TABLE 8. Summary of climate data for biogeoclimatic units [a]

Climatic Characteristics		Biogeoclimatic Unit SBSdk	SBSdw2	SBSdw3	SBSmk1	SBSmc2	SBSmc3	SBPSmc
Annual Precipitation (mm)	**Mean**	480.6	552.9	494.4	727.4	574.4	505.6	N/A
	Range	415.9 - 586.3	427.0 - 648.5	N/A	628.3 - 838.2	460.1	N/A	N/A
Growing Season Precipitation (mm)	**Mean**	211.0	274.8	259.4	272.6	229.4	261.4	195.9
	Range	167.4 - 323.0	248.0 - 296.3	224.1 - 298.4	196.8 - 432.0	139.4 - 348.9	242.8 - 288.7	156.0 - 235.5
Annual Snowfall (cm)	**Mean**	188.1	204.1	204.2	306.3	237.1	197.1	N/A
	Range	121.9 - 265.2	169.8 - 225.8	N/A	241.7 - 355.5	177.3 - 264.0	N/A	N/A
Annual Temperature (°C)	**Mean**	2.1	3.4	2.6	1.5	1.5	0.6	0.8
	Range	0.8 - 3.5	2.0 - 4.4	1.3 - 3.5	-0.2 - 3.3	-0.7 - 3.6	N/A	0.7 - 0.8
Growing Degree-days (>5°C)	**Mean**	1028	1224	1089	975	947	N/A	N/A
	Range	884 - 1145	1072 - 1409	N/A	751 - 1198	844 - 1012	N/A	N/A
Frost-free Period (days)	**Mean**	70	105	83	73	116	18	N/A
	Range	39 - 103	94 - 122	N/A	43 - 92	106 - 125	N/A	N/A

[a] Reynolds, G. 1989. Climatic data summaries for the biogeoclimatic zones of British Columbia. B.C. Min. For., Research Branch, Victoria, B.C. Unpublished report.

TABLE 9. Some important wildlife species that use biogeoclimatic units in the West Central guide area

Species	Occurrence in Variants							
	SBSdk	SBSdw2	SBSdw3	SBSmc2	SBSmc3	SBSmk1	SBPSmc	ESSFmv1
Moose (winter range)	*	*	*		*	*	*	
Mule Deer (winter range)	*	*	*	*	*		*	
White-tailed Deer	*		*		*	*		
Elk			*					
Caribou[a]	*				*		*	*
Grizzly Bear[a]	*	*	*	*	*	*	*	*
Furbearers	*	*	*	*	*	*	*	*

[a] Denotes species "blue listed" in 1989 by the Ministry of Environment. Because of major declines in their populations, they are considered sensitive and/or deserving of management attention.

4.7 Moist Cold Sub-Boreal Pine - Spruce [18]

Location
The SBPSmc occurs in the western portions of the guide area, generally at elevations between 900 and 1200 m. In the guide area, it is bordered by the SBSmc3 to the east and SBSdk to the north (Figure 1).

Elevation range
850 - 1300 m

Climate
The climate, due to its position on a high plateau on the lee side of the Coast Mountains, is relatively dry and cold. The SBPSmc has the driest climate of the biogeoclimatic units described. The summers are dry and short, limiting forest productivity in this unit. It has the shortest growing season of any of the units described, with the exception of the ESSFmv1.

Soils, Geology, and Landforms
Bedrock in this subzone is predominantly volcanic (andesite and basalt) of Tertiary age. Parent materials are dominantly morainal, with gravelly loam textures. The associated soils are Gray Luvisols, including Brunisolic Gray Luvisols. Dystric Brunisols have formed on coarser morainal and glaciofluvial materials with gravelly loamy sand and sand textures.

Distinguishing the SBPSmc from adjoining biogeoclimatic units
SBSdk has:
- generally better developed shrub and herb layers, especially on mesic sites;
- trembling aspen in the canopy; and
- purple peavine but less kinnikinnick in the herb layer, especially on mesic sites.

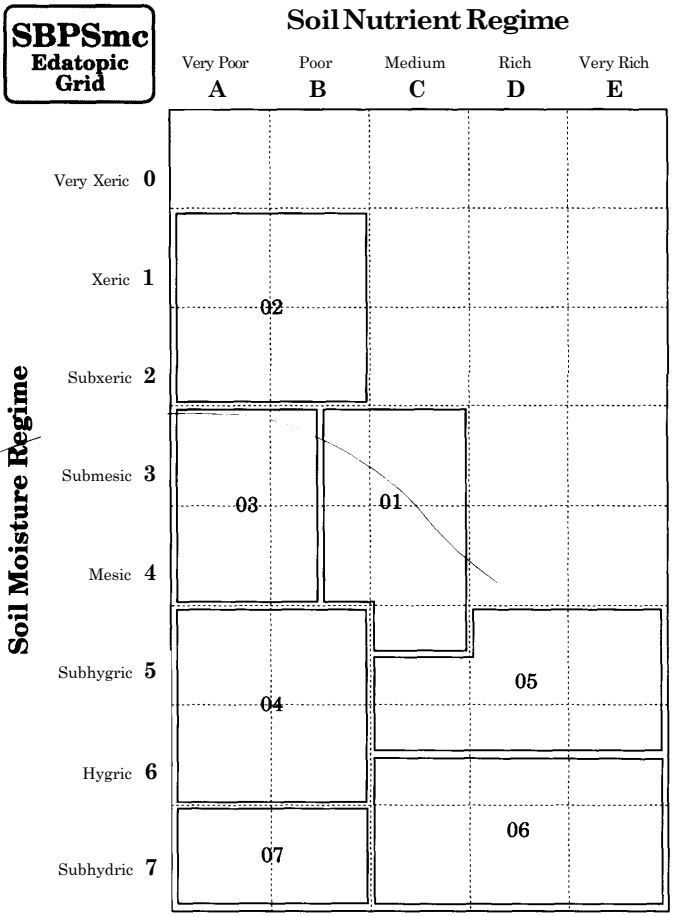
SBSmc3 has:
- subalpine fir in the canopy; and
- more trailing raspberry but less kinnikinnick in the herb layer, especially on mesic sites.

ESSFmv1 has:
- subalpine fir in the canopy;
- white-flowered rhododendron but no prickly rose in shrub layer; and
- heart-leaved arnica but no kinnikinnick in the herb layer, especially on mesic sites.

Forests
Recurrent fires have ensured that climax forests are dominated by lodgepole pine. Hybrid white spruce occurs on moisture-receiving sites. Black spruce occurs in wetlands and also on upland sites on poor soils in combination with lodgepole pine. Black cottonwood occurs along streams and rivers, and is often associated with hybrid white spruce. Forest productivity is low, being limited by the dry, short growing season.

[18] formerly SBSa

Wildlife
Dry pine-dominated sites within this unit with abundant terrestrial lichen provide critical winter habitat for woodland caribou Older spruce and pine forests provide arboreal lichen that can be important for the caribou, especially in winters with high snowfall. Shrub-dominated wetlands below 1000 m elevation provide important winter habitat for moose. This wetland habitat also supports furbearers such as beaver, muskrat, mink, and otter. Sub-boreal coniferous forests are used by moose, mule deer, grizzly bear, black bear, white-tailed deer, spruce grouse, and furbearers, such as wolverine, marten and red squirrel.



01 Pl- Feathermoss - Cladina
02 Pl- Kinnikinnick - Cladonia
03 SbPl - Feathermoss
04 Sxw - Scrub birch - Feathermoss
05 Sxw - Horsetail
06 Sxw - Horsetail - Glow moss
07 SbSxw - Scrub birch - Sedge

FIGURE 21. Edatopic grid displaying site units in the SBPSmc subzone.

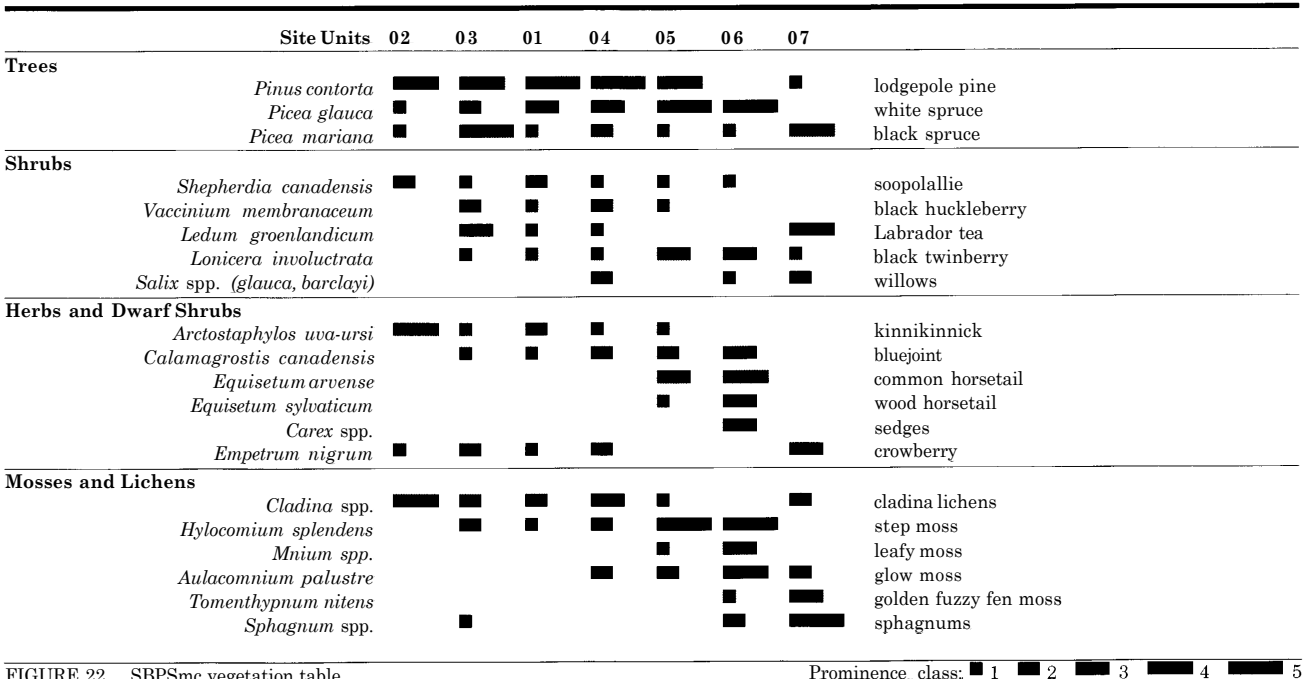


FIGURE 22. SBPSmc vegetation table.

6a Canopy generally pure lodgepole pine; sparse shrub layer; herb layer sparse and dominated by *Arctostaphylos uva-ursi* (p.82); moss layer dominated by lichens; generally on coarse-textured glaciofluvial soils.

SBPSmc/02

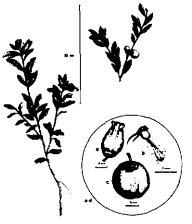
6b Canopy pure lodgepole pine or mixed lodgepole pine and white spruce; herb layer better developed and dominated by other species; moss layer comprised of feathermosses and lichens; on medium- to coarse-textured morainal and glaciofluvial soils.

SBPSmc/01

SBPSmc/01

P1 - Feathermoss - Cladina

Shepherdia canadensis



Arctostaphylos uva-ursi

Pleurozium schreberi

VEGETATION

Tree Layer: 35% cover
lodgepole pine, white spruce

Shrub Layer: 20% cover

Shepherdia canadensis	(soopolallie)
[Rosa acicularis	(prickly rose)]
[Spiraea betulifolia:	(birch-leaved spirea)]
[Juniperus communis	(common juniper)]
white spruce	
[lodgepole pine]	

Herb Layer: 20% cover

Cornus canadensis	(bunchberry)
Arctostaphylos uva-ursi	(kinnikinnick)
Linnaea borealis	(twinflower)
Vaccinium caespitosum	(dwarf blueberry)
[Epilobium angustifolium	(fireweed)]
[Calamagrostis canadensis	(bluejoint)]

Moss Layer: 75% cover

Pleurozium schreberi	(red-stemmed feathermoss)
Peltigera spp.	(peltigera lichens)
Cladina spp.	(cladina lichens)
[Hylocomium splendens	(stepmoss)]
[Ptilium crista-castrensis	(knight's plume)]
[Dicranum spp.	(dicranum mosses)]

SOIL AND SITE

Moisture Regime:	3-5 (sm-shg)
Nutrient Regime:	B-C (p-m)
Slope Gradient (%):	0-65
Slope Position:	variable
Parent Material:	morainal or glaciofluvial
Soil Texture:	variable
Coarse Fragments (%):	not available

DISTRIBUTION: very common, widespread, and often large

Pl- Feathermoss - Cladina (SBPSmc/01)

INTERPRETATIONS

Site limitations:
- sites within this unit with thick organic horizons (> 10 cm) have reduced spring soil temperatures, which slows root development; ***reduce organic horizon thickness during site preparation.***

Silviculture system:
- see Section 5.1
- minimize or align large slash accumulations when logging to help meet site preparation objectives.

Site preparation:
- light scarification for seedbed preparation or summer logging with no site preparation.

Species choice:
- Pl ***(Sb, Sx)***

Vegetation potential:
- low

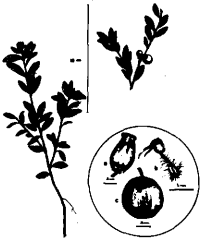
Reforestation:
- attempt to regenerate naturally if potential exists.
- if natural regeneration is not feasible, plant Pl stock without site preparation.
- Sx and Sb are generally not as productive as Pl.

Concerns:
- site conditions may lead to frost damage of regeneration, especially in any naturally occurring or artificially created depression; ***leaving a partial canopy and/or choosing a frost-resistant species (eg., Pl) is advised.***
- sites within this unit with shallow and/or coarse textured soils are vulnerable to nutrient deficiency if forest floors are reduced; ***site preparation methods that reduce forest floor thickness, such as slashburning or brushblading, must be avoided.***
- full tree harvesting will lead to nutrient depletion and seriously reduce cones; ***woody debris and cones should be distributed across these sites (ie., lop and scatter)***
- high windthrow hazard if effective rooting depth < 30 cm.
- sites with terrestrial lichen cover are valuable for caribou winter habitat, so prescription should be discussed with wildlife personnel.

SBPSmc/02

Pl- Kinnikinnick - Cladonia

Shepherdia canadensis



Arctostaphylos uva-ursi

Cladonia spp.

VEGETATION

Tree Layer: 20% cover
lodgepole pine

Shrub Layer: 40% cover

Shepherdia canadensis	(soopolallie)
Spiraea betulifolia	(birch-leaved spirea)
lodgepole pine	

Herb Layer: 20% cover

Arctostaphylos uva-ursi	(kinnikinnick)
Vaccinium caespitosum	(dwarf blueberry)
[Oryzopsis spp.	(ricegrasses)]

Moss layer: 95% cover

Cladina spp.	(cladina lichens)
Cladonia spp.	(cladonia lichens)
Peltigera spp.	(peltigera lichens)
Stereocaulon spp.	(coral lichens)
[Pleurozium schreberi	(red-stemmed feathermoss)]

SOIL AND SITE

Moisture Regime:	1-2 (x-sx)
Nutrient Regime:	A-B (vp-p)
Slope Gradient (%):	0-44
* Slope Position:	upper - crest
Parent Material:	glaciofluvial, or colluvial veneers
* Soil Texture:	moderately coarse - coarse
Coarse Fragments (%):	not available

DISTRIBUTION: common, but localized on eskers and other glaciofluvial landforms

Pl - Kinnikinnick - Cladonia (SBPSmc/02)

INTERPRETATIONS

Site limitations:
- site and soil conditions of this unit result in marginal forest productivity and sites have high value as caribou winter habitat; ***serious consideration should be given to excluding logging from this unit.***
- sites within this unit with high coarse fragment content (> 70%) will have significantly reduced soil moisture retention and will be extremely difficult to plant; ***attempt to regenerate naturally by retaining Pl cones.***

Silviculture system:
- see Section 5.1

Site preparation:
- no site preparation

Species choice:
- Pl, ***(Sx, Sb)***

Vegetation potential:
- low

Reforestation:
- attempt to regenerate naturally if potential exists.
- if natural regeneration is not feasible, plant Pl without site preparation.
- Sx and Sb are significantly less productive than Pl on these sites.

Concerns:
- full tree harvesting will lead to nutrient depletion and seriously reduce cones; ***woody debris and cones should be distributed across these sites (i.e. lop and scatter).***

SBPSmc/03

SbPl - Feathermoss

Ledum groenlandicum

Empetrum nigrum

Pleurozium schreberi

VEGETATION

Tree Layer: 50% cover
lodgepole pine, black spruce

Shrub Layer: 25% cover

Ledum groenlandicum	(Labrador tea)
Vaccinium membranaceum	(black huckleberry)
[Lonicera involucrata	(black twinberry)]
[Rosa acicularis	(prickly rose)]
black spruce	

Herb Layer: 20% cover

Empetrum nigrum	(crowberry)
Petasites frigidus var. *palmatus*	(palmate coltsfoot)
Cornus canadensis	(bunchberry)
Linnaea borealis	(twinflower)
[Lycopodium annotinum	(stiff clubmoss)]

Moss Layer: 85% cover

Pleurozium schreberi	(red-stemmed feathermoss)
Ptilium crista-castrensis	(knight's plume)
Hylocomium splendens	(step moss)
Peltigera spp.	(peltigera lichens)
[Cladina spp.	(cladina lichens)]

SOIL AND SITE

Moisture Regime:	3-4 (sm-m)
Nutrient Regime:	A-B (vp-p)
Slope Gradient (%):	0-20
* Slope Position:	mid or level
* Aspect:	generally northerly
Parent Material:	morainal blankets with glaciofluvial deposits
* Soil Texture:	medium - moderately coarse
Coarse fragments (%):	not available

DISTRIBUTION: scattered; most common on cool, northerly aspects

SbPl - Feathermoss (SBPSmc/03)

INTERPRETATIONS

Site limitations:
- compact soil layers and/or low aeration porosity associated with fine-textured soils will reduce rooting depth and decrease productivity over a rotation; ***regenerate naturally whenever possible.***
- soils are saturated in the spring, but may experience drought in summer, both resulting in poor root development; ***the poor productivity resulting from these limitations should dictate a limited intensive silvicultural investment.***
- sites within this unit with thick organic horizons (> 10 cm) have reduced spring soil temperatures, slowing root development; ***reduce organic horizon thickness during site preparation.***

Silviculture system:
- see Section 5.1
- minimize or align large slash accumulations when logging to help meet site preparation objectives and reduce fire hazard.

Site preparation:
- see Section 5.2

Species choice:
- Pl, ***(Sx, Sb)***

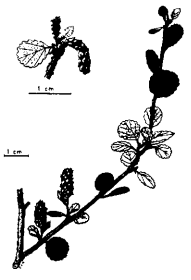
Vegetation potential:
- low

Reforestation:
- Sx and Sb are significantly less productive than Pl.
- attempt to regenerate naturally if potential exists.
- if natural regeneration is not feasible, plant Pl.

Concerns:
- full tree harvesting will lead to nutrient depletion and seriously reduce cones; ***woody debris and cones should be distributed across these sites (i.e. lop and scatter).***
- sites within this unit with fine-textured soils are vulnerable to compaction under wet conditions; ***restrict traffic to winter operations or dry soil conditions.***
- possible windthrow hazard if effective rooting depth is < 30 cm.

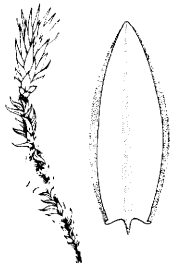
SBPSmc/04

Sxw - Scrub birch - Feathermoss



Betula glandulosa

Calamagrostis canadensis



Aulacomnium palustre

VEGETATION

Tree Layer: 50% cover
lodgepole pine, white spruce, [black spruce]

Shrub Layer: 25% cover

Betula glandulosa	(scrub birch)
[Rosa acicularis	(prickly rose)]
[Ledum groenlandicum	(Labrador tea)]
[Salix spp.	(willows)]

white spruce
[lodgepole pine]
[black spruce]

Herb Layer: 20% cover

Calamagrostis canadensis	(bluejoint)
Linnaea borealis	(twinflower)
Cornus camdensis	(bunchberry)
Empetrum nigrum	(crowberry)

Moss Layer: 75% cover

Pleurozium schreberi	(red-stemmed feathermoss)
Aulacomnium palustre	(glow moss)
Peltigera spp.	(peltigera lichens)
Cladina spp.	(cladina lichens)
Hylocomium splendens	(step moss)

SOIL AND SITE

Moisture Regime:	5-6 (shg-hg)
Nutrient Regime:	A-B (vp-p)
Slope Gradient (%):	2-4
* Slope Position:	lower and toe
Parent Material:	morainal
Soil Texture:	variable
Coarse Fragments (%):	not available
* Seepage Water:	often present

DISTRIBUTION: common, but generally localized as imperfectly drained fringes around wetlands

Sxw - Scrub birch - Feathermoss (SBPSmc/04)

INTERPRETATIONS

Site limitations:
- site and soil conditions of this unit result in marginal forest productivity; ***serious consideration should be given to exclude logging from this unit.***
- sites within this unit with saturated soils are poorly aerated, which slows root development; ***plant seedlings on naturally or artificially raised microsites.***
- sites within this unit with thick organic horizons (> 10 cm) have reduced spring soil temperatures, slowing root development; ***reduce organic horizon thickness during site preparation.***

Silviculture system:
- see Section 5.1
- minimize or align large slash accumulations when logging to help meet site preparation objectives and reduce fire hazard.

Site preparation:
- light scarification for seed bed preparation, light burn or disk trench (plant on berm).

Species choice:
- Pl, Sb, ***Sx***

Vegetation potential:
- low

Reforestation:
- do not accept advance Bl regeneration.
- attempt to regenerate naturally if potential exists.
- if natural regeneration is not feasible, plant Pl stock.

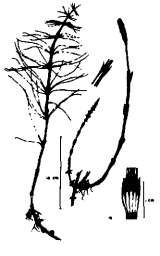
Concerns:
- sites within this unit with high water tables, combined with thick organic horizons (> 10 cm), increase the windthrow hazard; ***block layouts must have wind-firm boundaries, or a wide buffer of standing timber must be left around such sites.***
- site conditions may lead to frost damage of regeneration, especially in any naturally occurring or artificially created depression; ***leaving a partial canopy and/or choosing a frost-resistant species (eg., Pl) are advised.***
- sites within this unit with fine-textured soils are vulnerable to compaction under wet conditions; ***restrict traffic to winter operations or dry soil conditions.***
- water table may rise after logging, making the site non-productive and increasing rotation age of the stand.
- Warren's root collar weevil can cause mortality in young stands, especially where duff layers are thick.

SBPSmc/05

Sxw - Horsetail

Lonicera involucrata

Calamagrostis canadensis



Equisetum arvense

VEGETATION

Tree Layer: 55% cover
white spruce, lodgepole pine

Shrub Layer: 25% cover

Lonicera involucrata	(black twinberry)
Rosa acicularis	(prickly rose)
[Viburnum edule	(highbush-cranberry)]
[Alnus tenuifolia	(mountain alder)]
[Ribes lacustre	(black gooseberry)]
white spruce	

Herb Layer: 40% cover

Calamagrostis canadensis	(bluejoint)
Cornus canadensis	(bunchberry)
Equisetum arvense	(common horsetail)
Linnaea borealis	(twinflower)
Epilobium angustifolium	(fireweed)
Fragaria virginiana	(wild strawberry)
[Mitella nuda	(common mitrewort)]
[Petasites frigidus var. *palmatus*	(palmate coltsfoot)]

Moss Layer: 65% cover

Pleurozium schreberi	(red-stemmed feathermoss)
Ptilium crista-castrensis	(knight's plume)
Hylocomium splendens	(step moss)
Peltigera spp.	(peltigera lichens)
[Timmia austriaca	(false-polytrichum)]

SOIL AND SITE

Moisture Regime:	5-6 (shg-hg)
Nutrient Regime:	C-E (m-vr)
Slope Gradient (%):	2-14
* Slope Position:	lower - toe
* Parent Material.	usually fluvial, occasionally lacustrine or glaciofluvial
Soil Texture:	variable
Coarse Fragments (%):	not available
* Seepage Water:	often present

DISTRIBUTION: restricted to lower and toe slopes adjacent to streams and rivers

Sxw - Horsetail (SBPSmc/05)

INTERPRETATIONS

Site limitations: - sites within this unit with saturated soils are poorly aerated, which slows root development; ***plant seedlings on naturally or artificially raised microsites.***

Silviculture system: - see Section 5.1

Site preparation: - see Section 5.2
-creating an excessive number of mounds (eg., >300/ha) should be avoided, especially on sites within this unit with a water table < 30 cm from the surface.

Species choice: - Sx, ***[Pl]***

Vegetation potential: - high (black twinberry, fireweed, bluejoint)

Reforestation:
- advance regeneration should be preserved.
- supplement advance regeneration by planting sturdy stock in groups on available raised microsites.

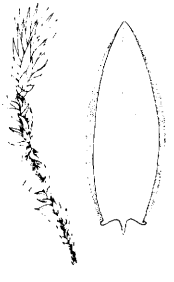
Concerns:
- site conditions may lead to frost damage of regeneration, especially in any naturally occurring or artificially created depression; ***leaving a partial canopy and/or choosing a frost resistant species (eg., Pl) are advised.***
- sites within this unit with fine-textured soils are vulnerable to compaction under wet conditions; ***restrict traffic to winter operations or dry soil conditions.***
- sites within this unit with thick organic horizons (> 10 cm) have an extreme windthrow hazard; ***block layouts must have wind-firm boundaries, or a wide buffer of standing timber must be left around such sites.***
- these units may represent important wildlife and fish habitat so prescription should be discussed with wildlife personnel.
- sites within this unit with silty soils are susceptible to frost-heaving; ***bare root stock will likely resist frost-heaving better than plug stock.***
- water table will likely rise above the ground surface in the spring causing seedling mortality.
- Warren's root collar weevil can cause mortality in young stands, especially where duff layers are thick.

SBPSmc/06

Sxw - Horsetail - Glowmoss

Lonicera involucrata

Equisetum arvense



Aulacomnium palustre

VEGETATION

Tree Layer: 35% cover
white spruce

Shrub Layer: 35% cover

Lonicera involucrata	(black twinberry)
Ribes lacustre	(black gooseberry)
Ribes hudsonianum	(northern black currant)
[Alnus tenuifolia	(mountain alder)]
[Rosa acicularis	(prickly rose)]

white spruce

Herb Layer: 70% cover

Equisetum arvense	(common horsetail)
Equisetum sylvaticum	(wood horsetail)
Calamagrostis canadensis	(bluejoint)
Carex spp.	(sedges)
Mitella nuda	(common mitrewort)
Cornus canadensis	(bunchberry)
Linnaea borealis	(twinflower)
[Rubus pubescens	(trailing raspberry)]
[Petasites frigidus var. *palmatus*	(palmate coltsfoot)]
[Gymnocarpium dryopteris	(oak fern)]

Moss Layer: 75% cover

Hylocomium splendens	(step moss)
Mnium spp.	(leafy mosses)
Aulacomnium palustre	(glowmoss)
Pleurozium schreberi	(red-stemmed feathermoss)
[Sphagnum spp.	(sphagnums)]
[Brachythecium spp.	(brachythecium mosses)]

SOIL AND SITE

Moisture Regime:	6-7 (hg-shd)
Nutrient Regime:	C-E (m-vr)
* Slope Gradient (%):	2-10
* Slope Position:	level and depressions
Parent Material:	morainal, fluvial, and organic blankets
* Soil Texture:	organic
Coarse Fragments (%):	not available
* Seepage Water:	always present

DISTRIBUTION: uncommon, and generally small

Sxw - Horsetail - Glowmoss (SBPSmc/06)

INTERPRETATIONS

Site limitations:
- site and soil conditions of this unit result in marginal forest productivity; ***serious consideration should be given to excluding logging from this unit.***
- sites within this unit with saturated soils are poorly aerated, which slows root development; ***plant seedlings on naturally or artificially raised microsites.***

Silviculture system:
- see Section 5.1

Site preparation:
- see Section 5.2

Species choice:
- ***Sx, [Pl]***

Vegetation potential:
- high (black twinberry, fireweed, bluejoint)

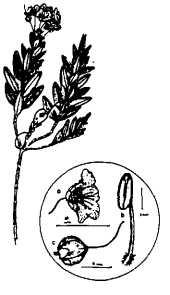
Reforestation:
- advance regeneration should be preserved.
- supplement advance regeneration by planting sturdy stock in groups on available raised microsites.

Concerns:
- site conditions may lead to frost damage of regeneration, especially in any naturally occurring or artificially created depression; ***leaving a partial canopy and/or choosing a frost-resistant species (eg., Pl) is advised.***
- sites within this unit with thick organic horizons (> 10 cm) have an extreme windthrow hazard; ***block layouts must have windfirm boundaries, or a wide buffer of standing timber must be left around such sites.***
- these units may represent important wildlife habitat, so prescription should be discussed with wildlife personnel.
- water table will likely rise above the ground surface in the spring, causing seedling mortality.

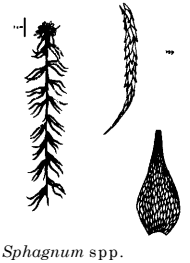
SBPSmc/07

SbSxw - Scrub birch - Sedge

Ledum groenlandicum



Kalmia microphylla



Sphagnum spp.

VEGETATION

Tree Layer: 20% cover
black spruce

Shrub Layer: 70% cover

Ledum groenlandicum	(Labrador tea)
Betula glandulosa	(scrub birch)
[Salix spp.	(willows)]
black spruce	

Herb Layer 25% cover

Empetrum nigrum	(crowberry)
Kalmia microphylla	(bog-laurel)
Oxycoccus oxycoccos	(bog cranberry)
Carex aquatilis	(water sedge)
Gaultheria hispidula	(creeping-snowberry)

Moss Layer: 100% cover

Sphagnum spp.	(sphagnums)
Aulocomnium palustre	(glow moss)
Cladina spp.	(cladina lichens)
Tomenthypnum nitens	(golden fuzzy fen moss)

SOIL AND SITE

Moisture Regime:	7 (shd)
Nutrient Regime:	A-B (vp-p)
* Slope Gradient (%):	0
* Slope Position:	level and depressional
Parent Material:	organic
* Soil Texture:	organic
Coarse Fragments (%):	0

DISTRIBUTION: scattered throughout the landscape, but never covering extensive areas

SbSxw - Scrub birch - Sedge (SBPSmc/07)

INTERPRETATIONS

Site limitations: - site and soil conditions of this unit result in marginal forest productivity; ***serious consideration should be given to excluding logging from this unit.***

Silviculture system: - avoid logging

TABLE 12 Environmental characteristics of SBPS subzones in the Cariboo Forest Region

	SBPSxc	SBPSdc	SBPSmc	SBPSmk
Area (km^2)	10898	4227	1165	5658
Elevation range (m)	1100–1500 (S) 850–1300 (N)	900–1280	900–1250	950–1350 (S) 900–1250 (N)
Climate				
Precipitation (mm)				
Mean annual	389	508	no data	506
Mean summer	177	275	196	232
Mean winter	212	233	no data	283
Mean annual snowfall (cm)	179	178	no data	no data
Temperature(°C)				
Mean annual	1.7	1.9	0.8	3.2
Mean - warmest month	12.3	13.9	10.9	13.7
Mean - coldest month	-11.8	-13.5	-12.5	-10.3
Frost-free days	93	152	no data	no data
Soils				
Zonal soils[a]	O.DYB (O.GL)	O.DYB (O.GL)	O.DYB	O.GL
Zonal humus form[b]	HR	HR	HR	HR

[a]O.DYB = Orthic Dystric Brunisol; O.GL = Orthic Gray Luvisol
[b]HR = HemiMor