

BGC Units

TABLE 4.5. Environmental characteristics of ESSF and MH subzones and variants in the PRFR, south half

Subzone or Variant ^a		ESSFmc	ESSFmk	ESSFwv
Extent^b				
Area	683 602 ha	149 332 ha	1 107 991 ha	
% of PRFR, south half	6.2%	1.3%	10.0%	
Elevation range	1200 - 1800 m, south 950 - 1500 m, north	1000 - 1800 m	900 - 1550 m	
Distribution				
Physiographic regions	Nechako Plateau; southeast Skeena Mtns; eastern Hazelton Mtns.	Eastern Kitimat Ranges, Coast Mtns.; also southernmost Hazelton Mtns.	Southeast Boundary Ranges, Coast Mtns.; northwest Skeena Mtns.; central Hazelton Mtns.	
Major drainages, inlets, and islands	Above SBSmc and SBPS; Tahtsadle Cr.; Babine, Nilkitkwa, Bulkley, Morice, and Endako drainages; eastern Whitesail and Eutsuk lakes	Above southeastern CWHws2; upper Telkwa R., Burnie R.; Morice, Nanika, Kidprice, Tahtsa, and western Whitesail, Eutsuk, and Tesla lks.	Above ICH; Kitsequecla, Suskwa, Kitwanga, Kispiox, upper Skeena, and Nass rivers	
Climate				
	Continental; cold winters; cool, fairly dry summers, and light snowpack (70 - 150 cm); total precip. 450 - 600 mm; deeply frozen soils	Subcontinental; warmest ESSF sub-zone; snowy winters but dry summers; total precipitation 1000+ mm; snowpack 2+ m; soil may not freeze deeply	Subcontinental; cool, moist summers and snowy winters; snowpack 1.2 - 2 m; total precip. 650 - 1100+ mm; soils may not freeze deeply	
Soils				
Zonal soils	Humo-Ferric <u>Podzols</u> and Podzolic Gray <u>Luvissols</u>	Humo-Ferric <u>Podzols</u>	Ferro-Humic <u>Podzols</u>	
Humus forms	Hemimors; 2 - 7 cm thick	Hemimors; 2 - 5 cm thick	Hemihumimors; 5 - 15 cm thick	
Vegetation^c				
Major tree species	Bl, Sxw, Pl	Bl, Hm, Ba, Pa, Pl	Bl, Hm, Sxw, Hw	
Zonal site association	Bl -Huckleberry - Leafy liverwort	BlHm - Twistedstalk	BlHm - Azalea	

a For a description of the ESSFmv3 refer to MacKinnon *et al.* (1990).

b Information includes contiguous parkland subzones.

c Tree species codes are found in Appendix 3.

Site Units

ESSFmk

Moist Cool Subzone

Adjacent biogeoclimatic units: CWHws2 at lower elevations to the west; SBSmc2 at lower elevations to the east; MHmm2 at similar elevations to the west; ESSFmc at similar elevations to the east; ESSFwv at similar elevations to the north.

Elevation range: 1000 - 1800 m.

Description and comparison of site series:

Zonal site series:

01 BlHm - Twistedstalk is most commonly found on morainal deposits from the middle (to the lower end) of the slope profile. Soils are mainly coarse-textured Humo-Ferric Podzols, frequently with impermeable cemented horizons. Forests are dominantly Bl, but Hm and Ba frequently occur. Shrub layers are well developed with huckleberry, oval-leaved blueberry, and conifer regeneration predominating. Rosy twistedstalk, five-leaved bramble, and bunchberry are usually found in moderate abundance. Poor-site indicators such as crowberry and rich-site indicators such as foamflower are rare or absent. The moss layer lacks the ground lichens found in drier site series and is dominated by heron's-bill, red-stemmed, and pipecleaner mosses.

Drier sites: Two drier forested site series have been distinguished.

02 BlPa - Cladonia site series is common in the rugged terrain of the Tahtsa and Sibola ranges. Two phases are recognized: the **Lithic (02a)** phase occurs on upper slopes and crests where soils are skeletal or shallow and drainage is very rapid; the **Fluvial (02b)** phase occurs on sandy skeletal fluvial and glaciofluvial deposits on lower slopes and level areas. Forests consist of stunted and scattered Pa with some Bl, Hm, or Pl often occurring. Shrub layers consist only of black huckleberry and regeneration of Hm and Bl. Herb layers have only traces of mountain-heather and crowberry. Ground lichens are co-dominant with feathermosses. The 02 is distinguished from the 03 site series by the dominance of Pa in the canopy.

03 BlHm - Cladonia is common and widespread throughout the subzone on sites that experience significant moisture deficiency during the growing season — usually on upper slopes and crests, but also on glaciofluvial flats. Forests are co-dominated by Pa, Bl, and Hm. The 03 is distinguished from the drier 02 by having a high cover of Bl, a better-developed shrub layer, and a better-stocked and more productive tree layer. An abundance of ground lichen and Pa distinguish this unit from 01 sites.

Fresh to wet sites: Four wetter forested site series have been distinguished.

04 Bl - Oak fern is usually found in areas of moderate slope with some seepage. These sites are not common in the subzone, but represent small catchment areas that are very productive. Forests are dominated by large Bl. Black huckleberry, oval-leaved blueberry, Sitka valerian, and rich-site indicators such as thimbleberry and oak fern are abundant. The moss layer is

not continuous and is exclusively heron's-bill moss and leafy liverwort. The 04 is distinguished from 01 sites by the presence of oak fern, foamflower, and twistedstalk in the herb layer. Lack of devil's club or horsetail separates the 04 from wetter site series.

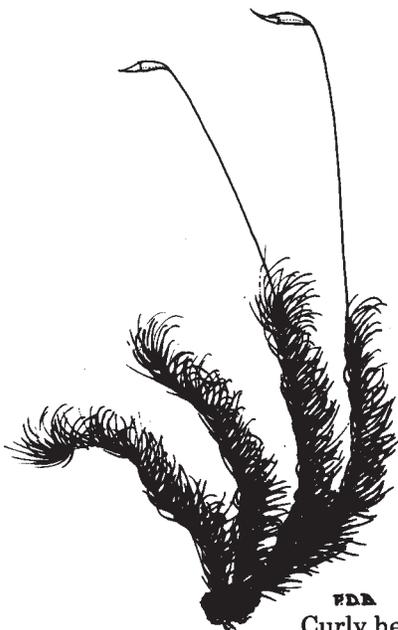
05 Bl - Devil's club - Lady fern has limited distribution in the subzone, occurring only at the lower end or toe of seepage areas such as colluvial aprons and fluvial fans. Gleyed Podzols are typical. These forests are usually made up of large, well-spaced Bl with a dense shrub layer dominated by devil's club. Herb layers are lush and dominated by ferns, foamflower, and twistedstalks. An abundance of devil's club differentiates the 05 from all other site series.

06 Bl - Horsetail - Leafy moss occurs at slope toes and in depressional areas with poor drainage. Soils are typically Gleysols or gleyed Podzols derived from fluvial deposits. Excessively wet conditions restrict trees to drier hummocks among wetter depressions. Forests are predominantly Bl, but Sxw, Ba, and Hm are also common. Poor to medium nutrient availability on these sites is reflected in low cover values of rich-site indicators such as ferns and devil's club — a feature that separates the 06 from the richer 07 site series.

07 SS - Lady fern - Horsetail is found on richer wet sites at the toe of seepage slopes and on level areas adjacent to small streams. Soils are Gleysols developed in fluvial deposits. This unit is relatively infrequent and usually covers only small areas in the subzone. Stand structure is similar to that in the 06, with trees typically growing on elevated mounds. In these forests, however, tree size is larger and the wet depressions are dominated by lady fern. Shrub layers have Sitka alder, devil's club, oval-leaved blueberry, and false azalea in minor amounts. Abundant horsetail separates the 07 from the drier 05 unit.

Non-forested site units:

Two generalized site series have been described for the ESSFmk: **Non-forested wetland (31)** and **Avalanche track (51)**. See page 5 • 81 for general descriptions of these units.



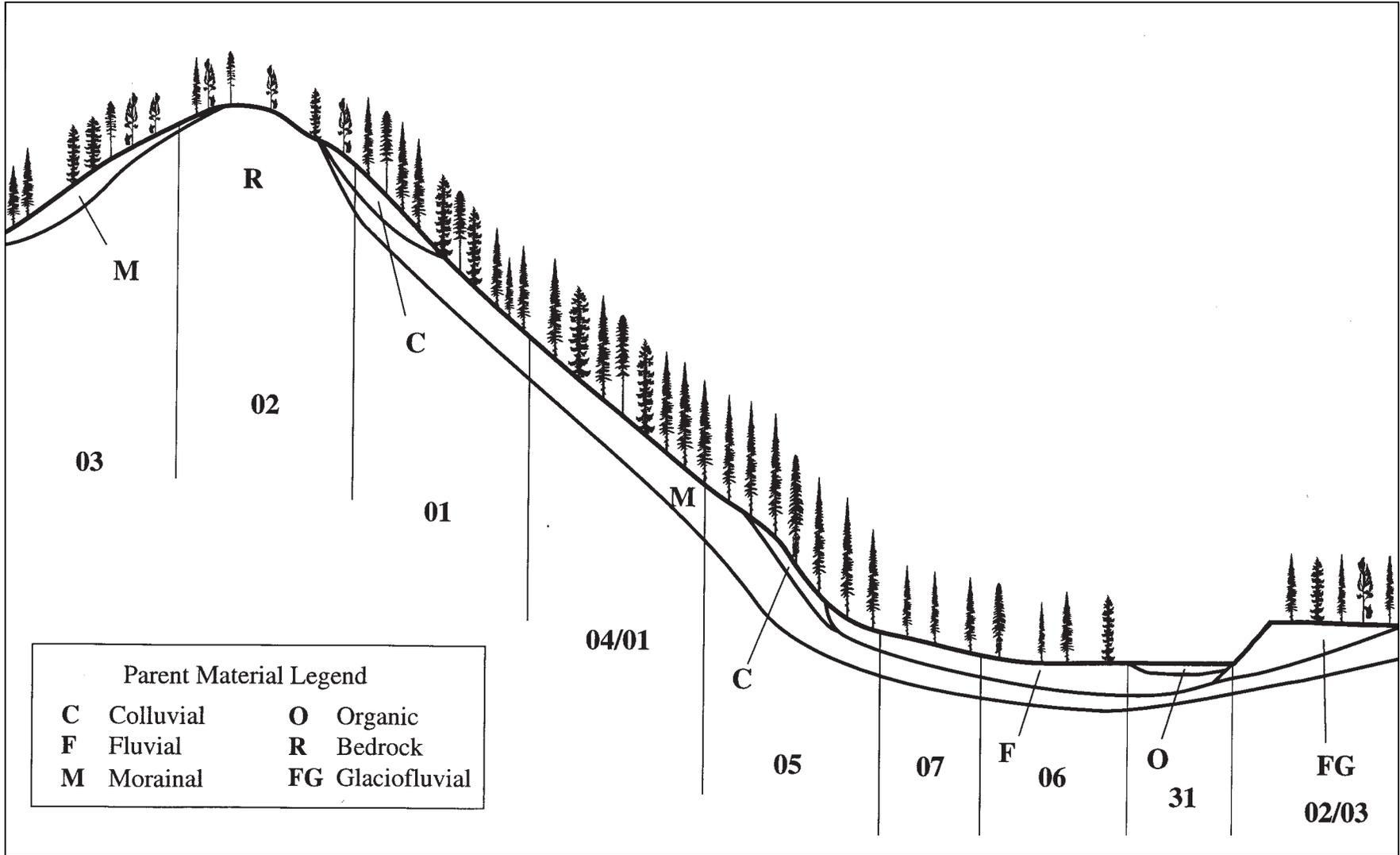
FDA
Curly heron's-bill moss
Dicranum fuscescens



Common leafy liverwort
Barbilophozia lycopodioides

ESSFmk Landscape Profile^a

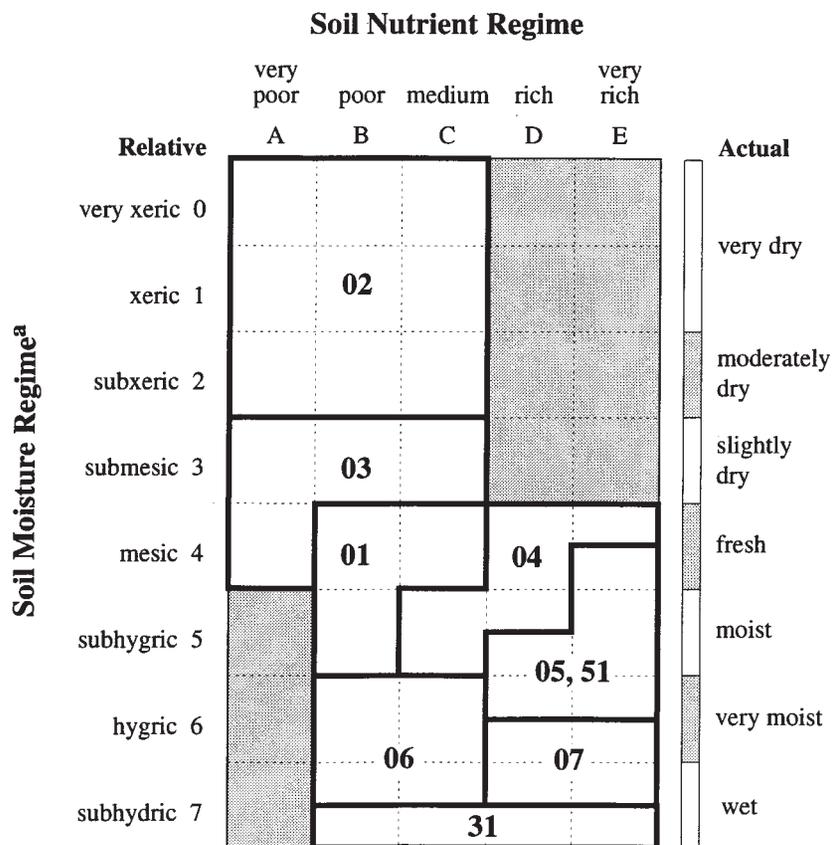
Site Units



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^a Tree symbols are defined in Appendix 3.

ESSFmk Edatopic Grid



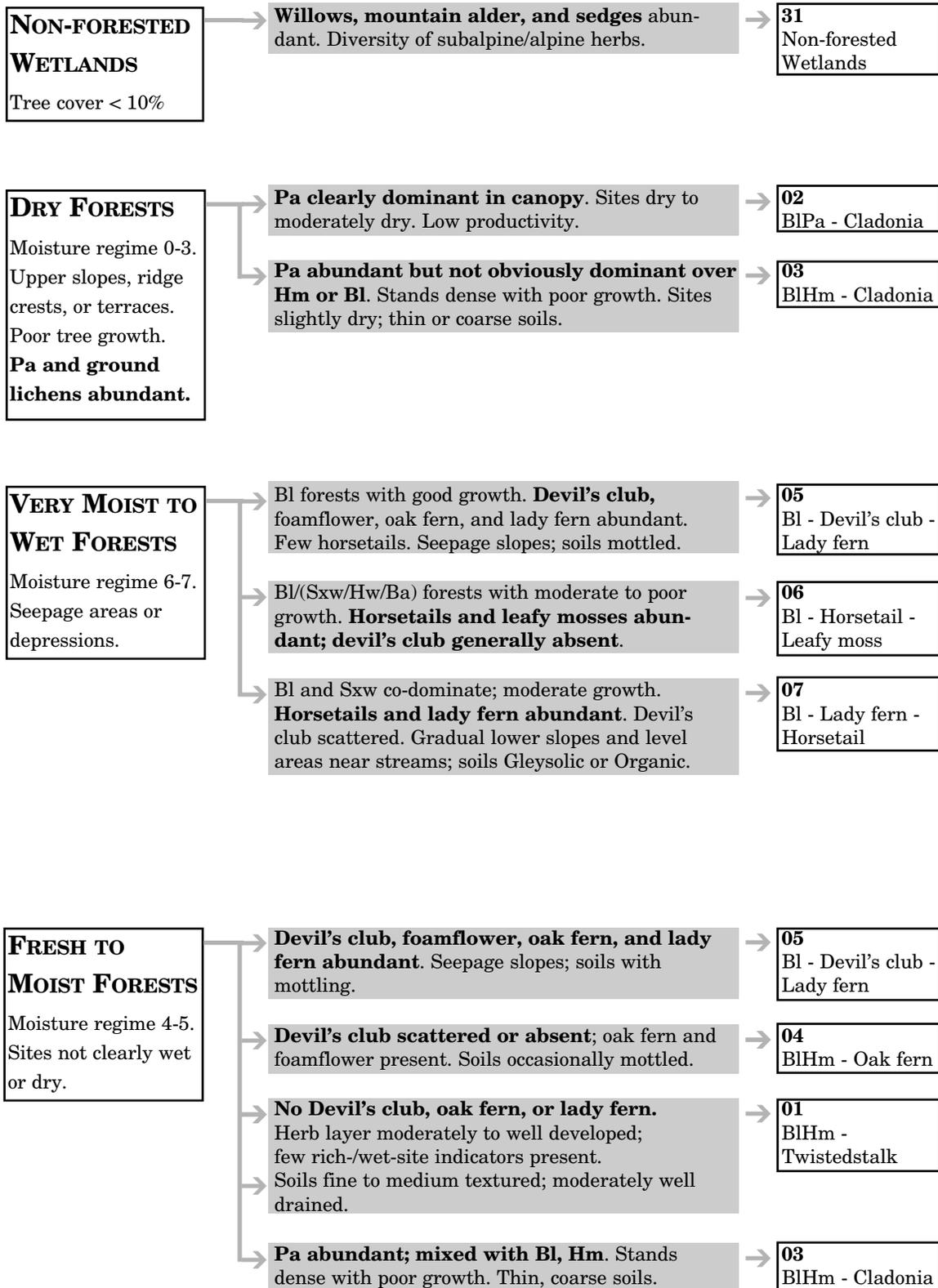
Site Series

- 01 BIHm - Twistedstalk
- 02 BIPa - Cladonia
- 03 BIHm - Cladonia
- 04 BIHm - Oak fern
- 05 Bl - Devil's club - Lady fern
- 51 Avalanche track
- 06 Bl - Horsetail - Leafy moss
- 07 Bl - Lady fern - Horsetail
- 31 Non-forested wetland

^a Relative and actual SMR are defined in Appendices 6 and 7.

Site Units

ESSFmk Site Series Flowchart



ESSFmk Vegetation Table^a

Site Units ^b		02	03	01	04 ^c	05 ^c	06 ^c	07 ^c	31 ^c		
• Tree layer	<i>Pinus albicaulis</i>	■	■							whitebark pine	
	<i>Pinus contorta</i>	■								lodgepole pine	
	<i>Tsuga mertensiana</i>	■	■	■	■		■			mountain hemlock	
	<i>Abies amabilis</i>		■	■			■	■		amabilis fir	
	<i>Abies lasiocarpa</i>	■	■	■	■	■	■	■	■	subalpine fir	
	<i>Picea engelmannii</i> x <i>glauca</i>						■	■		hybrid white spruce	
• Shrub layer	<i>Tsuga mertensiana</i>	■	■	■	■	■	■		■	mountain hemlock	
	<i>Vaccinium membranaceum</i>	■	■	■	■	■	■	■		black huckleberry	
	<i>Abies lasiocarpa</i>	■	■	■	■	■	■	■	■	subalpine fir	
	<i>Abies amabilis</i>		■	■			■			amabilis fir	
	<i>Menziesia ferruginea</i>		■	■			■	■	■	false azalea	
	<i>Vaccinium ovalifolium</i>			■	■			■		oval-leaved blueberry	
	<i>Ribes lacustre</i>			■			■			black gooseberry	
	<i>Rubus parviflorus</i>				■					thimbleberry	
	<i>Oplopanax horridus</i>					■	■	■		devil's club	
	<i>Alnus crispa</i> ssp. <i>sinuata</i>						■	■	■	Sitka alder	
	<i>Salix</i> spp.								■	willows	
	• Herb layer	<i>Cassiope mertensiana</i>	■							■	white mountain-heather
		<i>Empetrum nigrum</i>	■							■	crowberry
<i>Cornus canadensis</i>			■	■	■	■	■			bunchberry	
<i>Rubus pedatus</i>				■	■	■	■	■		five-leaved bramble	
<i>Streptopus roseus</i>				■	■	■	■	■		rosy twistedstalk	
<i>Tiarella</i> spp.						■	■	■		foamflowers	
<i>Valeriana sitchensis</i>				■	■	■	■	■		Sitka valerian	
<i>Gymnocarpium dryopteris</i>					■	■	■	■		oak fern	
<i>Streptopus amplexifolius</i>						■	■			clasping twistedstalk	
<i>Athyrium filix-femina</i>						■		■	■	lady fern	
<i>Equisetum arvense</i>							■	■	■	common horsetail	
<i>Carex</i> spp.								■	■	sedges	
<i>Caltha leptosepala</i>									■	white marsh-marigold	
• Moss layer	<i>Cladina</i> spp.	■	■							reindeer lichens	
	<i>Cladonia</i> spp.	■	■							lichens	
	<i>Barbilophozia</i> spp.	■	■	■	■		■			leafy liverworts	
	<i>Dicranum fuscescens</i>	■	■	■	■	■	■			curly heron's-bill moss	
	<i>Pleurozium schreberi</i>	■	■	■	■		■	■		red-stemmed feathermoss	
	<i>Rhytidiopsis robusta</i>			■	■		■			pipecleaner moss	
	<i>Drepanocladus uncinatus</i>						■			sickle moss	
	<i>Mnium</i> spp.					■	■	■	■	leafy mosses	
	<i>Brachythecium</i> spp.						■	■	■	ragged mosses	
	<i>Aulacomnium palustre</i>							■		glow moss	
<i>Sphagnum</i> spp.								■	sphagnums		

^a Prominence bars are described in Section 3.2.2, page 3 • 6.

^b Site series 51 (Avalanche track) has not been sampled in this subzone. See page 5 • 81 for general descriptions.

^c Limited data; unit described from fewer than three plots.

Site Units

ESSFmk Environment Table

Site series ^a	Phase	Soil moisture/ nutrients	Slope position	Slope % range	Parent material ^b
01		4-5/B-C	mid (- toe)	5 - 60	M, (F)
02 ^c	a) Lithic	0-2/A-C	upper - crests	5 - 80	Cv/R
02 ^c	b) Fluvial	0-2/A-C	level - mid	0 - 5	F, FG
03		3-4/A-(C)	upper - crests	5 - 40	M, FG
04 ^c		4-5/(C)-E	lower - toe	15 - 35	M,F
05 ^c		4-6/D-E	lower - toe	15 - 35	C, F
06 ^c		5-6B-C	toe	0 - 15	F
07 ^c		6-7/D-E	toe - level	0 - 15	F
31 ^c		7+/A-E	depressions	0	O

^a Site Series 51 (Avalanche track) has not been sampled in this subzone. Refer to ESSFmc.

^b Codes are described in Section 3.2.2, page 3 • 8.

^c Limited data; unit described from fewer than three plots.

Soil particle size^b	Soil classification^b	Humus form depth (cm) min-mean-max	Important site features
KL, Ss	HFP	Mors 2 - 4 - 6	In contrast to other ESSF subzones, soil moisture deficits may occur.
Ss, Ls	HFP, DYB	Mors 1 - 5 - 10	Very dry, shallow soils over rock. Crusty mor humus forms predominate.
Ss, KL	HFP	Mors 1 - 5 - 10	Very dry, gravelly deposits. Crusty mor humus forms predominate.
FL(s) to KL(s)	HFT	Mors 2 - 5 - 15	Rooting restricted by cemented horizons or bedrock.
KL, Ss	HFP; (gleyed)	Mors 5 - 7 - 10	Relatively uncommon seepage sites. Cemented layers may occur.
KL,Ls	HFP; (gleyed)	Mors, Moders 8 - 9 - 11	Loose crumbly humus forms. Ah horizons often present.
KL	HFP gleyed, G	Mors 4 - 6 - 9	Seepage at or near the soil surface. Cold soils.
KL	G	Mors (Moders) 4 - 12 - 23	Nutrient-rich sites but saturated, poorly aerated soils restrict rooting.
--	F, M	peaty "O" horizons > 60 cm	Non-forested wetlands. Soils too wet and cold for tree growth.