

10 TAKLA WET COOL SUB-BOREAL SPRUCE – DOUGLAS-FIR PHASE (SBSwk3a)¹

Location

The SBSwk3a is bounded by Stuart Lake to the south and west, the Tachie River to the east, and Trembleur Lake to the north.

Elevation range

750 – 1100 m

Climate

No long-term climate data are available for the SBSwk3a.

Distinguishing the SBSwk3 from adjoining biogeoclimatic units

SBSdk, SBSmk₁, and SBSmc₂ have:

- less devil's club in the shrub layer on mesic sites; and
- less oak fern in the herb layer on mesic sites.

SBSwk₃ has:

- Douglas-fir occurring only on dry sites; and
- little or no Hooker's fairybells but more five-leaved bramble in the herb layer on mesic sites.

ESSFmv₁ has:

- more white-flowered rhododendron but less highbush-cranberry and devil's club in the shrub layer on mesic sites; and
- less oak fern in the herb layer on mesic sites.

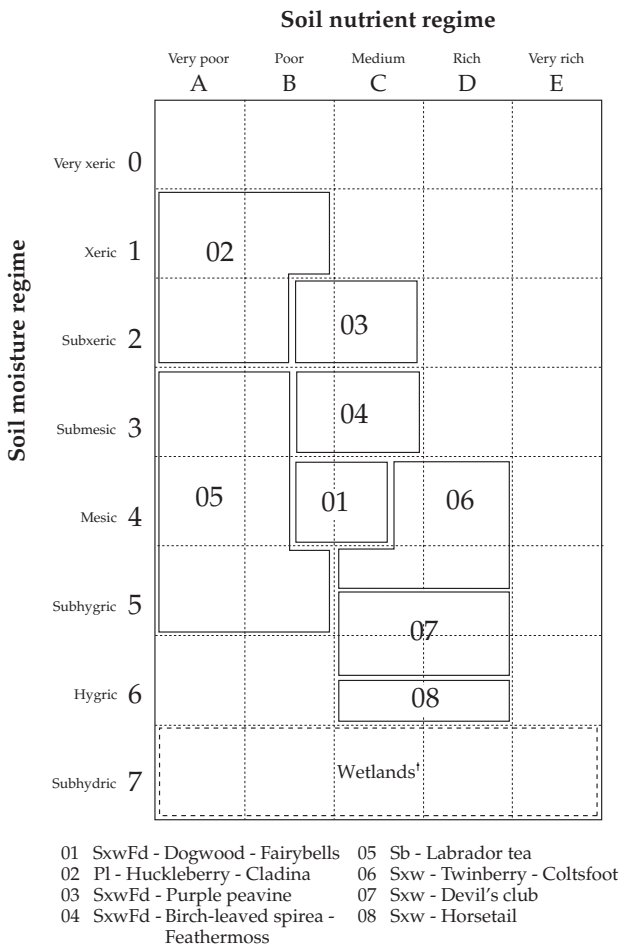
Forests

Due to the relatively low frequency of stand replacement events in this variant, forested areas are often climax forests dominated by hybrid white spruce, Douglas-fir, and subalpine fir. Lodgepole pine is common on sites drier than mesic. Black spruce occurs on upland sites with lodgepole pine on gentle slopes with a cool aspect and in wetlands. Black cottonwood occurs along streams and rivers and is often associated with hybrid white spruce.

¹ Formerly part of SBSn

Wildlife

This variant supports moose and mule deer year-round. Black bear and grizzly bear habitat is common. Aquatic furbearer and water-fowl habitat occurs in the numerous lakes and wetlands.



[†] See MacKenzie and Moran (2004) for classifying wetlands occurring in the area

FIGURE 10.1 *Edatopic grid displaying site units of the SBSwk3a phase.*

FIGURE 10.2 SBSwk3a vegetation table.

Site Series	02	03	04	01	05	06	07	08	
Trees									
<i>Pinus contorta</i>	■	■	■	■	■			■	lodgepole pine
<i>Pseudotsuga menziesii</i>		■	■	■	■		■		Douglas-fir
<i>Picea mariana</i>					■	■			black spruce
<i>Picea glauca</i> × <i>engelmannii</i>			■	■		■	■	■	hybrid white spruce
Shrubs									
<i>Shepherdia canadensis</i>	■	■				■			soopolallie
<i>Vaccinium membranaceum</i>	■	■	■		■	■			black huckleberry
<i>Amelanchier alnifolia</i>		■							saskatoon
<i>Spiraea betulifolia</i>		■	■	■		■			birch-leaved spirea
<i>Rubus parviflorus</i>			■	■	■	■			thimbleberry
<i>Lonicera involucrata</i>				■	■	■	■	■	black twinberry
<i>Cornus stolonifera</i>			■	■		■	■	■	red-osier dogwood
<i>Oplopanax horridus</i>				■			■	■	devil's club
<i>Viburnum edule</i>				■	■	■	■	■	highbush-cranberry
Herbs and Dwarf Shrubs									
<i>Gaultheria hispida</i>	■								creeping-snowberry
<i>Lathyrus nevadensis</i>		■	■	■			■		purple peavine
<i>Cornus canadensis</i>	■			■	■			■	bunchberry
<i>Maianthemum racemosum</i>						■			false Solomon's-seal
<i>Rubus pubescens</i>					■	■		■	trailing raspberry
<i>Streptopus amplexifolius</i>						■			clasping twistedstalk
<i>Gymnocarpium dryopteris</i>				■			■		oak fern
<i>Equisetum arvense</i>					■	■		■	common horsetail
Mosses and Lichens									
<i>Cladina</i> spp.	■	■							cladina lichens
<i>Pleurozium schreberi</i>	■	■	■	■	■	■		■	red-stemmed feathermoss
<i>Ptilium crista-castrensis</i>	■	■	■	■		■		■	knight's plume
<i>Mnium</i> spp.									leafy mosses

Prominence class: ■ 1 ■ 2 ■ 3 ■ 4 ■ 5

- 1a Canopy dominated by Douglas-fir or lodgepole pine; *Amelanchier alnifolia* (p. 46)² or *Cladina* spp. (p. 332–334) present; slope position upper or level; soil texture coarse
- 2a Canopy dominated by Douglas-fir **SBSwk3a/03**
- 2b Canopy dominated by lodgepole pine **SBSwk3a/02**
- 1b Canopy generally dominated by mixtures of two or more Douglas-fir, lodgepole pine, and white or black spruce; *Amelanchier alnifolia* and *Cladina* spp. low cover (<1%) or absent; slope position variable; soil texture variable
- 3a Canopy dominated by a combination of lodgepole pine and black spruce; slope gradient less than 10%, often flat); *Aulacomnium palustre* (p. 311) present **SBSwk3a/05**
- 3b Canopy dominated by Douglas-fir or hybrid white spruce, often in combination with lodgepole pine; slope gradient variable; *Aulacomnium palustre* usually absent
- 4a Level or depression; parent material fluvial or lacustrine; *Equisetum* spp. (p. 281–284) abundant (usually >30% cover) **SBSwk3a/08**
- 4b Slope position variable; parent material variable; *Equisetum* spp. low cover (<5%) or absent

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

- 5a Slope position mid to lower (occasionally upper on north aspects); *Oplopanax horridus* (p. 36) abundant (usually >15% cover)

SBSwk3a/07

- 5b Slope position variable; *Oplopanax horridus* low cover (<5%) or absent

- 6a *Gymnocarpium dryopteris* (p. 293) or *Clintonia uniflora* moderate to high cover (usually >5%)

SBSwk3a/01

- 6b *Gymnocarpium dryopteris* low cover (usually <5%) or absent

- 7a Usually mid to upper slope; Douglas-fir usually present in the canopy; *Rubus pubescens* (p. 91) usually very low cover (<1%) or absent

SBSwk3a/04

- 7b Usually mid to lower slope; Douglas-fir usually absent from the canopy; *Rubus pubescens* usually low to moderate cover (>1%)

SBSwk3a/06



*Oplopanax
horridus*



Prosarthes hookeri



*Gymnocarpium
dryopteris*

VEGETATION

Tree Layer: 30% cover

Hybrid white spruce, Douglas-fir, subalpine fir, lodgepole pine

Shrub Layer: 40% cover

Cornus stolonifera (red-osier dogwood)
Spiraea betulifolia (birch-leaved spirea)
Oplopanax horridus (devil's club)
Viburnum edule (highbush-cranberry)
Rubus parviflorus (thimbleberry)
Ribes lacustre (black gooseberry)
Lonicera involucrata (black twinberry)
 subalpine fir, hybrid white spruce

Herb Layer: 40% cover

*Prosarthes hookeri*** (Hooker's fairybells)
Orthilia secunda (one-sided wintergreen)
Clintonia uniflora (queen's cup)
Lathyrus nevadensis (purple peavine)
*Maianthemum racemosum*** (false Solomon's-seal)
Actaea rubra (baneberry)
*Osmorhiza berteroi*** (mountain sweet-cicely)
Aralia nudicaulis (wild sarsaparilla)
Thalictrum occidentale (western meadowrue)
Rubus pubescens (trailing raspberry)
Gymnocarpium dryopteris (oak fern)

Moss Layer: 25% cover

Pleurozium schreberi (red-stemmed feathermoss)
Ptilium crista-castrensis (knight's plume)
Brachythecium spp. (ragged mosses)
Peltigera aphthosa (freckle pelt lichen)

SOIL AND SITE

Moisture Regime: 4 (mesic)
 Nutrient Regime: B–C (poor–medium)
 Slope Gradient (%): 23 (13–40)
 * Slope Position: mid to lower
 Parent Material: generally glaciolacustrine or morainal
 * Soil Texture: usually moderately fine to medium
 Coarse Fragments (%): 28 (0–65)

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) or protect advance regeneration.**
- Site preparation: – see Section 12.
- Species choice: – Pl, **Sx, Fd, [Bl]**
At, Ep, {Act}
- Vegetation potential: – moderate to high (black twinberry, thimbleberry, fireweed)
- Reforestation: – plant sturdy stock as soon after harvesting as possible.
– young Bl regeneration (<3 m tall) may be susceptible to heavy browsing by moose.
– help maintain stand diversity on sites to be planted with Pl by mapping aspen patches prior to harvest and planting these areas with spruce.
– maintain Fd component, especially veterans that are valuable for wildlife and seed production.
– Act is not consistently productive 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 resulting in cold air ponding will lead to frost damage of Fd and Sx regeneration; **leaving a partial canopy and/or choosing a frost-resistant species (e.g., Pl) is advised.**

VEGETATION

Tree Layer: 20% cover

Hybrid white spruce, lodgepole pine,
subalpine fir

Shrub Layer: 20% cover

<i>Vaccinium membranaceum</i>	(black gooseberry)
<i>Shepherdia canadensis</i>	(soopolallie)
<i>Rosa acicularis</i>	(prickly rose)
[<i>Amelanchier alnifolia</i>	(saskatoon)]
subalpine fir, hybrid white spruce	

Herb Layer: 15% cover

<i>Linnaea borealis</i>	(twinline)
<i>Cornus canadensis</i>	(bunchberry)
<i>Geocaulon lividum</i>	(bastard toad-flax)
<i>Epilobium angustifolium</i>	(fireweed)
<i>Vaccinium caespitosum</i>	(dwarf blueberry)

Moss Layer: 75% cover

<i>Pleurozium schreberi</i>	(red-stemmed feathermoss)
<i>Cladina mitis</i>	(green reindeer lichen)
<i>Cladina rangiferina</i>	(grey reindeer lichen)
<i>Dicranum fuscescens</i>	(curly heron's-bill moss)
<i>Peltigera aphthosa</i>	(freckle pelt lichen)
<i>Polytrichum juniperinum</i>	(juniper haircap moss)
<i>Ptilium crista-castrensis</i>	(knight's plume)
<i>Cladonia</i> spp.	(cladonia lichens)
<i>Dicranum polysetum</i>	(wavy-leaved moss)

SOIL AND SITE

Moisture Regime:	1–2 (xeric–subxeric)
Nutrient Regime:	A–B (very poor–poor)
* Slope Gradient (%):	0–70 (gentle, if fluvial)
* Slope Position:	level or upper
* Parent Material:	(glacio) fluvial or morainal over rock
* Soil Texture:	coarse
Coarse Fragments (%):	25–80

DISTRIBUTION: uncommon except in rocky terrain or on
upper terrace of large rivers*Vaccinium
membranaceum**Shepherdia
canadensis**Linnaea borealis*

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 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 PI cones.**
- Site preparation:
- minimize or align large slash accumulations when logging to help meet site preparation objectives and reduce fire hazard.
 - see Section 12.
 - no site preparation.
- Species choice:
- PI, (**Bl, Sx**)
- Vegetation potential:
- low
- Reforestation:
- attempt to regenerate naturally if potential exists.
 - if natural regeneration is not feasible, plant PI without site preparation.
 - Sx and Bl are generally significantly less productive than PI on this unit and should be accepted only on moist microsites.
- 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).**
 - 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.**
 - sites within this unit 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.**



Douglas-fir

Amelanchier
alnifoliaLathyrus
nevadensis**VEGETATION**

Tree Layer: 30% cover
Douglas-fir, lodgepole pine

Shrub Layer: 20% cover
Spiraea betulifolia (birch-leaved spirea)
Amelanchier alnifolia (saskatoon)
Shepherdia canadensis (soopolallie)
Acer glabrum (Douglas maple)
Rosa acicularis (prickly rose)
Vaccinium membranaceum (black huckleberry)
 Douglas-fir, hybrid white spruce, subalpine fir

Herb Layer: 20% cover
Lathyrus nevadensis (purple peavine)
Aster conspicuus (showy aster)
*Maianthemum racemosum*** (false Solomon's-seal)
Goodyera oblongifolia (rattlesnake-plantain)
Arnica cordifolia (heart-leaved arnica)
Elymus glaucus (blue wildrye)
Oryzopsis asperifolia (rough-leaved ricegrass)
*Streptopus lanceolatus*** (rosy twistedstalk)
Aralia nudicaulis (wild sarasaparilla)

Moss Layer: 50% cover
Pleurozium schreberi (red-stemmed feathermoss)
Ptilium crista-castrensis (knight's plume)
Peltigera aphthosa (freckle pelt lichen)
Dicranum fuscescens (curly heron's-bill moss)
Cladina rangiferina (grey reindeer lichen)
Hylocomium splendens (step moss)
Cladonia spp. (cladonia lichens)

SOIL AND SITE

Moisture Regime:	2 (suberic)
Nutrient Regime:	B–C (poor–medium)
Slope Gradient (%):	18 (0–50)
* Slope Position:	crest or level
* Parent Material:	morainal or (glacio) fluvial
Soil Texture:	moderately coarse to moderately fine
Coarse Fragments (%):	42 (15–60)

DISTRIBUTION: uncommon and usually small in size

** 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 and/or leaving Fd seed trees on site.**
- Silvicultural system: – minimize or align large slash accumulations when logging to help meet site preparation objectives and reduce fire hazard.
- Site preparation: – light scarification for seedbed preparation or summer logging with no site preparation.
- Species choice: – Fd, Pl, [**Sx**]
{At, Ep}
- Vegetation potential: – low
- Reforestation: – maintain Fd component, especially veterans that are valuable for wildlife and seed production.
– attempt to preserve Fd advance regeneration when partial cutting.
– natural Pl and Fd regeneration should be promoted by light scarification or spot screefing.
– plant Sx on moist microsites only
– At and Ep are not consistently productive on these sites.
- Concerns: – full tree harvesting will lead to nutrient depletion and seriously reduce the number and distribution of 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.**
– sites within this unit 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.**

*Spiraea betulifolia**Goodyera oblongifolia**Aralia nudicaulis***VEGETATION**

Tree Layer: 35% cover

Douglas-fir, hybrid white spruce, subalpine fir, lodgepole pine

Shrub Layer: 15% cover

<i>Spiraea betulifolia</i>	(birch-leaved spirea)
<i>Viburnum edule</i>	(highbush-cranberry)
<i>Ribes lacustre</i>	(black gooseberry)
<i>Vaccinium membranaceum</i>	(black huckleberry)
<i>Acer glabrum</i>	(Douglas maple)
<i>Rosa acicularis</i>	(prickly rose)
<i>Amelanchier alnifolia</i>	(saskatoon)
<i>Lonicera involucrata</i>	(black twinberry)

subalpine fir, hybrid white spruce, Douglas-fir, paper birch

Herb Layer: 10% cover

<i>Goodyera oblongifolia</i>	(rattlesnake-plantain)
<i>Orthilia secunda</i>	(one-sided wintergreen)
<i>Streptopus lanceolatus</i> **	(rosy twistedstalk)
<i>Aralia nudicaulis</i>	(wild sarsaparilla)
<i>Cornus canadensis</i>	(bunchberry)
<i>Maianthemum racemosum</i> **	(false Solomon's-seal)
<i>Lathyrus nevadensis</i>	(purple peavine)
<i>Arnica cordifolia</i>	(heart-leaved arnica)
<i>Aster conspicuus</i>	(showy aster)
<i>Osmorhiza berteroi</i> **	(mountain sweet-cicely)
[<i>Clintonia uniflora</i>	(queen's cup)]

Moss Layer: 65% cover

<i>Pleurozium schreberi</i>	(red-stemmed feathermoss)
<i>Ptilium crista-castrensis</i>	(knight's plume)
<i>Hylocomium splendens</i>	(step moss)
<i>Dicranum</i> spp.	(heron's-bill mosses)

SOIL AND SITE

Moisture Regime:	3 (submesic)
Nutrient Regime:	B-C (poor-medium)
Slope Gradient (%):	34 (15-65)
Slope Position:	variable
Parent Material:	morainal or colluvial
* Soil Texture:	coarse (medium)
* Coarse Fragments (%):	55 (30-85)

DISTRIBUTION: uncommon

** 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 and/or leaving Fd seed trees on site.**
- Site preparation: – see Section 12.
- Species choice: – Fd, Pl, Sx, [**Bl**]
At, Ep
- Vegetation potential: – moderate (black twinberry, fireweed)
- Reforestation: – attempt to regenerate naturally if potential exists.
– if natural regeneration is not feasible, plant Pl, or Fd and Sx on moister microsites.
– young Bl regeneration (<3 m tall) may be susceptible to heavy browsing by moose.
– help maintain stand diversity on sites to be planted with Pl by mapping aspen patches prior to harvest and planting these areas with spruce.
– maintain Fd component, especially veterans that are valuable for wildlife and seed production.
- Concerns: – full tree harvesting will lead to nutrient depletion and seriously reduce the number and distribution of 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.**
– sites within this unit 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.**



black spruce

VEGETATION

Tree Layer: 15% cover
 Black spruce, lodgepole pine

Shrub Layer: 45% cover
Salix spp. (willows)
Lonicera involucrata (black twinberry)
Vaccinium membranaceum (black huckleberry)
Viburnum edule (highbush-cranberry)

Herb Layer: 95% cover
Equisetum arvense (common horsetail)
Rubus pubescens (trailing raspberry)
Fragaria virginiana (wild strawberry)
Elymus glaucus (blue wildrye)
Galium boreale (northern bedstraw)

Moss Layer: 15% cover
Pleurozium schreberi (red-stemmed feathermoss)
Hylocomium splendens (step moss)
Aulacomnium palustre (glow moss)



Salix spp.

SOIL AND SITE

Moisture Regime: 3–5 (submesic–subhygric)
 Nutrient Regime: A–B (very poor–poor)
 * Aspect: northerly or flat
 * Slope Gradient (%): usually less than 10
 Slope Position: mid to lower or level
 * Parent Material: glaciofluvial
 * Soil Texture: medium to coarse
 * Coarse Fragments (%): 0–40

DISTRIBUTION: rare



Equisetum arvense

INTERPRETATIONS

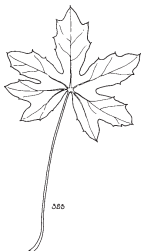
- Site limitations:
- soil drainage and rooting may be impeded by dense basal till layers or poorly structured clay-rich horizons within 30 cm of the soil surface; this results in a shallow rooting zone that is saturated and poorly aerated in the spring following snowmelt, but subject to drought in summer;
 - ***the poor productivity resulting from these limitations should dictate a limited investment in intensive silviculture; regenerate naturally whenever possible or if planting then plant stock that will achieve better lateral root development (e.g., Cu-treated).***
- Site preparation:
- minimize or align large slash accumulations when logging to help meet site preparation objectives and reduce fire hazard.
 - see Section 12.
- Species choice:
- Pl, (**Sx, Sb**)
{At}
- Vegetation potential:
- low
- Reforestation:
- attempt to regenerate naturally if potential exists.
 - if natural regeneration is not feasible, plant Pl.
 - Sx and Sb are generally less productive than Pl on these sites.
 - on sites with saturated soils, plant seedlings on naturally or artificially raised microsites.
 - At not consistently productive 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).***
 - sites within this unit with fine-textured soils are vulnerable to compaction under wet conditions; ***restrict all traffic to winter operations or dry soil conditions.***
 - these sites may be subject to severe growing-season frosts, especially in any naturally occurring or artificially created depressional microsites; ***leaving a partial canopy and/or choosing a frost-resistant species (e.g., Pl) is advised.***



Lonicera involucrata



Viburnum edule



Petasites frigidus
var. *palmatus*

VEGETATION

Tree Layer: 35% cover

Hybrid white spruce, subalpine fir, (trembling aspen)

Shrub Layer: 25% cover

Lonicera involucrata (black twinberry)
Ribes lacustre (black gooseberry)
Viburnum edule (highbush-cranberry)
Rubus parviflorus (thimbleberry)
Rosa acicularis (prickly rose)
 [*Cornus stolonifera* (red-osier dogwood)]
 subalpine fir, hybrid white spruce

Herb Layer: 30% cover

Cornus canadensis (bunchberry)
Rubus pubescens (trailing raspberry)
Linnaea borealis (twinflower)
Thalictrum occidentale (western meadowrue)
*Maianthemum racemosum*** (false Solomon's-seal)
Petasites frigidus
 var. *palmatus* (palmate coltsfoot)
Mitella nuda (common mitrewort)
*Osmorhiza berteroi*** (mountain sweet-cicely)
Pyrola asarifolia (rosy wintergreen)

Moss Layer: 85% cover

Pleurozium schreberi (red-stemmed feathermoss)
Ptilium crista-castrensis (knight's plume)
Hylocomium splendens (step moss)
Rhizidiadelphus triquetrus (electrified cat's-tail moss)

SOIL AND SITE

Moisture Regime: 4–5 (mesic–subhygric)
 Nutrient Regime: C–D (medium–rich)
 * Aspect: generally not northerly
 Slope Gradient (%): 15 (2–30)
 * Slope Position: mid (upper to lower)
 Parent Material: glaciofluvial (and morainal)
 * Soil Texture: moderately coarse to medium
 Coarse Fragments (%): 36 (24–66)

DISTRIBUTION: uncommon

** 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.**
- Site preparation: – avoid mechanical site preparation when clay-textured soils occur right to the surface.
– see Section 12.
- Species choice: – Pl, Sx, [Bl]
At, Ep, {Act}
- Vegetation potential: – moderate (trembling aspen, black twinberry, thimbleberry, fireweed)
– a young trembling aspen canopy can help reduce frost damage of planted stock.
- Reforestation: – preserve vigorous Sx regeneration.
– help maintain stand diversity on sites to be planted with Pl by mapping aspen patches prior to harvest and planting these areas with spruce.
– young Bl regeneration (<3 m tall) may be susceptible to heavy browsing by moose.
– Act is not consistently productive on these sites.
- Concerns: – a combination of poorly structured soils and frost on level sites within this unit make them difficult to regenerate; **preserve good-quality advance regeneration during harvesting.**
– sites within this unit with fine-textured soils are very vulnerable to compaction under wet conditions; **restrict traffic to winter operations.**
– site conditions may lead to frost damage of Sx 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 within this unit with silty soils are susceptible to frost-heaving; **bareroot stock will likely resist frost-heaving better than plug stock.**
– sites within this unit with thick organic horizons (>10 cm) have increased windthrow hazard; **block layouts must have windfirm boundaries, or a wide buffer of standing timber must be left around such sites.**

VEGETATION

Tree Layer: 20% cover

Douglas-fir, hybrid white spruce, subalpine fir, (paper birch)

Shrub Layer: 80% cover

Oplopanax horridus (devil's club)
Ribes lacustre (black gooseberry)
Viburnum edule (highbush-cranberry)
Lonicera involucrata (black twinberry)
Cornus stolonifera (red-osier dogwood)
Rubus parviflorus (thimbleberry)
Acer glabrum (Douglas maple)
Alnus incana ssp. *tenuifolia* ** (mountain alder)
 subalpine fir, hybrid white spruce



*Oplopanax
horridus*

Herb Layer: 25% cover

Prosartes hookeri ** (Hooker's fairybells)
Clintonia uniflora (queen's cup)
Actaea rubra (baneberry)
Aralia nudicaulis (wild sarsaparilla)
Thalictrum occidentale (western meadowrue)
Cornus canadensis (bunchberry)
Galium triflorum (sweet-scented bedstraw)
Osmorhiza berteroi ** (mountain sweet-cicely)
Rubus pubescens (trailing raspberry)
Maianthemum racemosum ** (false Solomon's-seal)
 [*Viola canadensis* (Canada violet)]
 [*Gymnocarpium dryopteris* (oak fern)]



Viburnum edule

Moss Layer: 5% cover

Brachythecium spp. (ragged mosses)
 [*Mnium* spp. (leafy mosses)]
 [*Pleurozium schreberi* (red-stemmed feathermoss)]
 [*Ptilium crista-castrensis* (knight's plume)]



Proserartes hookeri

SOIL AND SITE

Moisture Regime: 5–6 (subhygric–hygric)
 Nutrient Regime: C–D (medium–rich)
 Slope Gradient (%): 13 (5–24)
 * Slope Position: lower to level
 Parent Material: lacustrine and morainal
 * Soil Texture: coarse to moderately fine
 Coarse Fragments (%): 25 (0–80) mostly under 30

DISTRIBUTION: uncommon

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

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.**
- Site preparation: – see Section 12.
- Species choice: – **Sx, Fd, [Bl, Pl]**
At, Ep, {Act}
- Vegetation potential: – very high (thimbleberry, fireweed, black twinberry)
- Reforestation: – if vigorous advance 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.
– due to the very high level of competition on these sites it will be difficult to successfully regenerate them to Pl without high site treatment costs.
– Act is not consistently productive 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 Fd and Sx 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 within this unit with thick organic horizons (>10 cm) have increased windthrow hazard; **block layouts must have windfirm boundaries, or a wide buffer of standing timber must be left around such sites.**



Viburnum edule

Lonicera
involucrataEquisetum
arvense**VEGETATION**

Tree Layer: 25% cover

Hybrid white spruce, lodgepole pine

Shrub Layer: 35% cover

<i>Viburnum edule</i>	(highbush-cranberry)
<i>Lonicera involucrata</i>	(black twinberry)
<i>Rosa acicularis</i>	(prickly rose)
<i>Ribes lacustre</i>	(black gooseberry)
<i>Salix</i> spp.	(willows)
<i>Rubus parviflorus</i>	(thimbleberry)
<i>Vaccinium membranaceum</i>	(black huckleberry)

Herb Layer: 60% cover

<i>Equisetum</i> spp.	(horsetails)
(<i>arvense</i> , <i>sylvaticum</i>)	
<i>Cornus canadensis</i>	(bunchberry)
<i>Petasites frigidus</i> var. <i>palmaris</i>	(palmate coltsfoot)
<i>Mitella nuda</i>	(common mitrewort)
<i>Galium triflorum</i>	(sweet-scented bedstraw)
<i>Rubus pubescens</i>	(trailing raspberry)
<i>Linnaea borealis</i>	(twinflower)
<i>Rubus pedatus</i>	(five-leaved bramble)

Moss Layer: 50% cover

<i>Ptilium crista-castrensis</i>	(knight's plume)
<i>Hylocomium splendens</i>	(step moss)
<i>Pleurozium schreberi</i>	(red-stemmed feathermoss)
[<i>Mnium</i> spp.]	(leafy mosses)

SOIL AND SITE

Moisture Regime:	6 (hygric)
Nutrient Regime:	C–D (medium–rich)
* Slope Gradient (%):	2 (0–5)
* Slope Position:	level or depression
* Parent Material:	fluvial or lacustrine
Soil Texture:	coarse to fine
Coarse Fragments (%):	variable

DISTRIBUTION: common but generally small in size

INTERPRETATIONS

- Site limitations:
- very difficult sites to manage; **serious consideration should be given to managing these sites as wildlife corridors.**
 - sites within this unit 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.
 - see Section 12.
- Species choice:
- **Sx, [Bl, Pl]**
Act, At
- Vegetation potential:
- high to very high (black twinberry, prickly rose, fireweed)
- Reforestation:
- advance regeneration should be preserved.
 - supplement advance regeneration by planting sturdy stock in groups on available raised microsites.
 - young Bl regeneration (<3 m tall) may be susceptible to heavy browsing by moose.
 - retain Ac veterans where possible for wildlife.
- Concerns:
- these units may represent important wildlife habitat; **discuss prescription with fish and wildlife personnel.**
 - 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 within this unit with thick organic horizons (>10 cm) have increased 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.
 - this association is critical to the control of runoff and streamflow.

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.