

TABLE 4.1 Summary of climate data for biogeoclimatic units within the guide area^a

Climatic Characteristics		Biogeoclimatic Unit					
		BWBSdk ₁	ESSFmv ₃	SBSmk ₂	SBSwk ₂	SBSwk ₃	SWBmk
Annual precipitation (mm)	Mean	417 (502) ^b	(743)	692 (543)	952 (759)	608 (622)	579 (664)
	Range	326–513	N/A	N/A	518–1916	518–698	459–699
	SD ^c	(123)	(118)	(77)	(260)	(77)	(116)
Growing-season precipitation (mm)	Mean	221	262	249	335	239	341
	Range	130–278	202–316	209–296	198–583	198–293	254–442
Annual snowfall (cm)	Mean	157	N/A	337	786	209	269
	Range	15–269	N/A	N/A	210–1075	N/A	144–395
Annual temperature (°C)	Mean	-0.3 (-0.7)	(0.4)	1.2 (1.6)	1.4 (1.3)	2.4 (1.7)	-1.5 (-1.7)
	Range	-1.9–2.0	N/A	0.7–1.9	-0.1–5.0	N/A	-3.2–0.5
	SD	(1.2)	(0.7)	(0.6)	(0.7)	(0.5)	(0.7)
Growing degree days (>5 °C)	Mean	953	N/A	1110	1139	1188	667
	Range	595–1897	N/A	N/A	984–1139	866–1510	534–933
Frost-free period (days)	Mean	N/A	N/A	75	91	104	58
	Range	N/A	N/A	N/A	88–95	79–128	37–99

^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 For., Research Branch, Victoria, B.C., unpublished report.

^b Data in brackets are estimated using an overlay of the biogeoclimatic map and climatic maps modelled using the PRISM process (Daly et al. 1997)

^c Standard deviation of the mean.

11 MOIST COOL SPRUCE – WILLOW – BIRCH (SWBmk)¹

Location

The SWBmk occurs in higher-elevation valleys and mountain slopes as far south as the Mesilinka River in the Omineca Mountains and the Halfway River in the Rocky Mountains. Its northern extent is the Yukon border, while its eastern extent lies just east of where the Halfway River exits the Rocky Mountains. The western extent is uncertain at this time.

Elevation range

800 – 1100 m

Climate

This biogeoclimatic unit has a boreal subalpine climate. The precipitation regime of this biogeoclimatic unit is similar to that of the SBSwk3 but the mean annual temperature is lowest of all the biogeoclimatic units in the guide area.

Distinguishing the SWBmk from adjoining biogeoclimatic units

BWBSdk1 has:

- less scrub birch and willow but more prickly rose and highbush-cranberry in the shrub layer on mesic sites; and
- little or no lingonberry or crowberry but more palmate coltsfoot and/or tall bluebells in the herb layer on mesic sites.

ESSFmv3 and ESSFmc have:

- less scrub birch and willow but more black huckleberry and/or white-flowered rhododendron in the shrub layer on mesic sites; and
- less lingonberry but more five-leaved bramble and heart-leaved arnica in the herb layer on mesic sites.

Forests

Due to extensive cold air drainage and cold temperatures, stands are often sparsely treed. Older forests have short, large-diameter white spruce with variable amounts of subalpine fir. Extensive

¹ Formerly SWBe

prescribed burning in many valleys has resulted in extensive seral trembling aspen forests, particularly on warm slopes. Black spruce is common on upland sites, often with lodgepole pine on slopes with cooler aspects and in wetlands. Black cottonwood occurs along streams and rivers and is often associated with white spruce.

Wildlife

This variant provides important habitat for wolverine, Stone sheep, Dahl sheep, mountain goat, elk, and grizzly bear, especially in the spring and summer. Moose and caribou are abundant, except in winter when they tend to move out of the zone to where snow is less deep.

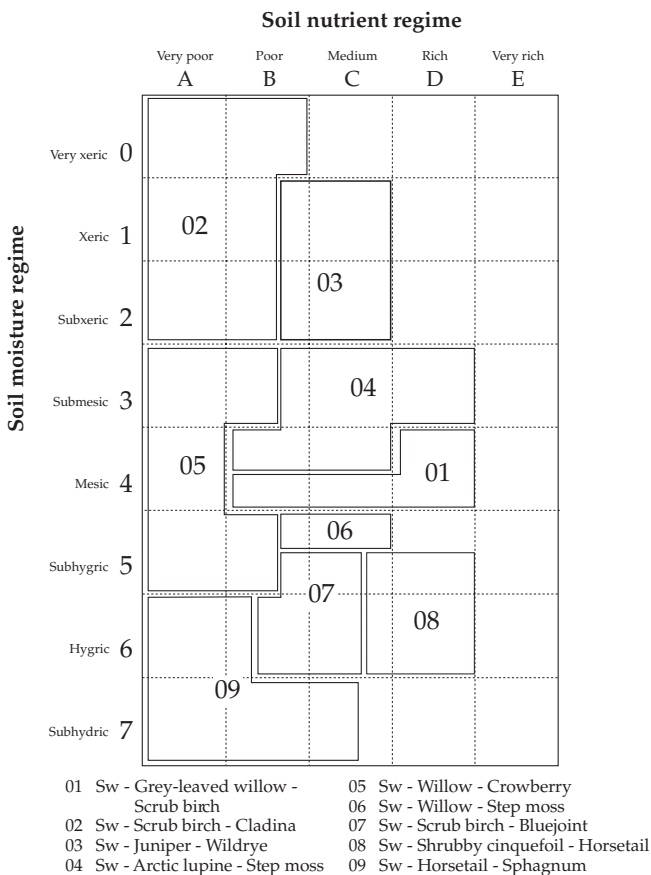


FIGURE 11.1 *Edatopic grid displaying site units of the SWBmk subzone.*

FIGURE 11.2 SWBmk vegetation table.

Site Series	02	03	04	01	05	06	07	08	09	
Trees										
<i>Pinus contorta</i>	■	■	■	■						lodgepole pine
<i>Abies lasiocarpa</i>	■			■						subalpine fir
<i>Picea glauca</i>	■	■	■	■	■	■	■	■		white spruce
<i>Picea mariana</i>					■	■			■	black spruce
Shrubs										
<i>Shepherdia canadensis</i>	■	■	■					■		soopolallie
<i>Juniperus communis</i>	■	■								common juniper
<i>Pentaphylloides floribunda</i>		■						■		shrubby cinquefoil
<i>Salix</i> spp.	■	■	■	■	■	■	■	■	■	willow
<i>Betula nana</i>	■	■	■	■	■	■	■	■	■	scrub birch
<i>Ledum groenlandicum</i>			■	■	■	■	■	■	■	Labrador tea
Herbs and Dwarf Shrubs										
<i>Anemone parviflora</i>	■									northern anemone
<i>Arctostaphylos uva-ursi</i>		■	■							kinnikinnick
<i>Leymus innovatus</i>		■	■	■	■	■				fuzzy-spiked wildrye
<i>Cornus canadensis</i>	■		■	■		■		■		bunchberry
<i>Festuca altaica</i>	■	■	■	■	■	■	■	■		Altai fescue
<i>Arctostaphylos alpina</i> var. <i>rubra</i>			■		■			■		red bearberry
<i>Empetrum nigrum</i>				■	■		■	■	■	crowberry
<i>Vaccinium vitis-idaea</i>	■	■	■	■	■	■	■	■	■	lingonberry
<i>Calamagrostis canadensis</i>					■		■	■	■	bluejoint
<i>Mertensia paniculata</i>	■		■		■		■	■		tall bluebells
<i>Equisetum arvense</i>					■			■	■	common horsetail
Mosses and Lichens										
<i>Dicranum fuscescens</i>	■									dicranum moss
<i>Cladina</i> spp.	■		■	■	■				■	cladina lichens
<i>Tomentypnum nitens</i>					■				■	golden fuzzy fen moss
<i>Hylocomium splendens</i>	■	■	■	■	■	■	■	■	■	step moss
<i>Pleurozium schreberi</i>	■		■	■	■	■	■	■	■	red-stemmed feathermoss
<i>Aulacomnium palustre</i>	■			■	■	■		■		glow moss
<i>Sphagnum</i> spp.								■	■	sphagnum mosses

Prominence class ■ 1 ■ 2 ■ 3 ■ 4 ■ 5

- 1a Aspect northerly; generally on steep slopes (>20%)
- 2a Mid to upper slope; soil texture coarse to medium; *Empetrum nigrum* (p. 79)² common; *Calamagrostis canadensis* (p. 239) absent
SWBmk/05
- 2b Generally lower slope; soil texture fine to medium; *Empetrum nigrum* generally absent; *Calamagrostis canadensis* present
SWBmk/07
- 1b Aspect and slope gradient variable but generally not on steep northerly aspects
- 3a Generally mid to crest slope or, if not, then aspect southerly; *Leymus innovatus* (p. 232) common
- 4a *Cladina* spp. (p. 334) common
SWBmk/02
- 4b *Cladina* spp. <1% cover or absent
- 5a Forest floor generally <5 cm; *Arctostaphylos uva-ursi* (p. 82) common
SWBmk/03
- 5b Forest floor generally >5 cm; *Arctostaphylos uva-ursi* <1% cover or absent
SWBmk/04
- 3b Generally mid to lower slope *Leymus innovatus* <2% cover or absent

² Page numbers refer to the publication *Plants of Northern British Columbia* (MacKinnon et al. 1992).

- 6a Slope gradient generally <5%; often located on fluvial benches; *Equisetum arvense* (p. 282) generally present and often moderate to high cover (>5%)
SWBmk/o8
- 6b Slope gradient variable; generally not located on fluvial benches; *Equisetum arvense* <1% cover or absent
- 7a Lodgepole pine often present in canopy; mesic moisture regime
SWBmk/o1
- 7b Lodgepole pine absent from canopy; subhygric moisture regime
SBSmk/o6

VEGETATION

Tree Layer: 10% cover

White spruce, lodgepole pine, subalpine fir

Shrub Layer: 20% cover

*Betula nana*** (scrub birch)
Ledum groenlandicum (Labrador tea)
Salix spp. (willows)
 subalpine fir, [white spruce]

*Betula nana*

Herb Layer: 25% cover

Vaccinium vitis-idaea (lingonberry)
Cornus canadensis (bunchberry)
Epilobium angustifolium (fireweed)
Empetrum nigrum (crowberry)
Linnaea borealis (twinflower)
Festuca altaica (Altai fescue)
 [*Lupinus arcticus* (arctic lupine)]
 [*Orthilia secunda* (one-sided wintergreen)]

*Vaccinium vitis-idaea*

Moss Layer: 85% cover

Hylocomium splendens (step moss)
Pleurozium schreberi (red-stemmed feathermoss)
Peltigera aphthosa (freckle pelt lichen)
Ptilium crista-castrensis (knight's plume)
 [*Cladina* spp. (reindeer lichens)]

*Hylocomium splendens*

SOIL AND SITE

Moisture Regime: 4 (mesic)
 Nutrient Regime: B–D (poor–rich)
 Slope Gradient (%): 0–70
 * Slope Position: upper to lower or level;
 often mid
 Parent Material: (glacio) fluvial, colluvial,
 morainal
 Soil Texture: variable
 Coarse Fragments (%): 0–90 (usually <40)

DISTRIBUTION: common and well distributed

** The name of this species has been updated (see Appendix 1).

INTERPRETATIONS

- Site limitations:
- 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.**
 - sites within this unit with medium- to fine-textured lacustrine soils often have poor soil structure, leading to poor root growth; **plant stock that will achieve better lateral root development (e.g., Cu-treated), prescribe natural regeneration, or protect advance regeneration.**
 - 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.**
- Site preparation:
- minimize or align large slash accumulations when logging to help meet site preparation objectives and reduce fire hazard.
- Species choice:
- Pl, Sx, [Bl]
- Vegetation potential:
- moderate (trembling aspen, fireweed, grasses)
- Reforestation:
- attempt to regenerate naturally if potential exists.
 - young Bl regeneration (<3 m tall) may be susceptible to heavy browsing by moose.
- 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).**
 - low productivity of this zone will considerably lengthen rotation times for reasonable timber yield.
 - attempts to meet regeneration standards may be difficult due to shortness of growing season.

VEGETATION

Tree Layer: 10% cover
White spruce, lodgepole pine

Shrub Layer: 35% cover
Salix spp. (willows)
Juniperus communis (common juniper)
*Betula nana*** (scrub birch)
subalpine fir

Herb Layer: 40% cover
Linnaea borealis (twinflower)
Anemone parviflora (northern anemone)
[*Festuca altaica* (Altai fescue)]
[*Lupinus arcticus* (arctic lupine)]

Moss Layer: 50% cover
Hylocomium splendens (step moss)
Cladina spp. (reindeer lichens)
Pleurozium schreberi (red-stemmed feathermoss)
Peltigera aphthosa (freckle pelt lichen)

SOIL AND SITE

Moisture Regime: 0–1(2) (very xeric–xeric (subxeric))
Nutrient Regime: A–B (very poor–poor)
* Slope Gradient (%): 20–60
* Slope Position: mid–upper or crest
* Parent Material: fluvial or colluvial/rock
* Soil Texture: coarse
Coarse Fragments (%): 10–85

DISTRIBUTION: restricted to rock outcrops and coarse fluvial benches



Festuca altaica



Anemone parviflora



Cladina spp.

** The name of this species has been updated (see Appendix 1).

INTERPRETATIONS

- Site limitations:
- the combination of poor productivity and high wildlife value means that these sites should be protected from harvesting.
- Concerns:
- conserving the humus layer is critical for moisture and nutrient retention.
 - 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).***
 - site and soil conditions of this unit result in drought hazard for a significant portion of the growing season; ***natural regeneration is generally better adapted to surviving these conditions, especially during establishment.***

VEGETATION

Tree Layer: 5% cover
White spruce, lodgepole pine

Shrub Layer: 30% cover
Juniperus communis (common juniper)
Shepherdia canadensis (soopolallie)
Pentaptyloides floribunda (shrubby cinquefoil)
Rosa acicularis (prickly rose)
 [*Salix* spp. (willows)]
 [*Betula nana*** (scrub birch)]
 lodgepole pine



*Shepherdia
canadensis*

Herb Layer: 30% cover
Arctostaphylos uva-ursi (kinnikinnick)
Leymus innovatus (fuzzy-spiked wildrye)
Carex concinnoides (northwestern sedge)
Vaccinium vitis-idaea (lingonberry)
Festuca altaica (Altai fescue)
Hedysarum boreale (northern hedysarum)
Zigadenus elegans (mountain death camas)
Solidago multiradiata (northern goldenrod)



*Juniperus
communis*

Moss Layer: 20% cover
Hylocomium splendens (step moss)
Cladonia spp. (cladonia lichens)

SOIL AND SITE

Moisture Regime: 1–(2) (xeric–(subxeric))
 Nutrient Regime: B–C (poor–medium)
 * Slope Gradient (%): 2–85 (usually >40)
 * Slope Position: mid–upper
 Parent Material: (glacio) fluvial, colluvial
 * Soil Texture: coarse–medium
 Coarse Fragments (%): 40–80



*Arctostaphylos
uva-ursi*

DISTRIBUTION: common on warm aspects on colluvial soils

** The name of this species has been updated (see Appendix 1).

INTERPRETATIONS

- Site limitations:
- the combination of poor productivity and high wildlife value means that these sites should be protected from harvesting.
- Concerns:
- conserving the humus layer is critical for moisture and nutrient retention.
 - 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).***
 - site and soil conditions of this unit result in drought hazard for a significant portion of the growing season; ***natural regeneration is generally better adapted to surviving these conditions, especially during establishment.***

VEGETATION

Tree Layer: 15% cover
White spruce, lodgepole pine

Shrub Layer: 30% cover
Salix spp. (willows)
*Betula nana*** (scrub birch)
[*Ledum groenlandicum* (Labrador tea)]
[*Shepherdia canadensis* (soopolallie)]
white spruce, lodgepole pine

*Salix* spp.

Herb Layer: 30% cover
Leymus innovatus (fuzzy-spiked wildrye)
Epilobium angustifolium (fireweed)
Lupinus arcticus (arctic lupine)
Vaccinium vitis-idaea (lingonberry)
Festuca altaica (Altai fescue)
[*Linnaea borealis* (twinflower)]

*Leymus innovatus*

Moss Layer: 60% cover
Hylocomium splendens (step moss)
Pleurozium schreberi (red-stemmed feathermoss)

SOIL AND SITE

Moisture Regime: 3–4 (submesic–mesic)
Nutrient Regime: B–C(D) (poor–medium (rich))
Slope Gradient (%): 3–45
* Aspect: often southerly
* Slope Position: generally upper
Parent Material: (glacio) fluvial, colluvial (morainal)
* Soil Texture: moderately fine to coarse
Coarse Fragments (%): 0–85 (often >25)

*Hylocomium splendens*

DISTRIBUTION: common on warm aspects

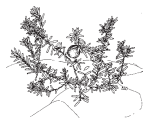
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INTERPRETATIONS

- Site limitations:
- the combination of poor productivity and high wildlife value means that these sites should be protected from harvesting.
- Concerns:
- conserving the humus layer is critical for moisture and nutrient retention.
 - 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).***
 - site and soil conditions of this unit result in drought hazard for a significant portion of the growing season; ***natural regeneration is generally better adapted to surviving these conditions, especially during establishment.***



Salix spp.

Empetrum
nigrumHylocomium
splendens**VEGETATION**

Tree Layer: 10% cover
White spruce, black spruce

Shrub Layer: 35% cover
Salix spp. (willows)
Ledum groenlandicum (Labrador tea)
*Betula nana*** (scrub birch)
[white spruce]

Herb Layer: 30% cover
Empetrum nigrum (crowberry)
Festuca altaica (Altai fescue)
Vaccinium vitis-idaea (lingonberry)
Arctostaphylos alpina
var. *rubra* (red bearberry)

Moss Layer: 65% cover
(step moss)

SOIL AND SITE

Moisture Regime: 3–5 (submesic–subhygric)
Nutrient Regime: A–B (very poor–poor)
* Slope Gradient (%): 20–70
* Aspect: often northerly
* Slope Position: mid–upper
Parent Material: colluvial or morainal
* Soil Texture: moderately coarse to medium
Coarse Fragments (%): 30–85

DISTRIBUTION: these sites can be dominated by black spruce and lodgepole pine

** The name of this species has been updated (see Appendix 1).

INTERPRETATIONS

- Site limitations:
- the combination of poor productivity and inaccessibility due to steep slopes make these sites non-commercial at this time.
- Concerns:
- sites with thick organic horizons (>10 cm) have extreme windthrow hazard; **block layouts must have windfirm boundaries, or a wide buffer of standing timber must be left around such sites.**
 - water table will likely rise above the ground surface in the spring, causing seedling mortality on non-elevated sites.



Ledum groenlandicum



Festuca altaica



Hylocomium splendens

VEGETATION

Tree Layer: 10% cover

White spruce

Shrub Layer: 35% cover

Salix spp.

(willows)

Ledum groenlandicum

(Labrador tea)

*Betula nana***

(scrub birch)

Rosa acicularis

(prickly rose)

[white spruce]

Herb Layer: 25% cover

Vaccinium vitis-idaea

(lingonberry)

Festuca altaica

(Altai fescue)

Cornus canadensis

(bunchberry)

Leymus innovatus

(fuzzy-spiked wildrye)

Epilobium angustifolium

(fireweed)

Pedicularis labradorica

(Labrador lousewort)

Moss Layer: 85% cover

Hylocomium splendens

(step moss)

Aulacomnium palustre

(glow moss)

SOIL AND SITE

Moisture Regime:

5 (subhygric)

Nutrient Regime:

B–C (poor–medium)

* Slope Gradient (%):

10–20

* Aspect

generally warm or neutral

Slope Position:

lower–upper

Parent Material:

(glacio) fluvial, colluvial

morainal

Soil Texture:

variable

Coarse Fragments (%):

0–90 (usually <40)

DISTRIBUTION: very common

** The name of this species has been updated (see Appendix 1).

INTERPRETATIONS

- Site limitations:
- 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 advance regeneration.**
 - 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.**
- Site preparation:
- creating an excessive number of mounds (i.e., >300/ha) should be avoided.
- Species choice:
- Sx, Pl, [**Bl**], (**Sb**)
- Vegetation potential:
- moderate (willow, fireweed, grasses)
- Reforestation:
- if vigorous advanced Sx or Bl regeneration is present it should be preserved when feasible.
 - plant sturdy stock as soon after harvesting as possible.
 - young Bl regeneration (<3 m tall) may be susceptible to heavy browsing by moose.
 - Sb is generally less productive than Sx or Pl on these sites.
- Concerns:
- sites within this unit with fine-textured soils are vulnerable to compaction under wet conditions; **restrict traffic to winter operations or dry soil conditions.**
 - 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 (e.g., Pl) is advised.**

*Betula nana**Calamagrostis canadensis**Hylocomium splendens***VEGETATION**

Tree Layer: 10% cover

White spruce

Shrub Layer: 55% cover

*Betula nana***

(scrub birch)

Salix spp.

(willows)

Ledum groenlandicum

(Labrador tea)

white spruce

Herb Layer: 20% cover

Vaccinium vitis-idaea

(lingonberry)

Calamagrostis canadensis

(bluejoint)

Mertensia paniculata

(tall bluebells)

[*Festuca altaica*

(Altai fescue)]

Moss Layer: 65% cover

Hylocomium splendens

(step moss)

Pleurozium schreberi

(red-stemmed feathermoss)

SOIL AND SITE

Moisture Regime:

5–6 (subhygric–hygric)

Nutrient Regime:

B–C (poor–medium)

* Slope Gradient (%):

1–43, generally >20

* Aspect:

generally cool

* Slope Position:

generally lower

Parent Material:

variable

* Soil Texture:

fine to medium

Coarse Fragments (%):

0–30

DISTRIBUTION: common

** The name of this species has been updated (see Appendix 1).

INTERPRETATIONS

- Site limitations:
- sites within this unit with medium- to fine-textured lacustrine soils often have poor soil structure, leading to poor root growth; **plant stock that will achieve better lateral root development (e.g., Cu-treated), prescribe natural regeneration, or protect advance regeneration.**
 - 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.**
- Site preparation:
- creating an excessive number of mounds (i.e., >300/ha) should be avoided.
- Species choice:
- Sx, Pl, [**Bl**]
- Vegetation potential:
- moderate (willow, fireweed, grasses)
- Reforestation:
- if vigorous advanced Sx or Bl regeneration is present it should be preserved when feasible.
 - plant sturdy stock as soon after harvesting as possible.
 - young Bl regeneration (<3 m tall) may be susceptible to heavy browsing by moose.
- Concerns:
- sites within this unit with fine-textured soils are vulnerable to compaction under wet conditions; **restrict traffic to winter operations or dry soil conditions.**
 - 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 (e.g., Pl) is advised.**

VEGETATION

Tree Layer: 15% cover

White spruce

Shrub Layer: 55% cover

Salix spp.

(willows)

*Betula nana***

(scrub birch)

Pentaphylloides floribunda

(shrubby cinquefoil)

White spruce, subalpine fir

Herb Layer: 20% cover

Mertensia paniculata

(tall bluebells)

Equisetum arvense

(common horsetail)

Epilobium angustifolium

(fireweed)

Equisetum scirpoides

(dwarf scouring-rush)

Orthilia secunda

(one-sided wintergreen)

[*Petasites frigidus* var. *palmatius* (palmate coltsfoot)]

Moss Layer: 65% cover

Hylocomium splendens

(step moss)

Pleurozium schreberi

(red-stemmed feathermoss)

SOIL AND SITE

Moisture Regime:

6–5 (hygric–subhygric)

Nutrient Regime:

C–D (medium–rich)

* Slope Gradient (%):

0–30, generally <5

* Slope Position:

lower to toe or level

Parent Material:

generally fluvial

* Soil Texture:

fine to medium

Coarse Fragments (%):

0–30

DISTRIBUTION: common on fluvial benches*Salix* spp.*Equisetum arvense**Hylocomium splendens*

** The name of this species has been updated (see Appendix 1).

INTERPRETATIONS

- Site limitations: – very difficult sites to manage; **serious consideration should be given to managing these sites as wildlife corridors.**
- sites with saturated soils are poorly aerated, which slows root development; **plant seedlings on naturally or artificially raised microsites.**
- Site preparation: – creating an excessive number of mounds (i.e., >300/ha) should be avoided, especially on sites within this unit with a water table <30 cm from the surface.
- Species choice: – **Sx, [Pl, Sb]**
- Vegetation potential: – high (black twinberry, fireweed, bluejoint)
- Reforestation: – advance regeneration should be preserved.
- supplement advance regeneration by planting sturdy stock in groups, using available raised microsites.
- young Bl regeneration (<3 m tall) may be susceptible to heavy browsing by moose.
- 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 (e.g., Pl) is advised.**
- sites with thick organic horizons (>10 cm) have extreme windthrow hazard; **block layouts must have windfirm boundaries, or a wide buffer of standing timber must be left around such sites.**
- water table will likely rise above the ground surface in the spring, causing seedling mortality on non-elevated sites.
- these units represent important wildlife habitat; **discuss prescription with fish and wildlife personnel.**
- this unit is critical to the control of runoff streamflow.



*Ledum
groenlandicum*



Carex spp.



Sphagnum spp.

VEGETATION

Tree Layer: 15% cover

Black spruce

Shrub Layer: 45% cover

Ledum groenlandicum (Labrador tea)

Salix spp. (willows)

Betula nana ** (scrub birch)

black spruce

Herb Layer: 35% cover

Vaccinium vitis-idaea (lingonberry)

Carex spp. (sedges)

Calamagrostis canadensis (bluejoint)

[*Equisetum arvense* (common horsetail)]

[*Empetrum nigrum* (crowberry)]

Moss Layer: 90% cover

Aulacomnium palustre (glow moss)

Cladina spp. (reindeer lichens)

Sphagnum spp. (sphagnum mosses)

Peltigera spp. (pelt lichens)

Hylocomnium splendens (step moss)

Pleurozium schreberi (red-stemmed feathermoss)

SOIL AND SITE

Moisture Regime: 6–5 (hygric–subhydric)

Nutrient Regime: B–C (poor–medium)

* Slope Gradient (%): 0–30, generally <5

* Aspect: cool if sloping

* Slope Position: lower to toe, level or depression

Parent Material: organic or lacustrine

* Soil Texture: fine to medium

Coarse Fragments (%): generally 0

DISTRIBUTION: common in depressions and cool gentle toe slopes

** The name of this species has been updated (see Appendix 1).

INTERPRETATIONS

- Site limitations:
- very difficult sites to manage; ***avoid harvesting.***
- Concerns:
- sites with thick organic horizons (>10 cm) have extreme windthrow hazard; ***block layouts must have windfirm boundaries, or a wide buffer of standing timber must be left around such sites.***
 - these units represent important wildlife habitat; ***discuss prescription with fish and wildlife personnel.***

TABLE 13.1 *Some important wildlife species that utilize biogeoclimatic units within the guide area*

Occurrence of species by unit						
Species	BWBSdki	ESSFmv3	SBSmk2	SBSwk2	SBSwk3 ^b	SWBmk
Mountain goat	ps	Y	ps	ps	ps	Y
Stone sheep	ps	ps	-	-	-	Y
Caribou (northern pop.)	Y	Y	y	y	y	Y
Elk	y	sa	y	y	y	Y
Moose	Y	pSA	Y	Y	Y	Y
Grizzly bear ^a	Y	Y	y	Y	Y	Y
Gray wolf	Y	Y	Y	Y	Y	Y
Wolverine ^a	Y	Y	Y	Y	Y	Y
Fisher ^a	Y	y	Y	Y	Y	y
Marten	Y	Y	Y	Y	Y	Y

^a Species considered to be threatened or endangered (“red-listed”) or of special concern (“blue-listed”) (B.C. Conservation Data Centre 2003.)

^b Includes SBSwk3a

Key to coding

Abundance:

Uppercase letter = common to very common and abundant

Lowercase letter = rare, scarce, or uncommon and scattered

Timing:

Y, y = yearlong; P, p = spring (approximately March–May); S, s = summer (approximately June–August); A, a = autumn (approximately September–November);

Example: pSA = scarce in spring, common–abundant in summer and autumn

Fisher – uses pole-sapling and young mixed forest in summer, mature forest and old growth in winter, possibly for snow interception; requires >50% crown closure; natal dens in large tree cavities; also uses coarse woody debris, slash piles, edges/ecotones.

Striped skunk – opportunistic omnivore; prefers open forest and forest edge.

Ermine – dependent on small mammals, chiefly voles; most common in early seral stages.