetails	river alder, horsetails

Vegetation tables for White spruce – Balsam poplar associations

Associations of extreme southeast Yukon (subzone BOLlr)

Layer	Scientific name	SwB25	SwB30	SwB31	SwB33	Common name
	n =	25	8	5	1	
Trees	<i>Betula papyrifera</i>		□□□		■■■	paper birch
	<i>Picea glauca</i>	■■■■	■■■■	■■■	■■■■	white spruce
	<i>Populus balsamifera</i>	■■■■	■■■■	■■■■	■■■■■	balsam poplar
Shrubs	<i>Abies lasiocarpa</i>			■■■		subalpine fir
	<i>Populus balsamifera</i>	□	□	■■■		balsam poplar
	<i>Alnus alnobetula</i>	□□□	■■	■■■■		green alder
	<i>Alnus incana</i>	■■■	■■■■		■■■■■	river alder
	<i>Cornus sericea</i>	■■■	■■	□□	■■■	red-osier dogwood
	<i>Oplopanax horridus</i>		■	■■■		devil's club
	<i>Ribes hudsonianum</i>	□	■		■■	black currant
	<i>Ribes lacustre</i>	■	■	□	■■	swamp gooseberry
	<i>Rosa acicularis</i>	■■■	■■■	■■■	■■■	prickly rose
	<i>Rubus idaeus</i>		■	■■■	■	red raspberry
	<i>Viburnum edule</i>	■■■	■■■	■■■■	■■	highbush cranberry
Ground shrubs	<i>Linnaea borealis</i>	■■	■		■	twinline
	<i>Rubus pubescens</i>	■■■	■■■	■■■	■■	dwarf raspberry
Graminoids	Poaceae	■	■		■■	grass family
Forbs	<i>Aralia nudicaulis</i>	■■■	■■■	■■■	■	wild sarsaparilla
	<i>Circaea alpina</i>		■■	□□	■	enchanter's-nightshade
	<i>Cornus canadensis</i>	■■■	■■■	■■■	■	bunchberry
	<i>Equisetum arvense / pratense</i>	■■	■■	□	■■■	common / meadow horsetail
	<i>Equisetum sylvaticum</i>		■■			wood horsetail
	<i>Galium</i> spp.	■	■		■■	bedstraws
	<i>Gymnocarpium dryopteris</i>		■■	□□	■■	common oak fern
	<i>Maianthemum canadense</i>	■	□		■	wild lily-of-the-valley
	<i>Matteuccia struthiopteris</i>				■■■■■	ostrich fern
	<i>Mertensia paniculata</i>	■	■■	■■	■	tall bluebells
	<i>Mitella nuda</i>	■■	■■	□□	■■	naked mitrewort
	<i>Petasites frigidus</i>	■	□			arctic sweet coltsfoot
	<i>Thalictrum</i> spp.		□		■■	meadowrues
	<i>Viola</i> spp.		■		■■	violets
Bryophytes	Bryophyta	■■■	■■■	■■■	■■	mosses

Note: gold cells highlight key diagnostic species

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

Other associations

Layer	Scientific name	FSwB03	SwB04	SwB20	SwB22	SwB27	SwB28	SwB29	SwB35	SwB39	Common name
	n =	2	1	10	13	3	12	16	10	3	
Trees	<i>Abies lasiocarpa</i>	■■■									subalpine fir
	<i>Picea glauca</i>	■■■■■	■■■	■■■■	■■■■	■■■■	■■■■■	■■■■■	■■■■	□□	white spruce
	<i>Populus balsamifera</i>	■■■		■■■■	■■■■■	■■■■	■■■	■■■■	■■■■	■■■■	balsam poplar
Shrubs	<i>Abies lasiocarpa</i>	■									subalpine fir
	<i>Picea glauca</i>	■	■	■■■	□		□□	□□□	■	■■■■	white spruce
	<i>Populus balsamifera</i>	■■■	■■■■	□□			□			■■■	balsam poplar
	<i>Alnus alnobetula</i>	■■■				□□			■■■	□	green alder
	<i>Alnus incana</i>				■■■■			□□	□□□	■■■	river alder
	<i>Betula glandulosa</i>	■■■■							□□		shrub birch
	<i>Cornus sericea</i>				■■■						red-osier dogwood
	<i>Dasiphora fruticosa</i>			■		□	□□				shrubby cinquefoil
	<i>Juniperus communis</i>	■■■		■		□□					common juniper
	<i>Rosa acicularis</i>	■			■■■■	■■■	■■■■	■■■■	■■■		prickly rose
	<i>Salix</i> spp.	■■■■		■■■■	■■■	■	■■■	■■■■	■■■■	■■■■■	willows
	<i>Shepherdia canadensis</i>	■		■■■	□	■■■■■	■■■	□□□	■■■	■■■■	soapberry
	<i>Viburnum edule</i>				■■■■		■	■■■	□		highbush cranberry
Ground shrubs	<i>Arctostaphylos uva-ursi</i>	■■■	■■■■■	□□		■■■					kinnikinnick
	<i>Arctous rubra</i>			■■■							red bearberry
	<i>Dryas</i> spp.			■■■							mountain-avens
	<i>Empetrum nigrum</i>	■■■		□					□□		crowberry
	<i>Linnaea borealis</i>	■			■■■	□	■■■	■■■	■■■		twinflower
	<i>Rubus arcticus</i>									■	arctic raspberry
	<i>Vaccinium vitis-idaea</i>			□		□□□	□□	□□	■■		lowbush cranberry
Graminoids	<i>Carex filifolia</i>		■								thread-leaved sedge
	Poaceae	■■	■■■	■■■	■■	□□□	□□	■■	■■	■■■■	grass family

Table continues on facing page

Other associations, continued

Layer	Scientific name	FSwB03	SwB04	SwB20	SwB22	SwB27	SwB28	SwB29	SwB35	SwB39	Common name
Forbs	<i>Achillea millefolium</i>	■				□				■■■	common yarrow
	<i>Antennaria pulcherrima</i>									■■■	showy pussytoes
	<i>Artemisia campestris</i>		■■								field wormwood
	<i>Artemisia arctica</i> spp. <i>arctica</i>	■■								■	mountain sagewort
	<i>Chamaenerion angustifolium</i>	■■■			■	□□	□	■	■		fireweed
	<i>Cherleria obtusiloba</i>		■■								alpine stitchwort
	<i>Cornus canadensis</i>	■					□□				bunchberry
	<i>Delphinium glaucum</i>	■									tall larkspur
	<i>Equisetum arvense</i> / <i>pratense</i>						□□	■■■	■■■	■■	common / meadow horsetail
	<i>Equisetum variegatum</i>									■■■	variegated scouring-rush
	<i>Eurybia sibirica</i>	■		■						■■	Siberian wood-aster
	<i>Fragaria virginiana</i>	■				□□				■■■	wild strawberry
	<i>Geocaulon lividum</i>				■■	■	■■■	□□	□		bastard toadflax
	<i>Hedysarum alpinum</i>	■		■■■			□□		□□	■■■	alpine hedysarum
	<i>Lupinus arcticus</i>	■■		■		□		□	□	□	arctic lupine
	<i>Lupinus kuschei</i>		■■								Yukon lupine
	<i>Mertensia paniculata</i>	■		□	■■		□	■		□□	tall bluebells
	<i>Orthilia secunda</i>	■			■	□	■	□	□		one-sided wintergreen
	<i>Penstemon gormanii</i>		■								Gorman's penstemon
	<i>Petasites frigidus</i>	■								■■	arctic sweet coltsfoot
	<i>Polemonium pulcherrimum</i>		■■								showy Jacob's-ladder
	<i>Saxifraga tricuspidata</i>		■■								prickly saxifrage
	<i>Senecio lugens</i>			□						■■■	black-tipped groundsel
	<i>Solidago</i> spp.		■■							□	goldenrods
Bryophytes	<i>Brachythecium</i> spp.	■								■■■■■	ragged mosses
	Bryophyta	■■■		■■■	■	■	■■■	■■■	■■■		mosses
	<i>Polytrichum juniperinum</i>		■■								juniper haircap moss
Lichens	<i>Cetraria</i> spp.		■■■	□							Iceland lichens
	Lichens	■	■■■								lichen crust
	<i>Stereocaulon</i> spp.	■	■■■								foam lichens

Note: gold cells highlight key diagnostic species

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

Fact sheets: White spruce – balsam poplar associations

FSwB03 Fir – White spruce – Balsam poplar / Shrub birch – Juniper

FSwB03 is a mixed-wood fir – white spruce – balsam poplar forest or woodland with shrub birch, common juniper, fireweed and Altai fescue that occurs on well-drained, warm-aspect slopes in the BOH.

Vegetation: Stands of FSwB03 have a mixed-wood tree canopy of fir (*Abies lasiocarpa*), white spruce (*Picea glauca*) and balsam poplar (*Populus balsamifera*). Stands can be of low stature. Shrub birch (*Betula glandulosa*), common juniper (*Juniperus communis*), green alder (*Alnus alnobetula*) and willow (*Salix* spp.) characterize the shrub layer. Kinnikinnick (*Arctostaphylos uva-ursi*) may occur. Altai fescue (*Festuca altaica*) is present. Common forbs are fireweed (*Chamaenerion angustifolium*), mountain sagewort (*Artemisia arctica* spp. *arctica*), bunchberry (*Cornus canadensis*) and arctic lupine (*Lupinus arcticus*). Moss and lichen cover is low to moderate.



Environment: FSwB03 occurs at moderate to high elevations on warm-aspect slopes with well-drained soils. Soil data are very limited. The forest floor has low cover of woody debris or rocks.

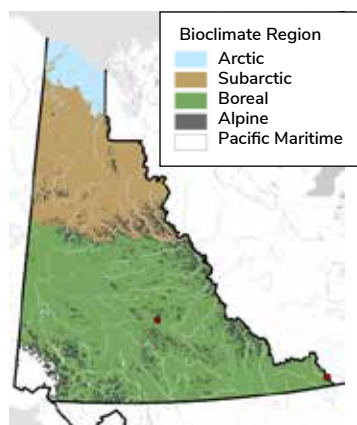
Dynamics: These mixed-wood stands could regenerate after disturbance to any of the species, but are likely to have a balsam poplar component. Resulting stands may fit the following associations: B01, FPSw11, SwW04 or A02.

Comments

- Key characteristics: mixed-wood fir – white spruce – balsam poplar stand; well-drained warm slopes; common juniper, shrub birch, Altai fescue, fireweed, arctic lupine
- CNVC association not yet determined

FSwB03 Environment table

Zone	BOH
Elevation (m)	1155 – 1205 – 1250
Aspect	warm
Slope (%)	35 – 45 – 55
Soil moisture regime	subxeric to submesic
Soil drainage	well
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	1 – 3 – 5 (wood, rocks)
Soil class	no data

**FSwB03 Vegetation summary (%)**

Trees	30 – 35 – 40	Shrubs	40 – 47 – 55	Ground shrubs	1 – 13 – 25
Graminoids and forbs	22 – 24 – 26	Bryophytes	6 – 8 – 10	Lichens	0 – 5 – 10

Layer	Scientific name	FSwB03	Common name
		n = 2	
Trees	<i>Abies lasiocarpa</i>	■■■	subalpine fir
	<i>Picea glauca</i>	■■■■■	white spruce
	<i>Populus balsamifera</i>	■■■	balsam poplar
Shrubs	<i>Abies lasiocarpa</i>	■■	subalpine fir
	<i>Picea glauca</i>	■■	white spruce
	<i>Populus balsamifera</i>	■■■	balsam poplar
	<i>Alnus alnobetula</i>	■■■	green alder
	<i>Betula glandulosa</i>	■■■■	shrub birch
	<i>Juniperus communis</i>	■■■	common juniper
	<i>Salix</i> spp.	■■■■	willows
Ground shrubs	<i>Arctostaphylos uva-ursi</i>	■■■	kinnikinnick
	<i>Empetrum nigrum</i>	■■■	crowberry
Graminoids	<i>Festuca altaica</i>	■■	Altai fescue
Forbs	<i>Artemisia arctica</i> spp. <i>arctica</i>	■■	mountain sagewort
	<i>Chamaenerion angustifolium</i>	■■■	fireweed
	<i>Cornus canadensis</i>	■	bunchberry
	<i>Lupinus arcticus</i>	■■	arctic lupine
	<i>Mertensia paniculata</i>	■■	tall bluebells
Bryophytes	Bryophyta	■■■	mosses

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

SwB04 White spruce – Balsam poplar / Yukon lupine

SwB04 is a mixed-wood white spruce – balsam poplar woodland with kinnikinnick, purple reedgrass and Yukon lupine that occurs on dunes in the BOL.

Vegetation: Stands of SwB04 have a mixed-wood tree canopy of white spruce (*Picea glauca*) and balsam poplar (*Populus balsamifera*), with most of the trees of low stature. The understorey is moderately well developed and comprised mostly of kinnikinnick (*Arctostaphylos uva-ursi*), purple reedgrass (*Calamagrostis purpurascens*) and prickly saxifrage (*Saxifraga tricuspidata*). Yukon lupine (*Lupinus kuschei*) is characteristic. Iceland lichens (*Cetraria* spp.), crinkled snow lichen (*Flavocetraria nivalis*) and foam lichens (*Stereocaulon* spp.) are common.

Environment: This association occurs on dunes, but is relatively stable overall. Soils are sandy and are classified as Brunisols. SwB04 can have moderate to high cover of exposed mineral soil.

Dynamics: These mixed-wood stands could regenerate after disturbance to either of the species, but are likely to have a balsam poplar component (such as AB03).

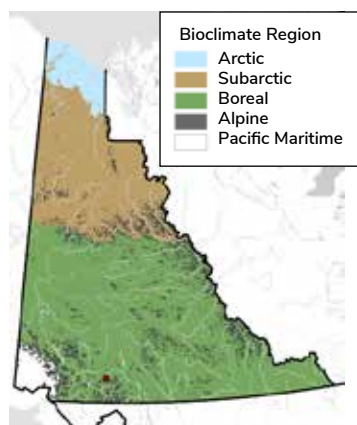
Comments

- Key characteristics: mixed-wood white spruce – balsam poplar stand; cool slope on dunes; kinnikinnick, Yukon lupine
- CNVC association not yet determined



SwB04 Environment table

Zone	BOL
Elevation (m)	695
Aspect	cool
Slope (%)	20
Soil moisture regime	subxeric
Soil drainage	very rapid
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	35 (sand)
Soil class	Brunisols (Eutric)

**SwB04 Vegetation summary (%)**

Trees	8	Shrubs	20	Ground shrubs	25
Graminoids and forbs	13	Bryophytes	1	Lichens	22

Layer	Scientific name	SwB04	Common name
		n = 1	
Trees	<i>Picea glauca</i>	■■■	white spruce
	<i>Picea glauca</i>	■■	white spruce
Shrubs	<i>Populus balsamifera</i>	■■■■	balsam poplar
Ground shrubs	<i>Arctostaphylos uva-ursi</i>	■■■■■	kinnikinnick
Graminoids	<i>Calamagrostis purpurascens</i>	■■■	purple reedgrass
	<i>Carex filifolia</i>	■	thread-leaved sedge
	<i>Festuca saximontana</i>	■■	Rocky Mountain fescue
Forbs	<i>Cherleria obtusiloba</i>	■■	alpine stitchwort
	<i>Artemisia campestris</i>	■■	field wormwood
	<i>Lupinus kuschei</i>	■■	Yukon lupine
	<i>Penstemon gormanii</i>	■	Gorman's penstemon
	<i>Polemonium pulcherrimum</i>	■■	showy Jacob's-ladder
	<i>Saxifraga tricuspidata</i>	■■	prickly saxifrage
	<i>Solidago multiradiata</i>	■	northern goldenrod
	<i>Solidago spathulata</i> ssp. <i>glutinosa</i>	■	sticky goldenrod
Bryophytes	<i>Polytrichum juniperinum</i>	■■	juniper haircap moss
Lichens	<i>Cetraria</i> spp.	■■■	Iceland lichens
	<i>Flavocetraria nivalis</i>	■■■	crinkled snow lichen
	<i>Lichens</i>	■■■	lichen crust
	<i>Stereocaulon</i> spp.	■■■	foam lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

SwB20 White spruce – Balsam poplar / Juniper – Soapberry / Red bearberry – Alpine hedysarum

SwB20 is a mixed-wood white spruce – balsam poplar forest or woodland with soapberry, willows and bearberry, usually also with common juniper and alpine hedysarum, that occurs on well-drained fluvial benches in the SUW.

Vegetation: Stands of SwB20 have a mixed-wood tree canopy of white spruce (*Picea glauca*) and balsam poplar (*Populus balsamifera*). The moderately well developed shrub layer is dominated by soapberry (*Shepherdia canadensis*) and willows (*Salix* spp.), usually with some common juniper (*Juniperus communis*). Red bearberry (*Arctous rubra*) and sometimes alpine bearberry (*A. alpinus*) characterize the ground shrub layer. Various grasses can occur. The forb layer includes alpine hedysarum (*Hedysarum alpinum*). Moss cover is moderate to high; common mosses are step moss (*Hylocomium splendens*) and wiry fern moss (*Abietinella abietina*).

Environment: SwB20 occurs at low to moderate elevations, mostly on level, well-drained fluvial benches that are occasionally to frequently flooded. Soil data are very limited. The forest floor has low to moderate cover of woody debris.

Dynamics: These stands could regenerate after disturbance to balsam poplar (B27) or as a mixed-wood stand. River floodplains undergo continual erosion and deposition processes.

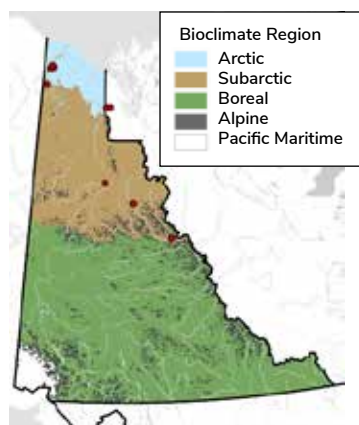
Comments

- Key characteristics: mixed-wood white spruce – balsam poplar stand; fluvial bench; soapberry, willow and bearberry, usually with common juniper and alpine hedysarum
- Component of CNVC00424 White Spruce – Balsam Poplar / Soapberry / Red Bearberry – Alpine Hedysarum



SwB20 Environment table

Zone	SUW
Elevation (m)	330 – 510 – 1035
Aspect	neutral
Slope (%)	0 – 3 – 25
Soil moisture regime	submesic to mesic
Soil drainage	well
Permafrost presence/depth (cm)	absent (possible)
Unvegetated cover (%)	1 – 6 – 10 (wood)
Soil class	no data

**SwB20 Vegetation summary (%)**

Trees	6 – 28 – 55	Shrubs	30 – 45 – 65	Ground shrubs	2 – 23 – 50
Graminoids and forbs	5 – 28 – 65	Bryophytes	5 – 30 – 65	Lichens	0 – 4 – 10

Layer	Scientific name	SwB20	Common name
		n = 103	
Trees	<i>Picea glauca</i>	■■■■	white spruce
	<i>Populus balsamifera</i>	■■■■	balsam poplar
Shrubs	<i>Picea glauca</i>	■■■	white spruce
	<i>Dasiphora fruticosa</i>	■■	shrubby cinquefoil
	<i>Juniperus communis</i>	■■	common juniper
	<i>Salix</i> spp.	■■■■	willows
	<i>Shepherdia canadensis</i>	■■■	soapberry
Ground shrubs	<i>Arctous rubra</i>	■■■	red bearberry
	<i>Dryas</i> spp.	■■■	mountain-avens
Graminoids	Poaceae	■■■	grass family
Forbs	<i>Eurybia sibirica</i>	■	Siberian wood-aster
	<i>Hedysarum alpinum</i>	■■■	alpine hedysarum
	<i>Lupinus arcticus</i>	■	arctic lupine
Bryophytes	<i>Hylocomium / Abietinella</i>	■■■■	feathermosses

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

SwB22 White spruce – Balsam poplar / Highbush cranberry / Tall bluebells

SwB22 is a mixed-wood white spruce – balsam poplar forest or woodland with prickly rose and highbush cranberry, and usually also with river alder, twinflower and tall bluebells, that occurs on moderately well drained fluvial benches in the BOL and sometimes in the BOH.

Vegetation: Stands of SwB22 have a mixed-wood tree canopy of white spruce (*Picea glauca*) and balsam poplar (*Populus balsamifera*). The well-developed shrub layer is dominated by prickly rose (*Rosa acicularis*) and highbush cranberry (*Viburnum edule*), usually with river alder (*Alnus incana*), red-osier dogwood (*Cornus sericea*) and willows (*Salix* spp.). The ground shrub layer is comprised mostly of twinflower (*Linnaea borealis*); the forb layer includes bastard toadflax (*Geocaulon lividum*) and tall bluebells (*Mertensia paniculata*). Step moss (*Hylocomium splendens*) is usually present with variable cover.

Environment: This association occurs at low to moderate elevations, mostly on level, well-drained to moderately well drained sandy fluvial benches or fans that are rarely to frequently flooded. Soils are mostly classified as Cumulic Regosols. The forest floor has low to moderate cover of woody debris.

Dynamics: These stands could regenerate after disturbance to balsam poplar (B22, B31) or as a mixed-wood stand. River floodplains undergo continual erosion and deposition processes.

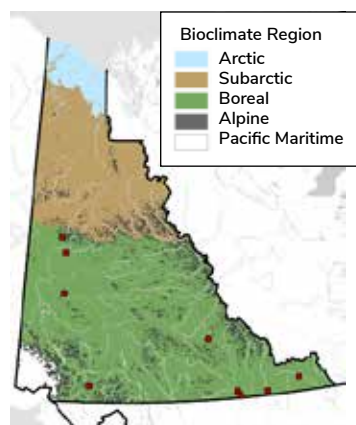
Comments

- Key characteristics: mixed-wood white spruce – balsam poplar stand; fluvial bench; prickly rose, highbush cranberry, usually with river alder, twinflower and tall bluebells
- Component of CNVC00077 Balsam Poplar (White Spruce) / River Alder – Red-osier Dogwood



SwB22 Environment table

Zone	BOL (BOH)
Elevation (m)	410 – 635 – 1060
Aspect	neutral
Slope (%)	0 – 2 – 11
Soil moisture regime	mesic
Soil drainage	well to moderately well
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	1 – 5 – 10 (wood)
Soil class	Regosols (Cumulic), (Eutric Brunisol)

**SwB22 Vegetation summary (%)**

Trees	10 – 50 – 99	Shrubs	25 – 63 – 99	Ground shrubs	0 – 11 – 30
Graminoids and forbs	2 – 15 – 50	Bryophytes	0 – 11 – 30	Lichens	0 – 1 – 10

Layer	Scientific name	SwB22	Common name
		n = 13	
Trees	<i>Picea glauca</i>	■■■■■	white spruce
	<i>Populus balsamifera</i>	■■■■■	balsam poplar
Shrubs	<i>Alnus incana</i>	■■■■■	river alder
	<i>Cornus sericea</i>	■■■	red-osier dogwood
	<i>Rosa acicularis</i>	■■■■■	prickly rose
	<i>Salix</i> spp.	■■■	willows
	<i>Viburnum edule</i>	■■■■■	highbush cranberry
Ground shrubs	<i>Linnaea borealis</i>	■■■	twinflower
Graminoids	Poaceae	■■■	grass family
Forbs	<i>Chamaenerion angustifolium</i>	■■■	fireweed
	<i>Geocaulon lividum</i>	■■■	bastard toadflax
	<i>Mertensia paniculata</i>	■■■	tall bluebells
	<i>Orthilia secunda</i>	■	one-sided wintergreen
Bryophytes	<i>Hylocomium splendens</i>	■■■	step moss

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

SwB25 White spruce – Balsam poplar / Highbush cranberry – Red-osier dogwood / Wild sarsaparilla

SwB25 is a mixed-wood white spruce – balsam poplar forest with prickly rose, highbush cranberry, red-osier dogwood, bunchberry and dwarf raspberry that occurs on fluvial benches or gentle slopes in the extreme southeast Yukon in the BOL (subzone BOLlr).

No photo
available

Vegetation: Stands of SwB25 have a mixed-wood tree canopy of white spruce (*Picea glauca*) and balsam poplar (*Populus balsamifera*), sometimes with some paper birch (*Betula papyrifera*) or fir (*Abies lasiocarpa*). The well-developed shrub layer is comprised of prickly rose (*Rosa acicularis*), highbush cranberry (*Viburnum edule*), red-osier dogwood (*Cornus sericea*), alder (*Alnus incana*, *A. alnobetula*) and currants (*Ribes lacustre*, *R. hudsonianum*, *R. triste*). Dwarf raspberry (*Rubus pubescens*) is usually present in the ground shrub layer. Common forbs are bunchberry (*Cornus canadensis*), naked mitrewort (*Mitella nuda*), wild sarsaparilla (*Aralia nudicaulis*) and light cover of horsetails (*Equisetum arvense*, *E. pratense*, *E. sylvaticum*). Moss cover varies considerably.

Environment: This association occurs at low to moderate elevations on mesic fluvial benches or gentle slopes. No data are available on soil characteristics.

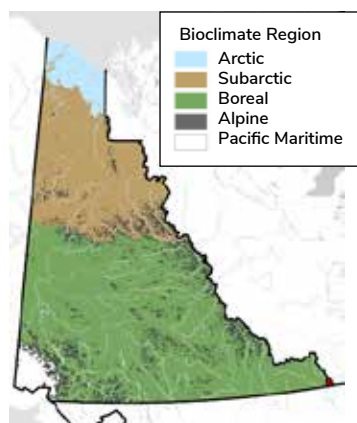
Dynamics: These stands could regenerate after disturbance to balsam poplar (B25) or as a mixed-wood stand.

Comments

- Key characteristics: mixed-wood white spruce – balsam poplar stand; subzone BOLlr; prickly rose, highbush cranberry, red-osier dogwood, bunchberry and dwarf raspberry
- Component of CNVC00083 White Spruce – Aspen – Balsam Poplar / Black Twinberry / Dwarf Raspberry

SwB25 Environment table

Zone	BOL; subzone BOLlr
Elevation (m)	375 – 480 – 600
Aspect	neutral (variable)
Slope (%)	0 – 2 – 17
Soil moisture regime	mesic
Soil drainage	well to moderately well
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	no data
Soil class	no data

**SwB25 Vegetation summary (%)**

Trees	25 – 45 – 65	Shrubs	2 – 35 – 70	Ground shrubs	0 – 10 – 30
Graminoids and forbs	3 – 30 – 65	Bryophytes	0 – 11 – 60	Lichens	0 – 1 – 10

Layer	Scientific name	SwB25	Common name
		n = 25	
Trees	<i>Picea glauca</i>	■ ■ ■ ■	white spruce
	<i>Populus balsamifera</i>	■ ■ ■ ■	balsam poplar
Shrubs	<i>Alnus incana / alnobetula</i>	■ ■ ■	river / green alder
	<i>Cornus sericea</i>	■ ■ ■	red-osier dogwood
	<i>Ribes</i> spp.	■	currants
	<i>Rosa acicularis</i>	■ ■ ■	prickly rose
	<i>Viburnum edule</i>	■ ■ ■	highbush cranberry
	<i>Linnaea borealis</i>	■ ■	twinline
Ground shrubs	<i>Rubus pubescens</i>	■ ■ ■	dwarf raspberry
	<i>Aralia nudicaulis</i>	■ ■ ■	wild sarsaparilla
Forbs	<i>Cornus canadensis</i>	■ ■ ■	bunchberry
	<i>Equisetum</i> spp.	■ ■	horsetails
	<i>Maianthemum canadense</i>	■	wild lily-of-the-valley
	<i>Mertensia paniculata</i>	■	tall bluebells
	<i>Mitella nuda</i>	■ ■	naked mitrewort
	<i>Petasites frigidus</i>	■	arctic sweet coltsfoot
	<i>Bryophytes</i>	■ ■ ■	mosses

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ ■ 1 – 3	■ ■ ■ 3 – 10	■ ■ ■ ■ 10 – 25	■ ■ ■ ■ ■ >25

SwB27 White spruce – Balsam poplar / Soapberry

SwB27 is a mixed-wood white spruce – balsam poplar forest with moderately high cover of soapberry that occurs on well-drained fluvial benches or warm colluvial slopes in the BOL and BOH.

Vegetation: Stands of SwB27 have a mixed-wood tree canopy of white spruce (*Picea glauca*) and balsam poplar (*Populus balsamifera*). The well-developed shrub layer is characterized by moderately high to very high cover of soapberry (*Shepherdia canadensis*). Prickly rose (*Rosa acicularis*) and willows (*Salix* spp.) are usually present. The ground cover is usually kinnikinnick (*Arctostaphylos uva-ursi*) and bastard toadflax (*Geocaulon lividum*). Light to moderate cover of step moss (*Hylocomium splendens*) is common.

Environment: SwB27 occurs at low to moderate elevations on level, well-drained fluvial benches or moderately well drained warm colluvial slopes. Soils are classified as Regosols. The forest floor may have some cover of woody debris.

Dynamics: These stands could regenerate after disturbance to balsam poplar or as a mixed-wood stand. River floodplains undergo continual erosion and deposition processes.

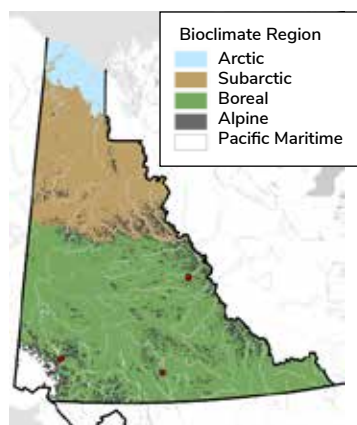
Comments

- Key characteristics: mixed-wood white spruce – balsam poplar stand; fluvial bench or colluvial slope; soapberry ≥10%
- Component of CNVC00413 White Spruce – Balsam Poplar / Soapberry / Bastard Toadflax / Step Moss



SwB27 Environment table

Zone	BOL, BOH
Elevation (m)	730 – 820 – 910
Aspect	neutral, warm
Slope (%)	0 – 1 – 58
Soil moisture regime	submesic to mesic
Soil drainage	rapid to moderately well
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	1 – 6 – 20 (wood)
Soil class	Regosols (Orthic)

**SwB27** Vegetation summary (%)

Trees	35 – 40 – 45	Shrubs	35 – 60 – 70	Ground shrubs	1 – 11 – 30
Graminoids and forbs	2 – 20 – 50	Bryophytes	0 – 9 – 15	Lichens	0 – 3 – 5

Layer	Scientific name	SwB27	Common name
		n = 3	
Trees	<i>Picea glauca</i>	■ ■ ■ ■	white spruce
	<i>Populus balsamifera</i>	■ ■ ■ ■	balsam poplar
Shrubs	<i>Rosa acicularis</i>	■ ■ ■	prickly rose
	<i>Salix</i> spp.	■ ■	willows
	<i>Shepherdia canadensis</i>	■ ■ ■ ■ ■	soapberry
Ground shrubs	<i>Arctostaphylos uva-ursi</i>	■ ■ ■	kinnikinnick
Forbs	<i>Geocaulon lividum</i>	■	bastard toadflax
Bryophytes	<i>Hylocomium</i> / <i>Pleurozium</i>	■ ■ ■	feathermosses

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ ■ 1 – 3	■ ■ ■ 3 – 10	■ ■ ■ ■ 10 – 25	■ ■ ■ ■ ■ >25

SwB28 White spruce – Balsam poplar / Step moss

SwB28 is a mixed-wood white spruce – balsam poplar forest with prickly rose and high to very high cover of feathermoss that occurs on moderately well drained fluvial benches in the BOL and sometimes in the BOH.

Vegetation: Stands of SwB28 have a mixed-wood tree canopy of white spruce (*Picea glauca*) and balsam poplar (*Populus balsamifera*), sometimes with Alaska birch (*Betula neoalaskana*). Spruce usually dominates over balsam poplar. Prickly rose (*Rosa acicularis*), often with highbush cranberry (*Viburnum edule*), dominates the shrub layer. Bastard toadflax (*Geocaulon lividum*) is the most common forb. Moss cover, usually step moss (*Hylocomium splendens*), is high to very high. Sometimes wiry fern moss (*Abietinella abietina*) dominates the mosses.

Environment: This association occurs at low to moderate elevations on level or gently sloping fluvial benches that are no longer flooded, but that can be subject to some subsurface seepage. Soils are classified as Regosols (Orthic, Cumulic) or Brunisols (Eutric). The forest floor has some cover of woody debris.

Dynamics: These stands could regenerate after disturbance to balsam poplar (B31) or as a mixed-wood stand. The well-developed bryophyte layer takes some time to develop after flooding ceases. River floodplains undergo continual erosion and deposition processes.

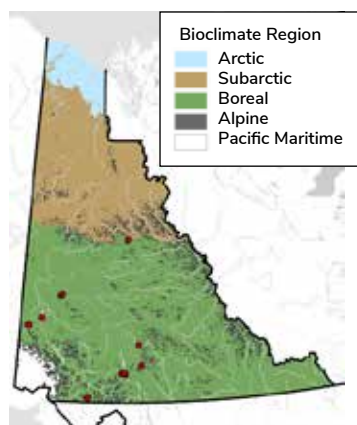
Comments

- Key characteristics: mixed-wood white spruce – balsam poplar stand; fluvial bench; feathermosses ≥50%
- Component of CNVC00413 White Spruce – Balsam Poplar / Soapberry / Bastard Toadflax / Step Moss



SwB28 Environment table

Zone	BOL (BOH)
Elevation (m)	440 – 680 – 810
Aspect	neutral (variable)
Slope (%)	0 – 3 – 11
Soil moisture regime	mesic
Soil drainage	well to moderately well
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	1 – 15 – 30 (wood) (limited data)
Soil class	Regosols, Brunisols

**SwB28 Vegetation summary (%)**

Trees	10 – 50 – 90	Shrubs	6 – 40 – 99	Ground shrubs	0 – 9 – 20
Graminoids and forbs	3 – 25 – 95	Bryophytes	50 – 70 – 90	Lichens	0 – 1 – 2

Layer	Scientific name	SwB28	Common name
		n = 12	
Trees	<i>Picea glauca</i>	■■■■■	white spruce
	<i>Populus balsamifera</i>	■■■	balsam poplar
Shrubs	<i>Rosa acicularis</i>	■■■■■	prickly rose
	<i>Salix</i> spp.	■■■	willows
	<i>Shepherdia canadensis</i>	■■■	soapberry
	<i>Viburnum edule</i>	■■	highbush cranberry
Ground shrubs	<i>Linnaea borealis</i>	■■■	twinline
Forbs	<i>Geocaulon lividum</i>	■■■	bastard toadflax
	<i>Orthilia secunda</i>	■	one-sided wintergreen
Bryophytes	<i>Hylocomium splendens</i>	■■■■■	step moss

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

SwB29 White spruce – Balsam poplar / Highbush cranberry / Horsetail

SwB29 is a mixed-wood white spruce – balsam poplar forest with prickly rose, highbush cranberry and moderate to very high cover of horsetails that occurs on fluvial benches in the BOL and sometimes in the BOS.

Vegetation: Stands of SwB29 have a mixed-wood tree canopy of white spruce (*Picea glauca*) and balsam poplar (*Populus balsamifera*), sometimes with Alaska birch (*Betula neoalaskana*) or aspen (*Populus tremuloides*). Prickly rose (*Rosa acicularis*) and highbush cranberry (*Viburnum edule*) characterize the shrub layer, often with willow (*Salix* spp.) or some alder (usually *Alnus incana*). Common, meadow and wood horsetails (*Equisetum arvense*, *E. pratense*, *E. sylvaticum*) characterize the forb layer. Moss cover varies considerably.

Environment: This association occurs at low to moderate elevations on level or gently sloping fluvial benches that are no longer flooded, but are influenced by the subsurface water table. Soils are classified as Regosols (Cumulic). The forest floor can have moderate cover of woody debris.

Dynamics: These stands could regenerate after disturbance to balsam poplar (B23) or as a mixed-wood stand including birch, aspen and white spruce. River floodplains undergo continual erosion and deposition processes.

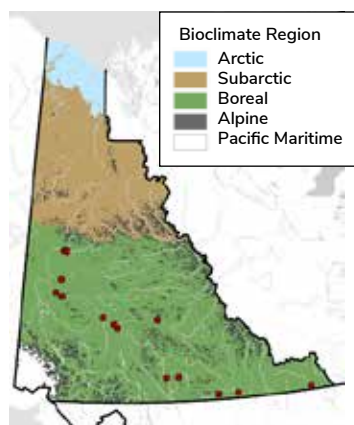
Comments

- Key characteristics: mixed-wood white spruce – balsam poplar stand; fluvial bench; horsetails ≥5%
- Component of CNVC00422 White Spruce – Balsam Poplar / Highbush cranberry / Horsetail



SwB29 Environment table

Zone	BOL (BOS)
Elevation (m)	380 – 615 – 1420
Aspect	neutral (variable)
Slope (%)	0 – 3 – 8
Soil moisture regime	mesic to subhygric
Soil drainage	well to moderately well
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	10 – 13 – 15 (wood) (limited data)
Soil class	Regosols (Cumulic)

**SwB29 Vegetation summary (%)**

Trees	7 – 50 – 99	Shrubs	1 – 62 – 99	Ground shrubs	0 – 7 – 30
Graminoids and forbs	6 – 45 – 95	Bryophytes	0 – 30 – 90	Lichens	0 – 2 – 10

Layer	Scientific name	SwB29	Common name
		n = 16	
Trees	<i>Picea glauca</i>	■■■■■	white spruce
	<i>Populus balsamifera</i>	■■■■	balsam poplar
Shrubs	<i>Rosa acicularis</i>	■■■■	prickly rose
	<i>Salix</i> spp.	■■■■	willows
	<i>Viburnum edule</i>	■■■	highbush cranberry
Ground shrubs	<i>Linnaea borealis</i>	■■■	twinlineflower
Graminoids	Poaceae	■■	grass family
Forbs	<i>Equisetum</i> spp.	■■■■	horsetails
Bryophytes	Bryophyta	■■■■■	mosses

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

SwB30 **White spruce – Balsam poplar / River alder / Oak fern**

SwB30 is a mixed-wood white spruce – balsam poplar forest with river alder, prickly rose, highbush cranberry, red-osier dogwood, oak fern, wild sarsaparilla and dwarf raspberry that occurs on fluvial benches or gentle slopes in the extreme southeast Yukon in the BOL (subzone BOLlr).

No photo
available

Vegetation: Stands of SwB30 have a mixed-wood tree canopy of white spruce (*Picea glauca*) and balsam poplar (*Populus balsamifera*), sometimes with paper birch (*Betula papyrifera*). The well-developed shrub layer is comprised of prickly rose (*Rosa acicularis*), alder (*Alnus incana*, *A. alnobetula*), highbush cranberry (*Viburnum edule*), red-osier dogwood (*Cornus sericea*) and currants (*Ribes lacustre*, *R. hudsonianum*, *R. glandulosum*). Dwarf raspberry (*Rubus pubescens*) is usually prominent. Oak fern (*Gymnocarpium dryopteris*) is characteristic. Other common forbs are wild sarsaparilla (*Aralia nudicaulis*), naked mitrewort (*Mitella nuda*), tall bluebells (*Mertensia paniculata*), bunchberry (*Cornus canadensis*), and low to moderate cover of horsetails (*Equisetum arvense*, *E. pratense*, *E. sylvaticum*). Moss cover varies.

Environment: This association occurs at low to moderate elevations on mesic fluvial benches or gentle slopes. No data are available on soil characteristics.

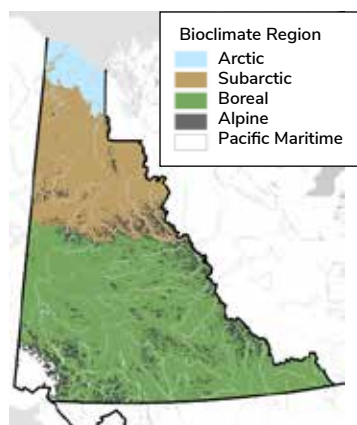
Dynamics: These stands could regenerate after disturbance to balsam poplar (such as B25) or as a mixed-wood stand.

Comments

- Key characteristics: mixed-wood white spruce – balsam poplar stand; subzone BOLlr; river alder, prickly rose, highbush cranberry, red-osier dogwood, oak fern, wild sarsaparilla and dwarf raspberry
- Component of CNVC00077 Balsam Poplar (White Spruce) / River Alder – Red-osier Dogwood

SwB30 Environment table

Zone	BOL; subzone BOLlr
Elevation (m)	no data
Aspect	neutral (variable)
Slope (%)	0 – 3 – 10
Soil moisture regime	subhygric
Soil drainage	moderately well (imperfect)
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	no data
Soil class	no data

**SwB30 Vegetation summary (%)**

Trees	20 – 35 – 60	Shrubs	15 – 35 – 55	Ground shrubs	1 – 7 – 10
Graminoids and forbs	8 – 25 – 65	Bryophytes	0.5 – 8 – 30	Lichens	0

Layer	Scientific name	SwB30	Common name
		n = 8	
Trees	<i>Picea glauca</i>	■■■■	white spruce
	<i>Populus balsamifera</i>	■■■■	balsam poplar
Shrubs	<i>Alnus alnobetula</i>	■ ■	green alder
	<i>Alnus incana</i>	■■■■	river alder
	<i>Cornus sericea</i>	■■	red-osier dogwood
	<i>Ribes hudsonianum</i>	■	black currant
	<i>Ribes lacustre</i>	■	swamp gooseberry
	<i>Rosa acicularis</i>	■■■	prickly rose
	<i>Rubus idaeus</i>	■	red raspberry
	<i>Viburnum edule</i>	■■■	highbush cranberry
Ground shrubs	<i>Rubus pubescens</i>	■■■	dwarf raspberry
Forbs	<i>Aralia nudicaulis</i>	■■■	wild sarsaparilla
	<i>Circaea alpina</i>	■■	enchanter's-nightshade
	<i>Cornus canadensis</i>	■■■	bunchberry
	<i>Equisetum</i> spp.	■■■	horsetails
	<i>Gymnocarpium dryopteris</i>	■■	common oak fern
	<i>Mertensia paniculata</i>	■■	tall bluebells
	<i>Mitella nuda</i>	■■	naked mitrewort
Bryophytes	Bryophyta	■■■	mosses

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

SwB31 **White spruce – Balsam poplar / Alder / Devil's club**

SwB31 is a mixed-wood white spruce – balsam poplar (fir) forest or woodland with devil's club, green alder, highbush cranberry, oak fern and wild sarsaparilla that occurs on level or sloping sites in the extreme southeast Yukon in the BOL (subzone BOLlr).

No photo
available

Vegetation: Stands of SwB31 have a mixed-wood tree canopy of white spruce (*Picea glauca*) and balsam poplar (*Populus balsamifera*), often with a fir (*Abies lasiocarpa*) component and sometimes paper birch (*Betula papyrifera*). The very well developed shrub layer is comprised of devil's club (*Oplopanax horridus*), green alder (*Alnus alnobetula*), highbush cranberry (*Viburnum edule*), red raspberry (*Rubus idaeus*) and prickly rose (*Rosa acicularis*). Dwarf raspberry (*Rubus pubescens*) is often present. Common forbs are wild sarsaparilla (*Aralia nudicaulis*) and bunchberry (*Cornus canadensis*). Moss cover is low to moderate.

Environment: This association occurs at low to moderate elevations on moist slopes or near level sites. No data are available on soil characteristics.

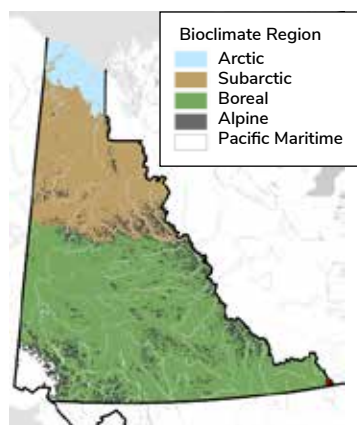
Dynamics: These stands could regenerate after disturbance to balsam poplar (such as B25) or as a mixed-wood stand.

Comments

- Key characteristics: mixed-wood white spruce – balsam poplar stand; subzone BOLlr; devil's club prominent
- Component of CNVC00423 Balsam Poplar – White Spruce) / Green Alder – Devil's Club

SwB31 Environment table

Zone	BOL; subzone BOLlr
Elevation (m)	565 – 568 – 570
Aspect	neutral (warm)
Slope (%)	0 – 13 – 28
Soil moisture regime	subhygric
Soil drainage	moderately well to imperfect
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	no data
Soil class	no data

**SwB31** Vegetation summary (%)

Trees	12 – 25 – 55	Shrubs	50 – 80 – 99	Ground shrubs	0 – 10 – 25
Graminoids and forbs	15 – 25 – 35	Bryophytes	0 – 5 – 10	Lichens	0

Layer	Scientific name	SwB31	Common name
		n = 5	
Trees	<i>Picea glauca</i>	■■■	white spruce
	<i>Populus balsamifera</i>	■■■■	balsam poplar
Shrubs	<i>Abies lasiocarpa</i>	■■■	subalpine fir
	<i>Populus balsamifera</i>	■■■	balsam poplar
	<i>Alnus alnobetula</i>	■■■■	green alder
	<i>Oplopanax horridus</i>	■■■	devil's club
	<i>Rosa acicularis</i>	■■■	prickly rose
	<i>Rubus idaeus</i>	■■■	red raspberry
	<i>Viburnum edule</i>	■■■■	highbush cranberry
Ground shrubs	<i>Rubus pubescens</i>	■■■	dwarf raspberry
Forbs	<i>Aralia nudicaulis</i>	■■■	wild sarsaparilla
	<i>Cornus canadensis</i>	■■■	bunchberry
	<i>Mertensia paniculata</i>	■■	tall bluebells
Bryophytes	Bryophyta	■■■	mosses

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

SwB33 **White spruce – Balsam poplar / River alder / Ostrich fern**

SwB33 is a mixed-wood white spruce – balsam poplar (paper birch) woodland with river alder and high cover of ostrich fern that occurs on fluvial sites in the extreme southeast Yukon in the BOL (subzone BOLlr).

No photo
available

Vegetation: Stands of SwB33 have a mixed-wood tree canopy of white spruce (*Picea glauca*) and balsam poplar (*Populus balsamifera*) with a paper birch (*Betula papyrifera*) component. The well-developed shrub layer is comprised of river alder (*Alnus incana*), red-osier dogwood (*Cornus sericea*), highbush cranberry (*Viburnum edule*) and prickly rose (*Rosa acicularis*). Dwarf raspberry (*Rubus pubescens*) is present. High cover of ostrich fern (*Matteuccia struthiopteris*) characterizes the understorey. Other common forbs are common horsetail (*Equisetum arvense*), oak fern (*Gymnocarpium dryopteris*), naked mitrewort (*Mitella nuda*) and wild sarsaparilla (*Aralia nudicaulis*). Moss cover is low.

Environment: This association occurs at low elevations on fluvial sites. No data are available on soil characteristics.

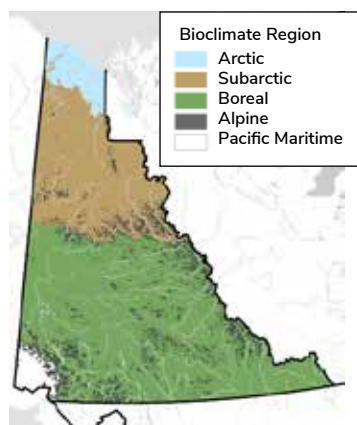
Dynamics: These stands could regenerate after disturbance to balsam poplar (such as B25) or as a mixed-wood stand.

Comments

- Key characteristics: mixed-wood white spruce – balsam poplar stand; subzone BOLlr; ostrich fern prominent
- Component of CNVC00077 Balsam Poplar (White Spruce) / River Alder – Red-osier Dogwood

SwB33 Environment table

Zone	BOL; subzone BOLlr
Elevation (m)	no data
Aspect	neutral
Slope (%)	0
Soil moisture regime	subhygric
Soil drainage	imperfect
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	no data
Soil class	no data

**SwB33 Vegetation summary (%)**

Trees	15	Shrubs	75	Ground shrubs	1.5
Graminoids and forbs	65	Bryophytes	1	Lichens	0

Layer	Scientific name	SwB33	Common name
		n = 1	
Trees	<i>Betula papyrifera</i>	■■■	paper birch
	<i>Picea glauca</i>	■■■■	white spruce
	<i>Populus balsamifera</i>	■■■■■	balsam poplar
Shrubs	<i>Alnus incana</i>	■■■■■	river alder
	<i>Cornus sericea</i>	■■■	red-osier dogwood
	<i>Ribes hudsonianum</i>	■■	black currant
	<i>Ribes lacustre</i>	■■	swamp gooseberry
	<i>Rosa acicularis</i>	■■■	prickly rose
	<i>Viburnum edule</i>	■■	highbush cranberry
Ground shrubs	<i>Rubus pubescens</i>	■■	dwarf raspberry
Forbs	<i>Equisetum arvense</i>	■■■	common horsetail
	<i>Galium</i> spp.	■■	bedstraws
	<i>Gymnocarpium dryopteris</i>	■■	common oak fern
	<i>Matteuccia struthiopteris</i>	■■■■■	ostrich fern
	<i>Mitella nuda</i>	■■	naked mitrewort
	<i>Thalictrum</i> spp.	■■	meadowrues
	<i>Viola</i> spp.	■■	violets
Bryophytes	Bryophyta	■■	mosses

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

SwB35 White spruce – Balsam poplar / Soapberry / Horsetail

SwB35 is a mixed-wood white spruce – balsam poplar forest or woodland with prickly rose, soapberry and horsetails that occurs on fluvial benches in the SUW and sometimes in the ARLS.

Vegetation: Stands of SwB35 have a mixed-wood tree canopy of white spruce (*Picea glauca*) and balsam poplar (*Populus balsamifera*). The well-developed shrub layer is comprised of prickly rose (*Rosa acicularis*), soapberry (*Shepherdia canadensis*) and willow (*Salix* spp.), usually with some alder (*Alnus incana*, *A. alnobetula*). Horsetails (*Equisetum arvense*, *E. pratense*) characterize the forb layer. Moss cover, mostly step moss (*Hylocomium splendens*), varies, but is usually high to very high.

Environment: This association occurs at low to moderate elevations on level or gently sloping fluvial benches that are influenced to varying degrees by the subsurface water table. Soil data are limited, but are likely classified as Regosols. The forest floor usually has moderate cover of woody debris.

Dynamics: These could regenerate after disturbance to balsam poplar (B24, B27) or as a mixed-wood stand. River floodplains undergo continual erosion and deposition processes.

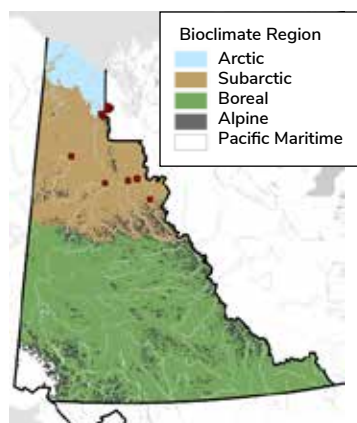
Comments

- Key characteristics: mixed-wood white spruce – balsam poplar stand; SUW or ARLS; fluvial bench; horsetails
- Component of CNVC00418 White Spruce – Balsam Poplar / Soapberry / Horsetail



SwB35 Environment table

Zone	SUW (ARLS)
Elevation (m)	25 – 345 – 595
Aspect	neutral (variable)
Slope (%)	0 – 2 – 15
Soil moisture regime	subhygric
Soil drainage	well to imperfect
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	1 – 10 – 15 (wood)
Soil class	Regosols (limited data)

**SwB35 Vegetation summary (%)**

Trees	6 – 33 – 70	Shrubs	25 – 45 – 85	Ground shrubs	0 – 15 – 25
Graminoids and forbs	3 – 32 – 55	Bryophytes	0.5 – 45 – 70	Lichens	0 – 5 – 20

Layer	Scientific name	SwB35	Common name
		n = 10	
Trees	<i>Picea glauca</i>	■■■■■	white spruce
	<i>Populus balsamifera</i>	■■■■■	balsam poplar
Shrubs	<i>Alnus incana / alnobetula</i>	■■■■■	river / green alder
	<i>Picea glauca</i>	■ ■	white spruce
	<i>Rosa acicularis</i>	■■■	prickly rose
	<i>Salix</i> spp.	■■■■■	willows
	<i>Shepherdia canadensis</i>	■■	soapberry
Ground shrubs	<i>Linnaea borealis</i>	■ ■ ■	twinline
	<i>Vaccinium vitis-idaea</i>	■ ■	lowbush cranberry
Graminoids	Poaceae	■■	grass family
Forbs	<i>Chamaenerion angustifolium</i>	■ ■	fireweed
	<i>Equisetum arvense / pratense</i>	■■■■■	horsetails
	<i>Moneses uniflora</i>	■	single delight
Bryophytes	<i>Hylocomium splendens</i>	■■■■■	step moss
	Bryophyta	■ ■ ■ ■	mosses

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

SwB39 **White spruce – Balsam poplar / River alder / Variegated scouring-rush**

SwB39 is a mixed-wood white spruce – balsam poplar forest or woodland with high willow cover, soapberry and variegated scouring-rush that occurs on fluvial benches in the BOL.

No photo
available

Vegetation: Stands of SwB39 have a mixed-wood tree canopy of white spruce (*Picea glauca*) and balsam poplar (*Populus balsamifera*), with most of the spruce in the shrub layer. Some larch (*Larix laricina*) can be present. The well-developed shrub layer is comprised of Barratt's willow (*Salix barrattiana*), among other willows (*Salix* spp.), river alder (*Alnus incana*) and soapberry (*Shepherdia canadensis*). Variegated scouring-rush (*Equisetum variegatum*) characterizes the understorey. Other common forbs are wild strawberry (*Fragaria virginiana*), showy pussytoes (*Antennaria pulcherrima*), alpine hedsarum (*Hedysarum alpinum*), arctic sweet coltsfoot (*Petasites frigidus*) and common horsetail (*E. arvense*). Various grasses are common. Moss cover is moderate to high and comprised of ragged mosses (*Brachythecium* spp.) or common hook moss (*Drepanocladus aduncus*).

Environment: This association occurs at low to moderate elevations on wet fluvial benches. No data are available on soil characteristics. The forest floor has moderate to moderately high cover of woody debris.

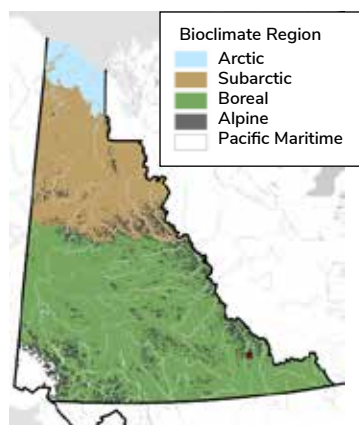
Dynamics: These stands could regenerate after disturbance to balsam poplar (such as B29, B31) or as a mixed-wood stand.

Comments

- Key characteristics: mixed-wood white spruce – balsam poplar stand; willows, soapberry, variegated scouring-rush
- CNVC association not yet determined

SwB39 Environment table

Zone	BOL
Elevation (m)	840 – 840 – 840
Aspect	neutral
Slope (%)	0 – 0 – 0
Soil moisture regime	hygric
Soil drainage	poor
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	6 – 11 – 21 (wood)
Soil class	no data

**SwB39 Vegetation summary (%)**

Trees	0 – 20 – 60	Shrubs	55 – 70 – 80	Ground shrubs	0 – 1 – 1
Graminoids and forbs	75 – 87 – 99	Bryophytes	10 – 30 – 45	Lichens	0

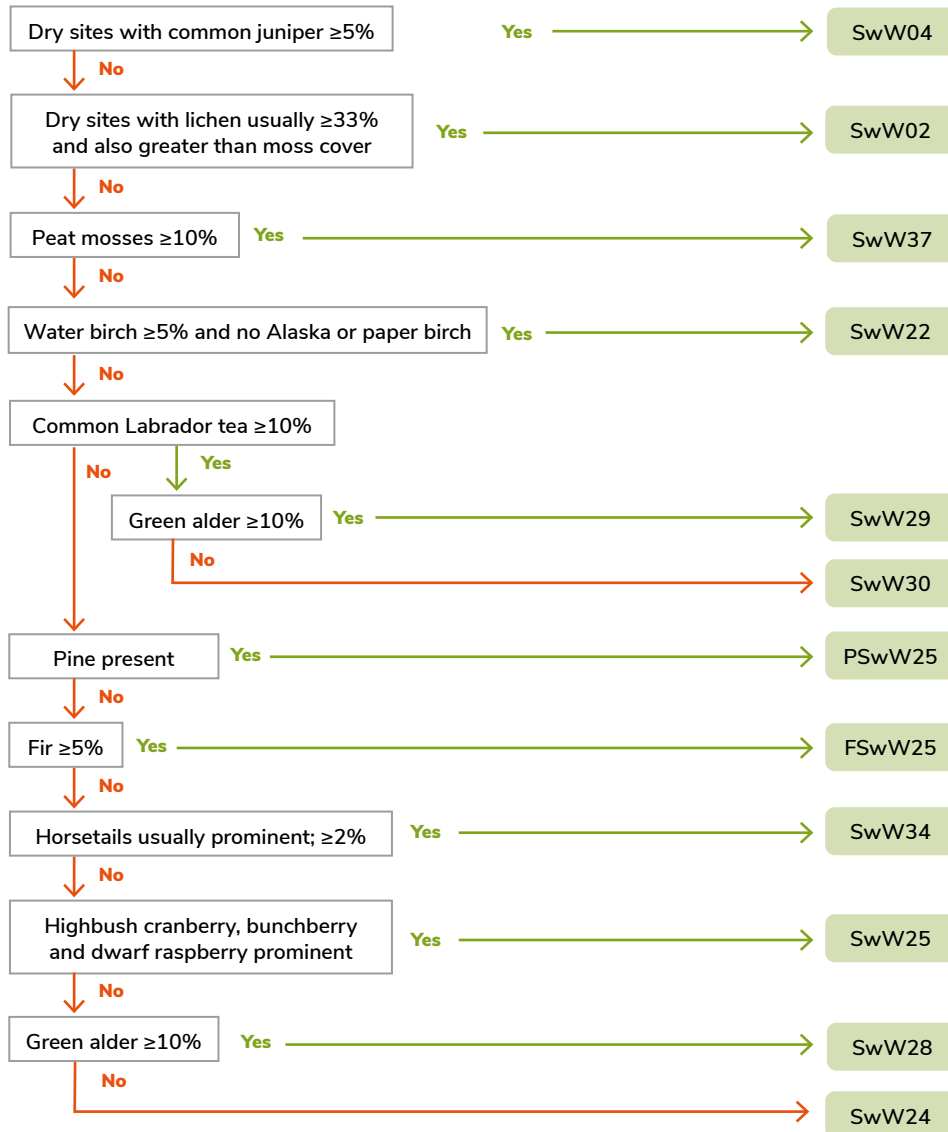
Layer	Scientific name	SwB39	Common name
		n = 3	
Trees	<i>Populus balsamifera</i>	■ ■ ■ ■	balsam poplar
Shrubs	<i>Alnus incana</i>	■ ■ ■	river alder
	<i>Picea glauca</i>	■ ■ ■ ■	white spruce
	<i>Populus balsamifera</i>	■ ■ ■	balsam poplar
	<i>Salix</i> spp.	■ ■ ■ ■ ■	willows
	<i>Shepherdia canadensis</i>	■ ■ ■ ■	soapberry
Ground shrubs	<i>Rubus arcticus</i>	■	arctic raspberry
Graminoids	<i>Elymus trachycaulus</i>	■ ■ ■	slender wildrye
Forbs	<i>Achillea millefolium</i>	■ ■ ■	common yarrow
	<i>Antennaria pulcherrima</i>	■ ■ ■	showy pussytoes
	<i>Artemisia arctica</i> spp. <i>arctica</i>	■	mountain sagewort
	<i>Equisetum arvense</i>	■ ■	common horsetail
	<i>Equisetum variegatum</i>	■ ■ ■ ■	variegated scouring-rush
	<i>Eurybia sibirica</i>	■ ■	Siberian wood-aster
	<i>Fragaria virginiana</i>	■ ■ ■ ■	wild strawberry
	<i>Hedysarum alpinum</i>	■ ■ ■	alpine hedysarum
	<i>Petasites frigidus</i>	■ ■	arctic sweet coltsfoot
	<i>Platanthera obtusata</i>	■	small northern bog orchid
	<i>Senecio lugens</i>	■ ■ ■	black-tipped groundsel
Bryophytes	<i>Brachythecium</i> spp.	■ ■ ■ ■ ■	ragged mosses

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ ■ 1 – 3	■ ■ ■ 3 – 10	■ ■ ■ ■ 10 – 25	■ ■ ■ ■ ■ >25

White spruce – birch associations

White spruce (Sw) and birch (W) in mixed-wood stands may include pine (P) or fir (F) and minor aspen (A) or balsam poplar (B); birch includes paper birch, Alaska birch and water birch.

Flowchart White spruce – birch associations



Summary of features: White spruce – birch associations**Dry sites**

	SwW02	SwW04
Zone	BOH, SUW	BOH, SUW
Geography	west-central, north	east-central
Important site features	shallow soil and/or warm-aspect slope	warm or neutral aspect, moderate to steep slope
Drainage	well	well
Tree canopy	white spruce – water birch or white spruce – Alaska birch – water birch	white spruce – water birch
Key understorey species	water birch, shrub birch, lichens	water birch, common juniper, Altai fescue, reindeer lichens

Moist to wet sites

	SwW34	SwW37
Zone	BOL (BOH)	BOL, BOH (SUW)
Geography	west-central, central, southeast	west-central, east-central
Important site features	fluvial bench or seepage slope	level or sloping swamp sites
Drainage	well to imperfect	imperfect to poor
Tree canopy	white spruce – Alaska birch or white spruce – water birch (balsam poplar), (aspen)	white spruce – Alaska birch or white spruce – water birch
Key understorey species	highbush cranberry, horsetail	blueberry, peat moss, feathermoss

White spruce – birch associations

Mesic sites

	SwW22	SwW24	SwW25	FSwW25	PSwW25	SwW28	SwW29	SwW30
Zone	BOH	BOL, BOH (BOS, SUW)	BOL	BOL, BOH	BOL (BOH)	BOL (BOH, SUW)	BOL (BOH)	BOL, BOH
Geography	south	west-central, central, southeast (north)	southeast	central, south-central, southeast	south-central, southeast	west-central, southwest (north)	west-central, central, south-central	west-central, south- central
Important site features	level sites or moderate slopes	sloping sites (level)	mesic to moist sites	sloping mesic sites	mostly sloping mesic sites	sloping mesic sites	sloping mesic sites	sloping mesic sites
Drainage	well to moderately well	well	moderately well (imperfect)	well	well	well	well to moderately well	well to moderately well
Tree canopy	white spruce – water birch (pine)	white spruce – Alaska birch (pine), (aspen)	white spruce – paper birch (aspen), (balsam poplar)	fir – white spruce – Alaska birch (black spruce), (aspen), (balsam poplar)	pine – white spruce – Alaska birch (aspen)	white spruce – Alaska birch (aspen)	white spruce – Alaska birch (pine) (aspen)	white spruce – Alaska birch
Key understorey species	water birch, blueberry, feathermoss	prickly rose, tall bluebells, feathermoss	prickly rose, highbush cranberry, bunchberry, dwarf raspberry	prickly rose, bunchberry	green alder, feathermoss	green alder, prickly rose, feathermoss	common Labrador tea, green alder, feathermoss	common Labrador tea, feathermoss

Vegetation tables for White spruce – birch associations

Dry sites

Layer	Scientific name	SwW02	SwW04	Common name
	n =	10	3	
Trees	<i>Betula neoalaskana</i>	■ ■		Alaska birch
	<i>Betula occidentalis</i>		■ ■ ■	water birch
	<i>Picea glauca</i>	■ ■ ■ ■	■ ■ ■ ■	white spruce
Shrubs	<i>Betula occidentalis</i>	■ ■ ■		water birch
	<i>Picea glauca</i>	■ ■ ■	□ □	white spruce
	<i>Betula glandulosa</i>	■ ■ ■ ■	■ ■ ■ ■	shrub birch
	<i>Juniperus communis</i>		■ ■ ■	common juniper
	<i>Rhododendron</i> spp.	■ ■ ■	□ □ □	Labrador teas
	<i>Rosa acicularis</i>		■ ■ ■	prickly rose
	<i>Salix</i> spp.	■ ■ ■	■ ■ ■	willows
Ground shrubs	<i>Arctostaphylos uva-ursi</i>		■ ■	kinnikinnick
	<i>Empetrum nigrum</i>	■ ■ ■	■ ■	crowberry
	<i>Vaccinium vitis-idaea</i>	■ ■ ■	■ ■	lowbush cranberry
Graminoids	<i>Festuca altaica</i>	■ ■	■ ■ ■ ■	Altai fescue
Forbs	<i>Artemisia arctica</i> spp. <i>arctica</i>		■ ■ ■	mountain sagewort
	<i>Chamaenerion angustifolium</i>	□	■ ■ ■	fireweed
	<i>Cornus canadensis</i>		■ ■ ■ ■	bunchberry
	<i>Lupinus arcticus</i>	□ □	■ ■	arctic lupine
	<i>Pedicularis labradorica</i>		■	Labrador lousewort
	<i>Saxifraga tricuspidata</i>	□	■	prickly saxifrage
Bryophytes	<i>Aulacomnium</i> spp.		■ ■	groove mosses
	<i>Hylocomium</i> / <i>Pleurozium</i>	□ □ □ □	■ ■ ■	feathermosses
	<i>Polytrichum juniperinum</i>	□	■ ■	juniper haircap moss
Lichens	<i>Cetraria</i> / <i>Flavocetraria</i> spp.	■ ■ ■	□	Iceland / snow lichens
	<i>Cladina</i> spp.	■ ■ ■ ■	■ ■ ■ ■	reindeer lichens
	<i>Cladonia</i> spp.	■ ■	■ ■	clad lichens
	<i>Peltigera</i> spp.	□ □	■ ■	pelt lichens
	<i>Stereocaulon</i> spp.	■ ■ ■ ■		foam lichens

Note: gold cells highlight key diagnostic species

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ ■ 1 – 3	■ ■ ■ 3 – 10	■ ■ ■ ■ 10 – 25	■ ■ ■ ■ ■ >25

Mesic sites

Layer	Scientific name	SwW22	SwW24	SwW25	FSwW25	PSwW25	SwW28	SwW29	SwW30	Common name
	n =	5	27	14	7	5	14	14	22	
Trees	<i>Abies lasiocarpa</i>				■■■■	□				subalpine fir
	<i>Betula neoalaskana</i>		■■■■		■■■■	■■■■	■■■■	■■■■	■■■■	Alaska birch
	<i>Betula occidentalis</i>	■■■■								water birch
	<i>Betula papyrifera</i>			■■■						paper birch
	<i>Picea glauca</i>	■■■■	■■■■	■■■	■■■	■■■	■■■■	■■■■	■■■■	white spruce
	<i>Pinus contorta</i>	□□□□				■■■■				lodgepole pine
Shrubs	<i>Abies lasiocarpa</i>				■■■■					subalpine fir
	<i>Betula neoalaskana</i>		■		■	□	■	■■■	■■■	Alaska birch
	<i>Betula occidentalis</i>	□□								water birch
	<i>Betula papyrifera</i>			■■■						paper birch
	<i>Picea glauca</i>		■	□□□	■		■■■	□□	■	white spruce
	<i>Alnus alnobetula</i>		□	■■■■	■■■■	■■■■	■■■■	■■■■	□□	green alder
	<i>Betula glandulosa</i>	■								shrub birch
	<i>Cornus sericea</i>			■■■						red-osier dogwood
	<i>Rhododendron groenlandicum</i>	■■■	□□		□□		■	■■■■	■■■■	common Labrador tea
	<i>Rosa acicularis</i>		■■■	■■■	■■■	■■■	■■■	■■■	■	prickly rose
	<i>Salix</i> spp.	■■■	■■■	□□□	■■■	■	■	■■■	■■■	willows
	<i>Vaccinium uliginosum</i>	■■■■			□			□□	■	blueberry
	<i>Viburnum edule</i>		□	■■■■		□□				highbush cranberry
Ground shrubs	<i>Empetrum nigrum</i>	■■■	□		□			□	■	crowberry
	<i>Linnaea borealis</i>		■	□□	□□	■	■	□□□	□	twinflower
	<i>Vaccinium vitis-idaea</i>	■■■	■■■		□□	□□□	■■■	■■■■	■■■■	lowbush cranberry
Graminoids	Poaceae	■	■	■	■	■	■	■	■■■	grass family
Forbs	<i>Aralia nudicaulis</i>			■■■						wild sarsaparilla
	<i>Chamaenerion angustifolium</i>		■	■	□	■	□	□	□	fireweed
	<i>Cornus canadensis</i>	■	□□	■■■■	■■■■	■				bunchberry
	<i>Geocaulon lividum</i>		■		■■■	■	■	□□	■	bastard toadflax
	<i>Lupinus arcticus</i>	■			□					arctic lupine
	<i>Spinulum annotinum</i>				■■■			□	□	stiff club-moss
	<i>Mertensia paniculata</i>		■	■	■	□	■	■	■	tall bluebells
	<i>Mitella nuda</i>			■						naked mitrewort
	<i>Orthilia secunda</i>		□		□	■	□	□□		one-sided wintergreen
	<i>Pyrola asarifolia</i>			□		■				pink wintergreen
	<i>Rubus pubescens</i>			■■■						dwarf raspberry
Bryophytes	<i>Dicranum</i> spp.	■	■		□	■	□□	□	□	heron's-bill mosses
	<i>Hylocomium</i> / <i>Pleurozium</i>	■■■■	■■■■	■■■	■■■■	■■■■	■■■■	■■■■	■■■■	feathermosses
Lichens	<i>Cladina</i> spp.	■■■	■		■■■	■	□	■	■■■	reindeer lichens
	<i>Cladonia</i> spp.	■	□		■	■	□	■	□	clad lichens
	<i>Peltigera</i> spp.	■	■		■■■	■	□	■	■	pelt lichens

Note: gold cells highlight key diagnostic species

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ 1 – 3	■ 3 – 10	■ 10 – 25	■ >25

Moist to wet (swamp) sites

Layer	Scientific name	SwW34	SwW37	Common name
	n =	35	5	
Trees	<i>Betula</i> spp.	■ ■ ■ ■	□ □	Alaska / paper / water birch
	<i>Picea glauca</i>	■ ■ ■ ■	■ ■ ■	white spruce
Shrubs	<i>Betula</i> spp.	■ ■ ■	■ ■ ■	Alaska / paper / water birch
	<i>Picea glauca</i>	□ □	■ ■ ■	white spruce
	<i>Betula glandulosa</i>		■ ■ ■ ■	shrub birch
	<i>Cornus sericea</i>	■ ■ ■		red-osier dogwood
	<i>Rhododendron</i> spp.		■ ■ ■ ■	Labrador teas
	<i>Rosa acicularis</i>	■ ■ ■ ■	□ □	prickly rose
	<i>Salix</i> spp.	□ □	■ ■ ■ ■ ■	willows
	<i>Vaccinium uliginosum</i>		■ ■ ■ ■	blueberry
	<i>Viburnum edule</i>	■ ■ ■		highbush cranberry
Ground shrubs	<i>Linnaea borealis</i>	■ ■		twinflower
	<i>Vaccinium vitis-idaea</i>	□ □	■ ■ ■	lowbush cranberry
Graminoids	<i>Carex</i> spp.		■ ■ ■	sedges
	Poaceae	■ ■	■ ■	grass family
Forbs	<i>Cornus canadensis</i>	■ ■ ■		bunchberry
	<i>Equisetum arvense / pratense</i>	■ ■ ■ ■		common / meadow horsetail
	<i>Mertensia paniculata</i>	■ ■		tall bluebells
	<i>Mitella nuda</i>	■ ■		naked mitrewort
	<i>Rubus pubescens</i>	■ ■ ■		dwarf raspberry
Bryophytes	<i>Sphagnum</i> spp.		■ ■ ■ ■	peat mosses
	<i>Hylocomium splendens</i>	■ ■ ■ ■	■ ■ ■ ■ ■	step moss
	<i>Pleurozium schreberi</i>		■ ■ ■ ■	red-stemmed feathermoss
Lichens	<i>Cladina</i> spp.		■ ■ ■	reindeer lichens

Note: gold cells highlight key diagnostic species

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ ■ 1 – 3	■ ■ ■ 3 – 10	■ ■ ■ ■ 10 – 25	■ ■ ■ ■ ■ >25

Fact sheets: White spruce – birch associations

SwW02 **White spruce – Water birch / Shrub birch / Crowberry / Lichen**

SwW02 is a white spruce – water birch or white spruce – Alaska birch – water birch woodland with shrub birch and high lichen cover that occurs in the BOH and SUW.

No photo
available

Vegetation: Stands of SwW02 have a tree canopy of white spruce (*P. glauca*), sometimes mixed-wood with Alaska birch (*Betula neoalaskana*) and a subcanopy of water birch (*Betula occidentalis*). The understorey is comprised of moderate to high cover of shrub birch (*Betula glandulosa*), along with crowberry (*Empetrum nigrum*) and lowbush cranberry (*Vaccinium vitis-idaea*). Feathermosses (*Hylocomium splendens*, *Pleurozium schreberi*) can occur, but cover is less than the lichen cover. Lichens, mostly reindeer lichens (*Cladina* spp.) and foam lichens (*Stereocaulon* spp.), characterize the forest floor.

Environment: This association occurs at low to high elevations on shallow level sites or, more commonly, on moderate, middle to upper, warm-aspect slopes. Based on very limited data, soils are shallow, well drained and classified as Brunisols. The forest floor usually has a light cover of woody debris and some rocks.

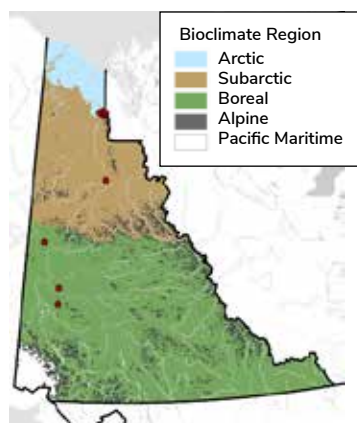
Dynamics: Stands on similar sites can be strongly dominated by white spruce (Sw28). Dominance after disturbance depends on the presence of local seed sources.

Comments

- Key characteristics: mixed-wood white spruce and water birch stand (often with Alaska birch); dry, warm site; shrub birch, lichen cover usually $\geq 33\%$ and also greater than moss cover
- Component of CNVC00395 White Spruce – Water Birch / Shrub Birch / Crowberry / Reindeer Lichen

SwW02 Environment table

Zone	BOH, SUW
Elevation (m)	455 – 735 – 1230
Aspect	warm (neutral)
Slope (%)	2 – 25 – 40
Soil moisture regime	xeric to submesic
Soil drainage	well
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	1 – 7 – 20 (rocks, wood)
Soil class	Brunisols (limited data)

**SwW02 Vegetation summary (%)**

Trees	7 – 18 – 40	Shrubs	20 – 54 – 99	Ground shrubs	6 – 16 – 35
Graminoids and forbs	1 – 6 – 25	Bryophytes	0 – 16 – 40	Lichens	10 – 45 – 99

Layer	Scientific name	SwW02	Common name
		n = 10	
Trees	<i>Betula neoalaskana</i>	■ ■	Alaska birch
	<i>Picea glauca</i>	■ ■ ■ ■	white spruce
Shrubs	<i>Betula occidentalis</i>	■ ■ ■	water birch
	<i>Picea glauca</i>	■ ■ ■	white spruce
	<i>Betula glandulosa</i>	■ ■ ■ ■	shrub birch
	<i>Rhododendron</i> spp.	■ ■ ■	Labrador teas
	<i>Salix</i> spp.	■ ■ ■	willows
Ground shrubs	<i>Empetrum nigrum</i>	■ ■ ■	crowberry
	<i>Vaccinium vitis-idaea</i>	■ ■ ■	lowbush cranberry
Graminoids	Poaceae	■ ■	grass family
Lichens	<i>Cetraria</i> / <i>Flavocetraria</i> spp.	■ ■ ■	Iceland / snow lichens
	<i>Cladina</i> spp.	■ ■ ■ ■	reindeer lichens
	<i>Cladonia</i> spp.	■ ■	clad lichens
	<i>Stereocaulon</i> spp.	■ ■ ■ ■	foam lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ ■ 1 – 3	■ ■ ■ 3 – 10	■ ■ ■ ■ 10 – 25	■ ■ ■ ■ ■ >25

SwW04 White spruce – Water birch / Shrub birch – Juniper / Altai fescue

SwW04 is a mixed-wood white spruce – water birch woodland with shrub birch, common juniper and Altai fescue ground cover that occurs in the BOH and SUW.

Vegetation: Stands of SwW04 have a tree canopy of white spruce (*P. glauca*) and a subcanopy of water birch (*Betula occidentalis*). The well-developed shrub layer is comprised of shrub birch (*Betula glandulosa*), common juniper (*Juniperus communis*), willows (*Salix* spp.) and usually, prickly rose (*Rosa acicularis*). Ground shrubs include lowbush cranberry (*Vaccinium vitis-idaea*) and kinnikinnick (*Arctostaphylos uva-ursi*). The graminoid layer is very well developed, with Altai fescue (*Festuca altaica*). Forbs include arctic lupine (*Lupinus arcticus*), mountain sagewort (*Artemisia arctica* spp. *arctica*), and others. Mosses are of moderate cover. Lichens vary from moderate to very high cover, with reindeer lichens (*Cladina* spp.) usually of highest cover.



Environment: This association occurs at high elevations on moderate to steep, warm- and neutral-aspect middle slopes. Parent material data are limited; one site is colluvial. Soils are classified as Brunisols (Dystric, Eutric). The forest floor usually has a moderate cover of woody debris.

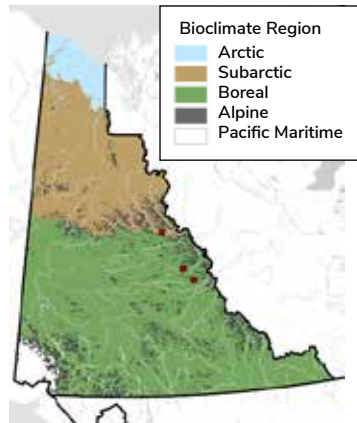
Dynamics: Stands on similar sites can be strongly dominated by aspen (A02, A09), balsam poplar (B01), birch (W28) or mixed-wood (ASwW03, AFP10). Dominance after disturbance depends on the presence of local seed sources.

Comments

- Key characteristics: mixed-wood white spruce – water birch stand; moderate to steep slope; shrub birch, common juniper and Altai fescue
- Component of CNVC00396 White Spruce – Water Birch / Common Juniper / Mountain Sagewort

SwW04 Environment table

Zone	BOH, SUW
Elevation (m)	1040 – 1270 – 1400
Aspect	warm, neutral
Slope (%)	40 – 58 – 75
Soil moisture regime	subxeric to submesic
Soil drainage	well
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	6 – 8 – 10
Soil class	Brunisols (Dystic, Eutric)

**SwW04 Vegetation summary (%)**

Trees	15 – 17 – 20	Shrubs	35 – 51 – 80	Ground shrubs	3 – 9 – 13
Graminoids and forbs	25 – 52 – 99	Bryophytes	6 – 15 – 20	Lichens	6 – 27 – 70

Layer	Scientific name	SwW04	Common name
		n = 3	
Trees	<i>Betula occidentalis</i>	■ ■ ■	water birch
	<i>Picea glauca</i>	■ ■ ■ ■	white spruce
Shrubs	<i>Betula glandulosa</i>	■ ■ ■ ■	shrub birch
	<i>Juniperus communis</i>	■ ■ ■	common juniper
	<i>Rosa acicularis</i>	■ ■ ■	prickly rose
	<i>Salix</i> spp.	■ ■ ■	willows
Ground shrubs	<i>Arctostaphylos uva-ursi</i>	■ ■	kinnikinnick
	<i>Empetrum nigrum</i>	■ ■	crowberry
	<i>Vaccinium vitis-idaea</i>	■ ■	lowbush cranberry
Graminoids	<i>Festuca altaica</i>	■ ■ ■ ■	Altai fescue
Forbs	<i>Artemisia arctica</i> spp. <i>arctica</i>	■ ■ ■	mountain sagewort
	<i>Chamaenerion angustifolium</i>	■ ■ ■	fireweed
	<i>Cornus canadensis</i>	■ ■ ■ ■	bunchberry
	<i>Lupinus arcticus</i>	■ ■	arctic lupine
	<i>Pedicularis labradorica</i>	■	Labrador lousewort
Bryophytes	<i>Aulacomnium</i> spp.	■ ■	groove mosses
	<i>Hylocomium</i> / <i>Pleurozium</i>	■ ■ ■	feathermosses
	<i>Polytrichum juniperinum</i>	■ ■	juniper haircap moss
Lichens	<i>Cladonia</i> spp.	■ ■ ■ ■	reindeer lichens
	<i>Cladonia</i> spp.	■ ■	clad lichens
	<i>Peltigera aphthosa</i>	■ ■	freckle pelt lichen

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ ■ 1 – 3	■ ■ ■ 3 – 10	■ ■ ■ ■ 10 – 25	■ ■ ■ ■ ■ >25

SwW22 White spruce – Water birch / Blueberry / Crowberry

SwW22 is a mixed-wood white spruce – water birch woodland with blueberry, common Labrador tea, crowberry, lowbush cranberry, arctic lupine and usually, step moss, that occurs in the BOH.

Vegetation: Stands of SwW22 have a tree canopy of white spruce (*Picea glauca*) and water birch (*Betula occidentalis*), sometimes with a component of pine (*Pinus contorta*). The moderately developed to well-developed shrub layer is comprised mostly of blueberry (*Vaccinium uliginosum*), common Labrador tea (*Rhododendron groenlandicum*) and willows (*Salix* spp.). The ground shrubs crowberry (*Empetrum nigrum*) and lowbush cranberry (*Vaccinium vitis-idaea*) are present, along with arctic lupine (*Lupinus arcticus*) in the forb layer. Mosses vary in cover, with step moss (*Hylocomium splendens*) dominating. Reindeer lichens (*Cladina* spp.) are usually present.

Environment: This association occurs at moderate to high elevations on level sites and moderate slopes (neutral or warm aspects, based on limited data). Parent materials are morainal or volcanic. Soils are classified as Brunisols (Dystric), Gray Luvisols (Brunisolic) or Cryosols (Static). The forest floor may have high cover of rocks and some woody debris.

Dynamics: Stands on similar sites can be strongly dominated by spruce. Dominance after disturbance depends on the presence of local seed sources.

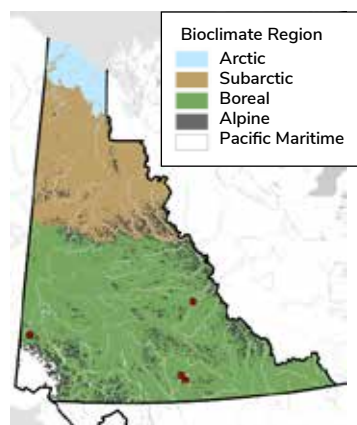
Comments

- Key characteristics: mixed-wood white spruce – water birch stand; mesic upland; blueberry, crowberry and lowbush cranberry present, usually high step moss cover
- Component of CNVC00397 White Spruce – Water Birch / Blueberry/ Crowberry / Step Moss



SwW22 Environment table

Zone	BOH
Elevation (m)	915 – 1095 – 1295
Aspect	neutral, warm (limited data)
Slope (%)	5 – 16 – 35
Soil moisture regime	submesic to mesic
Soil drainage	well to moderately well
Permafrost presence/depth (cm)	possible
Unvegetated cover (%)	2 – 30 – 60 (limited data)
Soil class	Brunisols, Gray Luvisols, Static Cryosols

**SwW22 Vegetation summary (%)**

Trees	11 – 48 – 99	Shrubs	20 – 30 – 45	Ground shrubs	2 – 15 – 25
Graminoids and forbs	2 – 7 – 15	Bryophytes	0.1 – 48 – 85	Lichens	1 – 8 – 17

Layer	Scientific name	SwW22	Common name
		n = 5	
Trees	<i>Betula occidentalis</i>	■ ■ ■ ■	water birch
	<i>Picea glauca</i>	■ ■ ■ ■	white spruce
Shrubs	<i>Betula glandulosa</i>	■ ■	shrub birch
	<i>Rhododendron groenlandicum</i>	■ ■ ■	common Labrador tea
	<i>Salix</i> spp.	■ ■ ■	willows
	<i>Vaccinium uliginosum</i>	■ ■ ■ ■	blueberry
Ground shrubs	<i>Empetrum nigrum</i>	■ ■ ■	crowberry
	<i>Vaccinium vitis-idaea</i>	■ ■ ■	lowbush cranberry
Graminoids	Poaceae	■ ■	grass family
Forbs	<i>Cornus canadensis</i>	■ ■	bunchberry
	<i>Lupinus arcticus</i>	■ ■	arctic lupine
Bryophytes	<i>Dicranum</i> spp.	■ ■	heron's-bill mosses
	<i>Hylocomium splendens</i>	■ ■ ■ ■ ■	step moss
Lichens	<i>Flavocetraria</i> spp.	■ ■	snow lichens
	<i>Cladina</i> spp.	■ ■ ■	reindeer lichens
	<i>Cladonia</i> spp.	■	clad lichens
	<i>Peltigera</i> spp.	■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ ■ 1 – 3	■ ■ ■ 3 – 10	■ ■ ■ ■ 10 – 25	■ ■ ■ ■ ■ >25

SwW24 White spruce – Alaska birch / Prickly rose / Lowbush cranberry / Feathermoss

SwW24 is a mixed-wood white spruce – Alaska birch forest with prickly rose, lowbush cranberry, tall bluebells and step moss that occurs in the BOL and BOH and sometimes in the BOS or SUW.

Vegetation: Stands of SwW24 have a tree canopy of white spruce (*Picea glauca*) and Alaska birch (*Betula neo-alaskana*), sometimes with a component of aspen (*Populus tremuloides*) or pine (*Pinus contorta*). The moderately developed to well-developed shrub layer is comprised mostly of blueberry (*Vaccinium uliginosum*), Common Labrador tea (*Rhododendron groenlandicum*) and willows (*Salix* spp.). The ground shrubs crowberry (*Empetrum nigrum*) and lowbush cranberry (*Vaccinium vitis-idaea*) are present, along with arctic lupine (*Lupinus arcticus*) in the forb layer. Moss cover varies, with step moss (*Hylocomium splendens*) dominating. Reindeer lichens (*Cladina* spp.) are usually present.



Environment: This association occurs at low to high elevations, mostly commonly on middle, gentle to moderately steep slopes, but also on level sites. Parent materials are mostly colluvial, but can be morainal, fluvial or eolian. Soils are mostly classified as Brunisols (Dystric, Eutric), but Cryosols (Static, Turbic) occasionally occur. The forest floor has low to moderate cover of woody debris and sometimes, rocks.

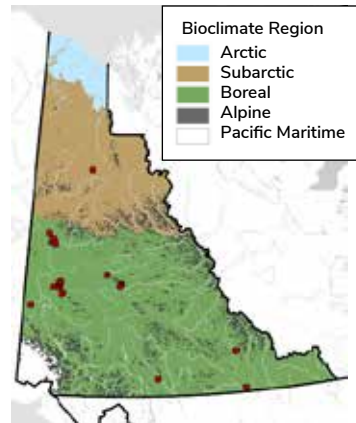
Dynamics: Stands on similar sites can be strongly dominated by white spruce (Sw27), birch (W26), aspen (A29) or mixe-wood. Dominance after disturbance depends on the presence of local seed sources.

Comments

- Key characteristics: mixed-wood white spruce – Alaska birch stand; mesic upland; low to moderate shrub cover; prickly rose and lowbush cranberry present, usually high step moss cover
- Component of CNVC00398 White Spruce – Alaska Birch / Lowbush Cranberry – Bastard Toadflax / Step Moss

SwW24 Environment table

Zone	BOL, BOH (BOS, SUW)
Elevation (m)	325 – 760 – 1460
Aspect	variable (neutral)
Slope (%)	0 – 31 – 70
Soil moisture regime	submesic to mesic
Soil drainage	well
Permafrost presence/depth (cm)	occasional
Unvegetated cover (%)	1 – 10 – 30 (decaying wood, rocks)
Soil class	Brunisols (Dystric, Eutric), Cryosols

**SwW24** Vegetation summary (%)

Trees	20 – 46 – 95	Shrubs	0 – 20 – 55	Ground shrubs	0.1 – 10 – 55
Graminoids and forbs	0 – 12 – 30	Bryophytes	10 – 60 – 95	Lichens	0 – 3 – 15

Layer	Scientific name	SwW24	Common name
		n = 24	
Trees	<i>Betula neoalaskana</i>	■■■■■	Alaska birch
	<i>Picea glauca</i>	■■■■■	white spruce
Shrubs	<i>Betula neoalaskana</i>	■ ■	Alaska birch
	<i>Picea glauca</i>	■ ■	white spruce
	<i>Rosa acicularis</i>	■■■	prickly rose
	<i>Salix</i> spp.	■■■	willows
Ground shrubs	<i>Linnaea borealis</i>	■ ■	twinline
	<i>Vaccinium vitis-idaea</i>	■■■	lowbush cranberry
Graminoids	Poaceae	■■	grass family
Forbs	<i>Chamaenerion angustifolium</i>	■	fireweed
	<i>Geocaulon lividum</i>	■ ■	bastard toadflax
	<i>Mertensia paniculata</i>	■■	tall bluebells
Bryophytes	<i>Dicranum</i> spp.	■ ■	heron's-bill mosses
	<i>Hylocomium splendens</i>	■■■■■	step moss
Lichens	<i>Cladina</i> spp.	■	reindeer lichens
	<i>Peltigera</i> spp.	■■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

SwW25 White spruce – Paper birch / Highbush cranberry – Prickly rose / Bunchberry

SwW25 is a mixed-wood white spruce – paper birch woodland or forest with alder, prickly rose, highbush cranberry, bunchberry and dwarf raspberry that occurs in the southeast Yukon in the BOL.

No photo
available

Vegetation: Stands of SwW25 have a tree canopy of white spruce (*P. glauca*) and paper birch (*Betula papyrifera*), sometimes with a component of aspen (*Populus tremuloides*) or balsam poplar (*P. balsamifera*). The very well developed shrub layer is comprised mostly of alder (mostly *A. alnobetula*), prickly rose (*Rosa acicularis*), highbush cranberry (*Viburnum edule*) and currants (*Ribes* spp.). The forb layer is also well developed, with bunchberry (*Cornus canadensis*), dwarf raspberry (*Rubus pubescens*), wild sarsaparilla (*Aralia nudicaulis*) and some horsetail (*Equisetum* spp.). Moss cover varies.

Environment: This association occurs mostly at low elevations in the extreme southeast Yukon. Sites are mostly level, but sometimes gently sloping. No data are available on parent materials or soil classification. The forest floor may have some cover of woody debris.

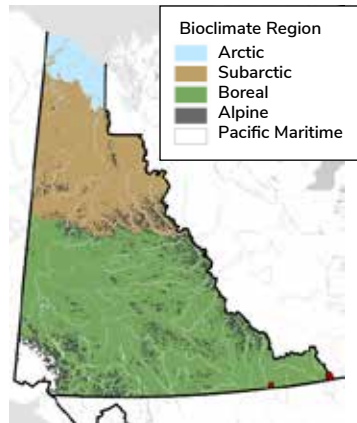
Dynamics: Stands on similar sites can be strongly dominated by white spruce (Sw17), birch (W30), aspen (A26), balsam poplar (B25) or mixes (such as ASw21). Dominance after disturbance depends on the presence of local seed sources.

Comments

- Key characteristics: mixed-wood white spruce – paper birch stand; southeast Yukon; mesic to moist upland; high shrub cover; alder, prickly rose, highbush cranberry, bunchberry and dwarf raspberry
- Component of CNVC00095 Aspen – White Spruce / Prickly Rose – Highbush Cranberry; Paper Birch subassociation

SwW25 Environment table

Zone	BOL
Elevation (m)	365 – 440 – 725
Aspect	neutral (warm, neutral)
Slope (%)	0 – 3 – 10
Soil moisture regime	mesic to subhygric
Soil drainage	moderately well (imperfect)
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	5 (decaying wood, limited data)
Soil class	no data

**SwW25 Vegetation summary (%)**

Trees	2 – 22 – 70	Shrubs	30 – 70 – 99	Ground shrubs	0.5 – 9 – 25
Graminoids and forbs	5 – 25 – 65	Bryophytes	1 – 16 – 45	Lichens	0 – 0 – 2

Layer	Scientific name	SwW25	Common name
		n = 14	
Trees	<i>Betula papyrifera</i>	■ ■ ■	paper birch
	<i>Picea glauca</i>	■ ■ ■	white spruce
Shrubs	<i>Betula papyrifera</i>	■ ■ ■	paper birch
	<i>Alnus alnobetula</i>	■ ■ ■ ■	green alder
	<i>Cornus sericea</i>	■ ■ ■	red-osier dogwood
	<i>Ribes</i> spp.	■ ■	currants
	<i>Rosa acicularis</i>	■ ■ ■	prickly rose
	<i>Viburnum edule</i>	■ ■ ■ ■	highbush cranberry
Graminoids	Poaceae	■	grass family
Forbs	<i>Aralia nudicaulis</i>	■ ■ ■	wild sarsaparilla
	<i>Chamaenerion angustifolium</i>	■ ■	fireweed
	<i>Cornus canadensis</i>	■ ■ ■ ■	bunchberry
	<i>Mertensia paniculata</i>	■ ■	tall bluebells
	<i>Mitella nuda</i>	■ ■	naked mitrewort
	<i>Rubus pubescens</i>	■ ■ ■	dwarf raspberry
Bryophytes	Bryophyta	■ ■ ■ ■	mosses

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ ■ 1 – 3	■ ■ ■ 3 – 10	■ ■ ■ ■ 10 – 25	■ ■ ■ ■ ■ >25

FSwW25 Fir – Spruce – Birch / Prickly rose / Bunchberry

FSwW25 is a mixed-wood fir – white spruce – Alaska birch forest, with prickly rose, bunchberry and feathermosses, that occurs in the BOL and BOH.

Vegetation: Stands of FSwW25 have a tree canopy of fir (*Abies lasiocarpa*), white spruce (*Picea glauca*) and Alaska birch (*Betula neoalaskana*), sometimes with a component of black spruce (*P. mariana*), aspen (*Populus tremuloides*) or balsam poplar (*P. balsamifera*). The shrub layer, including tree regeneration, is very well developed. Prickly rose (*Rosa acicularis*) and willows (*Salix* spp.) are the most consistent shrubs. Alders (*Alnus incana*, *A. alnobetula*) can be of high cover. The forb layer is mostly bunchberry (*Cornus canadensis*) and bastard toadflax (*Geocaulon lividum*), with some stiff club-moss (*Spinulum annotinum*) and/or tall bluebells (*Mertensia paniculata*). Feathermosses (*Hylocomium splendens*, *Pleurozium schreberi*, *Ptilium crista-castrensis*) of variable cover, reindeer lichens (*Cladina* spp.) and pelt lichens (*Peltigera* spp.) characterize the forest floor.



Environment: FSwW25 occurs at moderate elevations on middle, gentle to moderate slopes. Parent materials are mostly colluvial, but can be morainal. Soil data are limited. The forest floor has moderate to moderately high cover of woody debris.

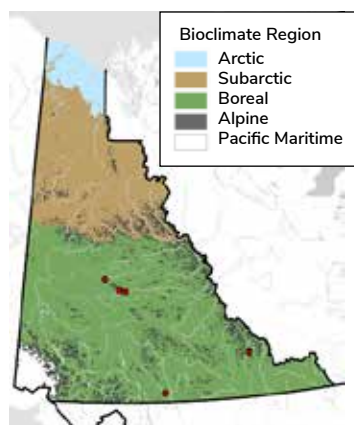
Dynamics: Stands on similar sites can be strongly dominated by white spruce (Sw27), birch (W26), aspen (A29) or mixed-wood (SwW24, SwW28). Dominance after disturbance depends on the presence of local seed sources.

Comments

- Key characteristics: mixed-wood fir – white spruce – Alaska birch stand; mesic upland; variable shrub cover; alder and prickly rose, bunchberry and bastard toadflax; moderately high to high cover of feathermosses
- CNVC association not yet determined

FSwW25 Environment table

Zone	BOL, BOH
Elevation (m)	690 – 875 – 1095
Aspect	variable
Slope (%)	10 – 22 – 40
Soil moisture regime	submesic to mesic
Soil drainage	well
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	2 – 13 – 25 (decaying wood)
Soil class	Brunisols (Melanic) (limited data)

**FSwW25 Vegetation summary (%)**

Trees	20 – 45 – 60	Shrubs	20 – 60 – 99	Ground shrubs	0 – 6 – 11
Graminoids and forbs	2 – 16 – 50	Bryophytes	10 – 36 – 90	Lichens	0 – 10 – 40

Layer	Scientific name	FSwW25	Common name
		n = 7	
Trees	<i>Abies lasiocarpa</i>	■ ■ ■ ■	subalpine fir
	<i>Betula neoalaskana</i>	■ ■ ■ ■	Alaska birch
	<i>Picea glauca</i>	■ ■ ■	white spruce
Shrubs	<i>Abies lasiocarpa</i>	■ ■ ■ ■	subalpine fir
	<i>Betula neoalaskana</i>	■ ■	Alaska birch
	<i>Picea glauca</i>	■ ■	white spruce
	<i>Alnus</i> spp.	■ ■ ■ ■	alders
	<i>Rosa acicularis</i>	■ ■ ■	prickly rose
	<i>Salix</i> spp.	■ ■ ■	willows
Graminoids	Poaceae	■ ■	grass family
Forbs	<i>Cornus canadensis</i>	■ ■ ■ ■	bunchberry
	<i>Geocaulon lividum</i>	■ ■ ■	bastard toadflax
	<i>Spinulum annotinum</i>	■ ■ ■	stiff club-moss
	<i>Mertensia paniculata</i>	■ ■	tall bluebells
Bryophytes	<i>Hylocomium</i> / <i>Pleurozium</i>	■ ■ ■ ■	feathermosses
	<i>Polytrichum juniperinum</i>	■ ■	juniper haircap moss
Lichens	<i>Cladina</i> spp.	■ ■ ■	reindeer lichens
	<i>Cladonia</i> spp.	■ ■	clad lichens
	<i>Peltigera</i> spp.	■ ■ ■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ ■ 1 – 3	■ ■ ■ 3 – 10	■ ■ ■ ■ 10 – 25	■ ■ ■ ■ ■ >25

PSwW25 Pine – White spruce – Alaska birch / Alder / Feathermoss

PSwW25 is a mixed-wood pine – white spruce – Alaska birch woodland or forest with green alder and a feather-moss bryophyte layer that occurs in the BOL and sometimes the BOH.

Vegetation: Stands of PSwW25 have a tree canopy of pine (*Pinus contorta*), white spruce (*Picea glauca*) and Alaska birch (*Betula neoalaskana*), sometimes with a minor component of aspen (*Populus tremuloides*). The shrub layer is moderately well developed to well developed, with green alder (*Alnus alnobetula*) and willows (*Salix* spp.). Twinflower (*Linnaea borealis*) is common in the ground shrub layer. The forb layer is lightly developed, with one-sided wintergreen (*Orthilia secunda*) and pink wintergreen (*Pyrola asarifolia*) being most common. Moss cover varies, with feathermosses (*Hylocomium splendens*, *Pleurozium schreberi*, *Ptilium crista-castrensis*) dominating.

Environment: This association occurs at moderate elevations, mostly on gentle to moderately steep middle slopes. Parent materials are morainal or colluvial. Based on limited data, soils are classified as Eutric Brunisols. The forest floor has a light cover of woody debris.

Dynamics: Stands on similar sites can be strongly dominated by pine (P23), birch (W25) or mixes (such as SwW28, AP22). Dominance after disturbance depends on the presence of local seed sources.

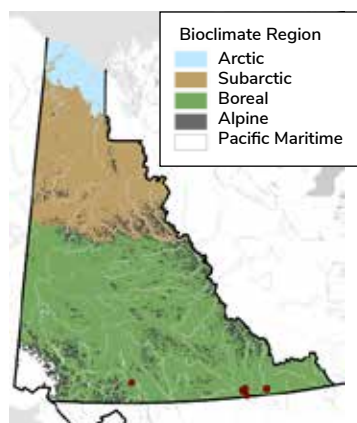
Comments

- Key characteristics: mixed-wood pine – white spruce – Alaska birch stand; mesic upland; green alder $\geq 10\%$; low herb cover; moderate to high feathermoss cover
- CNVC association not yet determined



PSwW25 Environment table

Zone	BOL (BOH)
Elevation (m)	750 – 870 – 970
Aspect	variable (neutral)
Slope (%)	5 – 27 – 53
Soil moisture regime	submesic to mesic
Soil drainage	well
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	1 – 3 – 5 (decaying wood)
Soil class	Brunisols (Eutric)

**PSwW25 Vegetation summary (%)**

Trees	2 – 22 – 70	Shrubs	30 – 70 – 99	Ground shrubs	0.5 – 9 – 25
Graminoids and forbs	5 – 25 – 65	Bryophytes	1 – 16 – 45	Lichens	0 – 0 – 2

Layer	Scientific name	PSwW25	Common name
		n = 5	
Trees	<i>Betula neoalaskana</i>	■■■■■	Alaska birch
	<i>Picea glauca</i>	■■■	white spruce
	<i>Pinus contorta</i>	■■■■■	lodgepole pine
Shrubs	<i>Alnus alnobetula</i>	■■■■■	green alder
	<i>Rosa acicularis</i>	■■■	prickly rose
	<i>Salix</i> spp.	■■	willows
Ground shrubs	<i>Linnaea borealis</i>	■	twinline
Graminoids	Poaceae	■■	grass family
Forbs	<i>Chamaenerion angustifolium</i>	■	fireweed
	<i>Cornus canadensis</i>	■■	bunchberry
	<i>Geocaulon lividum</i>	■■	bastard toadflax
	<i>Orthilia secunda</i>	■	one-sided wintergreen
	<i>Pyrola asarifolia</i>	■	pink wintergreen
Bryophytes	<i>Dicranum</i> spp.	■■	heron's-bill mosses
	<i>Hylocomium splendens</i>	■■■■■	step moss
	<i>Pleurozium schreberi</i>	■■■■■	red-stemmed feathermoss
	<i>Ptilium crista-castrensis</i>	■■	knight's plume
Lichens	<i>Cladina</i> spp.	■	reindeer lichens
	<i>Cladonia</i> spp.	■■	clad lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

SwW28 White spruce – Alaska birch / Green alder / Step moss

SwW28 is a mixed-wood white spruce – Alaska birch forest with green alder, prickly rose and step moss that occurs in the BOL and sometimes in the BOH or SUW.

Vegetation: Stands of SwW28 have a tree canopy of white spruce (*Picea glauca*) and Alaska birch (*Betula neoalaskana*), sometimes with a component of aspen (*Populus tremuloides*). The well-developed shrub layer is comprised mostly of green alder (*Alnus alnobetula*), with some prickly rose (*Rosa acicularis*), common Labrador tea (*Rhododendron groenlandicum*) and/or willows (*Salix* spp.). The ground shrubs lowbush cranberry (*Vaccinium vitis-idaea*) and twinflower (*Linnaea borealis*) are often present. The forb layer is mostly lightly developed, with tall bluebells (*Mertensia paniculata*) common. Step moss (*Hylocomium splendens*) dominates the forest floor.

Environment: This association occurs at low to moderate elevations on gentle to moderately steep middle slopes. Parent materials are mostly colluvial, but can be morainal. Soils are mostly classified as Brunisols (Dystric, Eutric), but Cryosols (Static) occasionally occur. The forest floor has moderate cover of woody debris.

Dynamics: Stands on similar sites can be strongly dominated by birch (W25), aspen (A29) or mixed-wood (SwW24, PSwW25, AP22). Dominance after disturbance depends on the presence of local seed sources.

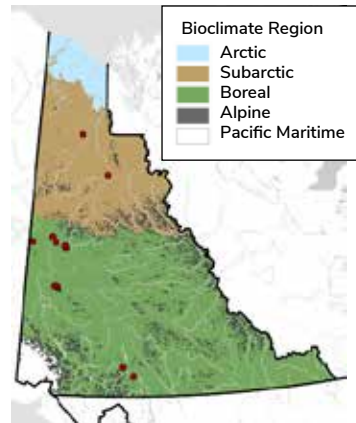
Comments

- Key characteristics: mixed-wood white spruce – Alaska birch stand; mesic upland; green alder $\geq 10\%$; moderate to high step moss cover
- Component of CNVC00410 White Spruce – Alaska Birch / Green Alder / Step Moss



SwW28 Environment table

Zone	BOL (BOH , SUW)
Elevation (m)	365 – 740 – 1080
Aspect	neutral (warm, cool)
Slope (%)	10 – 28 – 70
Soil moisture regime	submesic to mesic
Soil drainage	well
Permafrost presence/depth (cm)	occasional
Unvegetated cover (%)	5 – 6 – 10 (decaying wood)
Soil class	Brunisols (Dystric, Eutric), Cryosols

**SwW28 Vegetation summary (%)**

Trees	40 – 40 – 75	Shrubs	10 – 36 – 55	Ground shrubs	0.1 – 10 – 55
Graminoids and forbs	2 – 11 – 25	Bryophytes	10 – 50 – 85	Lichens	0 – 2 – 7

Layer	Scientific name	SwW28	Common name
		n = 14	
Trees	<i>Betula neoalaskana</i>	■■■■■	Alaska birch
	<i>Picea glauca</i>	■■■■■	white spruce
Shrubs	<i>Betula neoalaskana</i>	■ ■	Alaska birch
	<i>Picea glauca</i>	■ ■ ■	white spruce
	<i>Alnus alnobetula</i>	■■■■■	green alder
	<i>Rhododendron groenlandicum</i>	■ ■	common Labrador tea
	<i>Rosa acicularis</i>	■■■	prickly rose
	<i>Salix</i> spp.	■ ■	willows
Ground shrubs	<i>Linnaea borealis</i>	■ ■	twinline
	<i>Vaccinium vitis-idaea</i>	■■■	lowbush cranberry
Graminoids	Poaceae	■■	grass family
Forbs	<i>Geocaulon lividum</i>	■ ■	bastard toadflax
	<i>Mertensia paniculata</i>	■■	tall bluebells
Bryophytes	<i>Hylocomium splendens</i>	■■■■■	step moss

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

SwW29 White spruce – Alaska birch / Green alder – Labrador tea

SwW29 is a mixed-wood white spruce – Alaska birch forest with green alder, common Labrador tea and step moss that occurs in the BOL and sometimes in the BOH.

Vegetation: Stands of SwW29 have a tree canopy of white spruce (*Picea glauca*) and Alaska birch (*Betula neoalaskana*), sometimes with a component of pine (*Pinus contorta*) or aspen (*Populus tremuloides*). The well-developed shrub layer is dominated by green alder (*Alnus alnobetula*), common Labrador tea (*Rhododendron groenlandicum*) and prickly rose (*Rosa acicularis*), often with willows (*Salix* spp.). Lowbush cranberry (*Vaccinium vitis-idaea*) characterizes the ground shrub layer. A feathermoss (*Hylocomium splendens*, *Pleurozium schreberi*) carpet blankets the forest floor.

Environment: This association occurs at moderate elevations on gentle to moderate slopes with cool or neutral aspects. Based on somewhat limited data, parent materials are colluvial. Soils are classified as Brunisols (Dystric, Eutric). The forest floor has moderate cover of woody debris, sometimes with rocks.

Dynamics: Stands on similar sites can be strongly dominated by birch (W28), pine (P24), spruce (Sw29) or mixed-wood (SwW28, SwW30, PSwW25, AP22). Dominance after disturbance depends on the presence of local seed sources.

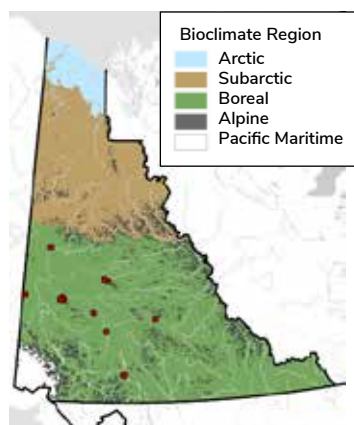
Comments

- Key characteristics: mixed-wood white spruce – Alaska birch stand; mesic upland; green alder $\geq 10\%$ and common Labrador tea $\geq 10\%$; moderate lowbush cranberry; high feathermoss cover
- Component of CNVC00411 White Spruce – Alaska Birch / Labrador Tea / Step Moss



SwW29 Environment table

Zone	BOL (BOH)
Elevation (m)	760 – 860 – 990
Aspect	neutral, cool (warm)
Slope (%)	5 – 27 – 40
Soil moisture regime	submesic to mesic
Soil drainage	well to moderately well
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	1 – 10 – 30 (decaying wood, rocks)
Soil class	Brunisols (Dystric, Eutric)

**SwW29 Vegetation summary (%)**

Trees	11 – 48 – 99	Shrubs	45 – 75 – 99	Ground shrubs	2 – 20 – 70
Graminoids and forbs	1 – 12 – 25	Bryophytes	10 – 50 – 90	Lichens	0.1 – 8 – 35

Layer	Scientific name	SwW29	Common name
		n = 14	
Trees	<i>Betula neoalaskana</i>	■■■■■	Alaska birch
	<i>Picea glauca</i>	■■■■■	white spruce
Shrubs	<i>Betula neoalaskana</i>	■■■	Alaska birch
	<i>Alnus alnobetula</i>	■■■■■	green alder
	<i>Rhododendron groenlandicum</i>	■■■■■	common Labrador tea
	<i>Rosa acicularis</i>	■■■	prickly rose
	<i>Salix</i> spp.	■■■	willows
Ground shrubs	<i>Vaccinium vitis-idaea</i>	■■■■■	lowbush cranberry
Graminoids	Poaceae	■■	grass family
Forbs	<i>Mertensia paniculata</i>	■	tall bluebells
Bryophytes	<i>Hylocomium</i> / <i>Pleurozium</i>	■■■■■	feathermosses
Lichens	<i>Cladina</i> spp.	■■	reindeer lichens
	<i>Cladonia</i> spp.	■■	clad lichens
	<i>Peltigera</i> spp.	■■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

SwW30 **White spruce – Alaska birch / Labrador tea**

SwW30 is a mixed-wood white spruce – Alaska birch forest with Labrador tea, lowbush cranberry and step moss that occurs in the BOL and BOH.

No photo
available

Vegetation: Stands of SwW30 have a tree canopy of white spruce (*Picea glauca*) and Alaska birch (*Betula neoalaskana*). The well-developed shrub layer is dominated by common Labrador tea (*Rhododendron groenlandicum*). Prickly rose (*Rosa acicularis*), willows (*Salix* spp.) and blueberry (*Vaccinium uliginosum*) are often present. Lowbush cranberry (*Vaccinium vitis-idaea*) is prominent in the ground shrub layer, often with some crowberry (*Empetrum nigrum*). The forb layer includes tall bluebells (*Mertensia paniculata*). A feathermoss carpet, dominated by step moss (*Hylocomium splendens*), blankets the forest floor.

Environment: SwW30 occurs at moderate elevations on gentle to moderately steep middle slopes. Based on limited data, parent materials are colluvial or sometimes, volcanic. Soils are classified as Brunisols (Dystric).

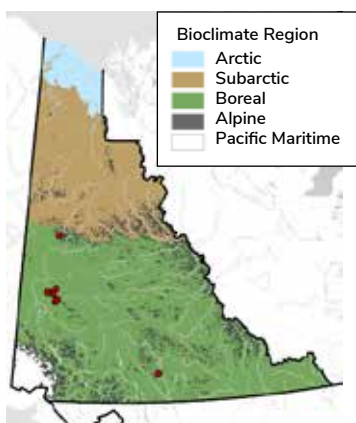
Dynamics: Stands on similar sites can be strongly dominated by birch (W28), pine (P24), spruce (Sw29) or mixed-wood (SwW28, SwW30, PSwW25, AP22). Dominance after disturbance depends on the presence of local seed sources.

Comments

- Key characteristics: mixed-wood white spruce – Alaska birch stand; mesic upland; common Labrador tea $\geq 10\%$; green alder, if present, $< 10\%$; moderate lowbush cranberry; high feathermoss cover
- Component of CNVC00411 White Spruce – Alaska Birch / Labrador Tea / Step Moss

SwW30 Environment table

Zone	BOL, BOH
Elevation (m)	730 – 930 – 1120
Aspect	variable
Slope (%)	7 – 33 – 55
Soil moisture regime	submesic to mesic
Soil drainage	well to moderately well
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	no data
Soil class	Brunisols (Dystric) (limited data)

**SwW30 Vegetation summary (%)**

Trees	10 – 38 – 70	Shrubs	20 – 55 – 99	Ground shrubs	2 – 20 – 50
Graminoids and forbs	0 – 12 – 40	Bryophytes	3 – 60 – 85	Lichens	0.1 – 8 – 45

Layer	Scientific name	SwW30	Common name
		n = 22	
Trees	<i>Betula neoalaskana</i>	■ ■ ■ ■	Alaska birch
	<i>Picea glauca</i>	■ ■ ■ ■	white spruce
Shrubs	<i>Betula neoalaskana</i>	■ ■ ■	Alaska birch
	<i>Picea glauca</i>	■ ■	white spruce
	<i>Rhododendron groenlandicum</i>	■ ■ ■ ■ ■	common Labrador tea
	<i>Rosa acicularis</i>	■ ■	prickly rose
	<i>Salix</i> spp.	■ ■ ■	willows
	<i>Vaccinium uliginosum</i>	■ ■	blueberry
Ground shrubs	<i>Empetrum nigrum</i>	■ ■	crowberry
	<i>Vaccinium vitis-idaea</i>	■ ■ ■ ■	lowbush cranberry
Graminoids	Poaceae	■ ■ ■	grass family
Forbs	<i>Geocaulon lividum</i>	■ ■	bastard toadflax
	<i>Mertensia paniculata</i>	■ ■	tall bluebells
Bryophytes	<i>Hylocomium splendens</i>	■ ■ ■ ■ ■	step moss
Lichens	<i>Cladina</i> spp.	■ ■ ■	reindeer lichens
	<i>Peltigera</i> spp.	■ ■	pelt lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■ ■ 1 – 3	■ ■ ■ 3 – 10	■ ■ ■ ■ 10 – 25	■ ■ ■ ■ ■ >25

SwW34 **White spruce – Alaska birch / Red-osier dogwood – Highbush cranberry / Horsetail**

SwW34 is a mixed-wood white spruce – birch forest with prickly rose, highbush cranberry and horsetails that occurs in the BOL and sometimes in the BOH.

No photo
available

Vegetation: SwW34 stands have a mixed-wood tree canopy of white spruce (*Picea glauca*) and Alaska birch (*Betula neoalaskana*) or paper birch (*B. papyrifera*), sometimes with minor balsam poplar (*Populus balsamifera*) or aspen (*P. tremuloides*). The shrub layer is comprised of prickly rose (*Rosa acicularis*) and highbush cranberry (*Viburnum edule*), usually with red-osier dogwood (*Cornus sericea*), alder (*Alnus alnobetula*, *A. incana*) or currants (*Ribes* spp.). Moderate to high cover of horse-tails (*Equisetum arvense*, *E. pratense*) characterizes the understorey. Step moss (*Hylocomium splendens*) dominates the forest floor.

Environment: This association occurs mostly at low elevations on level sites or gentle slopes. Soil data are very limited, but sites are likely along rivers, with some subsurface flooding, or on slopes with some seepage. The forest floor can have moderate cover of woody debris.

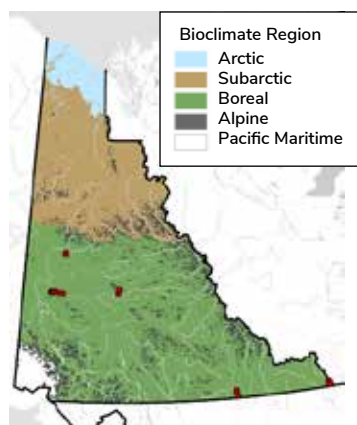
Dynamics: Stands on similar sites can be strongly dominated by birch (W29), white spruce (Sw18, Sw36) or mixed-wood (such as SbSwW34). Dominance after disturbance depends on the presence of local seed sources.

Comments

- Key characteristics: mixed-wood white spruce and Alaska/paper birch stand; moist upland slope or fluvial bench; prickly rose, highbush cranberry, horsetails, usually high feathermoss cover
- Component of CNVC00079 White Spruce – Paper Birch (Aspen) / Common Horsetail – Meadow Horsetail

SwW34 Environment table

Zone	BOL (BOH)
Elevation (m)	365 – 520 – 860
Aspect	neutral (neutral, cool)
Slope (%)	0 – 3 – 27
Soil moisture regime	subhygric
Soil drainage	well to imperfect
Permafrost presence/depth (cm)	absent
Unvegetated cover (%)	10 – 15 – 25 (limited data)
Soil class	no data

**SwW34 Vegetation summary (%)**

Trees	10 – 35 – 70	Shrubs	15 – 50 – 90	Ground shrubs	0 – 10 – 45
Graminoids and forbs	10 – 35 – 95	Bryophytes	0 – 33 – 85	Lichens	0 – 1 – 3

Layer	Scientific name	SwW34	Common name
		n = 35	
Trees	<i>Betula alaskana</i> / <i>papyrifera</i>	■■■■■	Alaska / paper birch
	<i>Picea glauca</i>	■■■■■	white spruce
Shrubs	<i>Betula alaskana</i> / <i>papyrifera</i>	■■■	Alaska / paper birch
	<i>Cornus sericea</i>	■■■	red-osier dogwood
	<i>Rosa acicularis</i>	■■■■■	prickly rose
	<i>Viburnum edule</i>	■■■	highbush cranberry
Ground shrubs	<i>Linnaea borealis</i>	■■	twinline
Graminoids	<i>Calamagrostis canadensis</i>	■■	bluejoint reedgrass
Forbs	<i>Cornus canadensis</i>	■■■	bunchberry
	<i>Equisetum arvense</i> / <i>pratense</i>	■■■■■	common / meadow horsetail
	<i>Mertensia paniculata</i>	■■	tall bluebells
	<i>Mitella nuda</i>	■■	naked mitrewort
	<i>Rubus pubescens</i>	■■■	dwarf raspberry
Bryophytes	<i>Hylocomium splendens</i>	■■■■■	step moss

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

SwW37 White spruce – Alaska birch / Alder / Peat moss

SwW37 is a mixed-wood white spruce – Alaska / water birch swamp with alder, Labrador teas, willows, sedges, step moss and peat moss that occurs in the BOL and BOH and sometimes in the SUW. This association is a component of the SbSw – Alder – Labrador tea – Peat Moss Swamp ecosite (S15).

Vegetation: Stands have a mixed-wood tree canopy of white spruce (*Picea glauca*) and Alaska birch (*Betula neoalaskana*) or water birch (*B. occidentalis*). The shrub layer is characterized by alders (*Alnus alnobetula*, *A. incana*), Labrador teas (*Rhododendron groenlandicum*, *R. tomentosum*), blueberry (*Vaccinium uliginosum*) and willows (*Salix* spp.). Lowbush cranberry (*Vaccinium vitis-idaea*) characterizes the ground shrub layer; and sedges (*Carex* spp.) characterize the graminoid layer. Peat mosses (*Sphagnum* spp.) are of moderate to high cover, accompanied by moderate to high cover of step moss (*Hylocomium splendens*) and red-stemmed feathermoss (*Pleurozium schreberi*).



Environment: SwW37 occurs mostly at low to moderately high elevations on level sites or gentle to moderate, neutral-aspect slopes. Soils are characterized by a thick peaty layer over various parent materials. Soils are classified as Gleysols, Turbic Cryosols and Folisols. The forest floor may have light to moderate cover of woody debris.

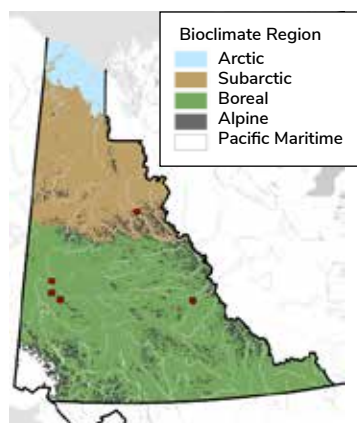
Dynamics: Stands on similar sites can be strongly dominated by black spruce (Sb35), white spruce (Sw37) or mixes (SbW36). Dominance after disturbance depends on the presence of local seed sources.

Comments

- Key characteristics: mixed-wood white spruce and Alaska/water birch swamp; alder, willow, Labrador teas; moderate to high cover of both peat mosses and feathermosses
- CNVC association not yet determined

SwW37 Environment table

Zone	BOL, BOH (SUW)
Elevation (m)	535 – 920 – 1245
Aspect	neutral (neutral)
Slope (%)	2 – 16 – 35
Soil moisture regime	hygric
Soil drainage	imperfect to poor
Permafrost presence/depth (cm)	occasional; more likely at depth
Unvegetated cover (%)	2 – 6 – 10
Soil class	Gleysols, Cryosols

**SwW37** Vegetation summary (%)

Trees	0 – 15 – 25	Shrubs	40 – 80 – 99	Ground shrubs	2 – 20 – 45
Graminoids and forbs	2 – 14 – 35	Bryophytes	35 – 65 – 95	Lichens	0 – 15 – 30

Layer	Scientific name	SwW37	Common name
		n = 5	
Trees	<i>Picea glauca</i>	■■■	white spruce
Shrubs	<i>Betula neoalaskana / occidentalis</i>	■■■	Alaska / water birch
	<i>Picea glauca</i>	■■■	white spruce
	<i>Betula glandulosa</i>	■■■■	shrub birch
	<i>Rhododendron</i> spp.	■■■■■	Labrador teas
	<i>Salix</i> spp.	■■■■■	willows
	<i>Vaccinium uliginosum</i>	■■■■■	blueberry
Ground shrubs	<i>Vaccinium vitis-idaea</i>	■■■	lowbush cranberry
Graminoids	<i>Carex</i> spp.	■■■	sedges
	Poaceae	■■	grass family
Bryophytes	<i>Hylocomium splendens</i>	■■■■■	step moss
	<i>Pleurozium schreberi</i>	■■■■■	red-stemmed feathermoss
	<i>Sphagnum</i> spp.	■■■■■	peat mosses
Lichens	<i>Cladina</i> spp.	■■■	reindeer lichens

Frequency (%)	□ 25 – 50	■ 50 – 70	■ 70 – 100		
Mean cover (%)	■ <1	■■ 1 – 3	■■■ 3 – 10	■■■■ 10 – 25	■■■■■ >25

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