

# ICHmk1

## Variant Summary

### Kootenay Moist Cool Interior Cedar -Hemlock Variant

**Location:** Valley bottoms or areas of moderate relief between ICHmw1, ICHmw2, or ICHdw and subzones of the Dry Climatic Region. The ICHmk1 occurs in the Rocky Mountains along the Lower Bull, Lower Elk River, Upper Kootenay, Beaverfoot, and Kickinghorse rivers; in the Rocky Mountain Trench between the Spillimacheen and Blackberry rivers; in the southern Purcell Mountains along the St. Mary, Moyie, and Yahk rivers; and in the southern Monashee Mountains within the Kettle and Granby River drainages. This variant also occurs in the Kamloops Forest Region.

**Elevation range:** 800 to 1550 m (south aspect); 750 to 1500 m (north aspect).

**Climate<sup>28</sup>:** Moist Climatic Region: warm, wet summers; cool winters with moderate snowfall. Soils generally dry out for moderate to nonexistent time periods in late summer. Snowpacks are generally moderate in depth and duration. This prevents soil freezing to any significant depth, except for bladed soils. Soil temperature is a major growth limiting factor, along with air temperature, on depressional sites.

**Soils, geology, and landforms:** Common rock types in the Rocky Mountain area of the ICHmk1 include limestone, dolomite, calcareous shale, sandstone, argillite, and quartzite. The Rocky Mountain Trench area of this variant is underlain by recent sediments intermixed with hills of quartzite, limestone, calcareous phyllite, and sandstone. In the Purcell Mountain area of this variant, bedrock includes argillite, phyllite, siltstone, limestone, sandstone, granodiorite, quartz diorite, and schist. Rock types in the Monashee Mountain area of this variant include granitics, andesite, argillite, quartzite, sandstone, conglomerate, gneiss, schist, and basalt. Morainal soils with loamy, silty, or sandy surface textures occur on all slope positions. Glaciofluvial soils with loamy or sandy textures are found on lower to upper slopes in proximity to morainal soils. Soils often have a capping of fine silty loess. Fluvial soils with silty, sandy, or loamy textures occur on lower and level slopes. Steep, upper slopes have colluvial deposits with loamy or sandy textures. Upper slopes occasionally have root-restricting layers where bedrock or compact moraine occurs at shallow depths. Calcareous soils are common in the Rocky Mountain and adjacent Trench areas.

**Zonal vegetation:** Climax zonal sites have stands of Cw, Sxw, and Bl. Seral stands of Pl, Fd, and Lw are common. Falsebox, black huckleberry, and Utah honeysuckle are common shrubs. Common herbs are twinflower, bunchberry, queen's cup, and prince's pine. Red-stemmed feathermoss is very common.

### Distinguishing the ICHmk1 from adjacent subzones/variants

In the <b>ESSFwc1</b>	- white-flowered rhododendron and oval-leaved blueberry
most sites have:	- no round-leaved violet or roses
	- less Fd and Lw
dry sites have:	- no pinegrass
wet sites have:	- spiny wood fern, Sitka valerian, and cow-parsonip
	- no red-osier dogwood
In the <b>ESSFdcl</b>	- grouseberry, mountain arnica, and subalpine daisy
most sites have:	- no Fd, Lw, Cw, Douglas maple, saskatoon, tall Oregon-grape, or showy aster
	- less prince's pine, thimbleberry, and false Solomon's-seal
zonal sites also have:	- white-flowered rhododendron
dry sites have:	- no yarrow
	- less soopolallie
wet sites have:	- trapper's tea
	- no red-osier dogwood, red raspberry, sweet-scented bedstraw
In the <b>ICHdw</b>	- Hw and Bg
most sites have:	- more Pw and Py
	- less Bl, Sxw, Pl, showy aster, pinegrass, and bunchberry

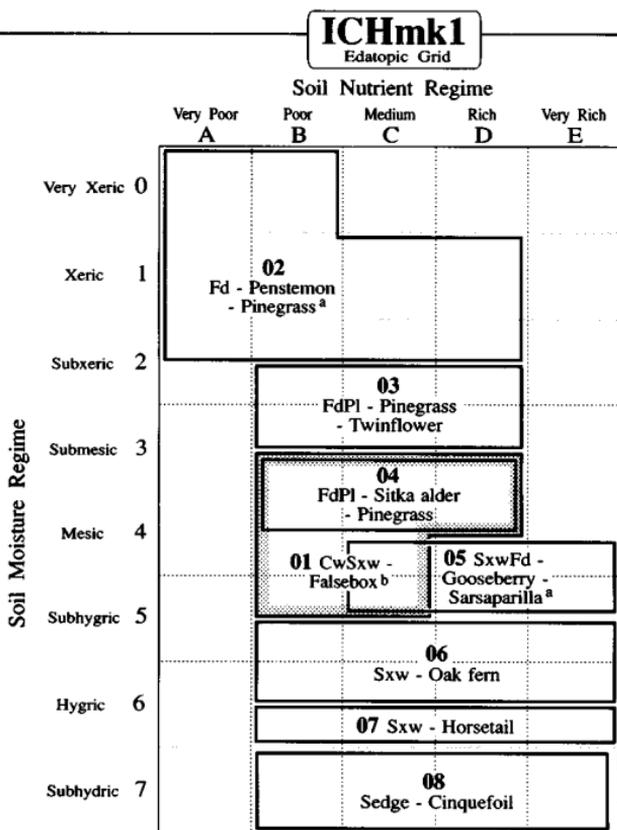
<sup>28</sup> Values for climate descriptors given in Appendix 12.

In the <b>ICHmw1</b> most sites have:	- Pw, Hw, western yew, oval-leaved blueberry, or cladinas - Less heart-leaved arnica, pinegrass, and racemose pussytoes
In the <b>ICHmw2</b> most sites have:	- Pw, Hw, western yew, and oval-leaved blueberry
dry sites have:	- less pinegrass, cladinas, and racemose pussytoes
In the <b>MSdm1</b> most sites have:	- more heart-leaved arnica and grouseberry - less Douglas maple
zonal sites also have:	- no Cw
dry sites have:	- more round-leaved alumroot - less racemose pussytoes
wet sites have:	- more pink wintergreen

**Forest characteristics:** The ICHmk1 has been extensively disturbed by wildfires, so climax stands are rare. Seral stands with Pl are common. These stands have extensive mountain pine beetle history.

**Range characteristics:** Grazing is common in the lower elevations of this variant. Good livestock management is necessary to minimize the impacts on regeneration.

**Wildlife habitat:** This subzone is utilized during summer and fall by moose and deer. Pockets of old growth are important for maintaining insect-feeding, cavity nesting birds such as Williamson's Sapsucker and Black-backed Woodpecker. These species help to control forest insect pests.

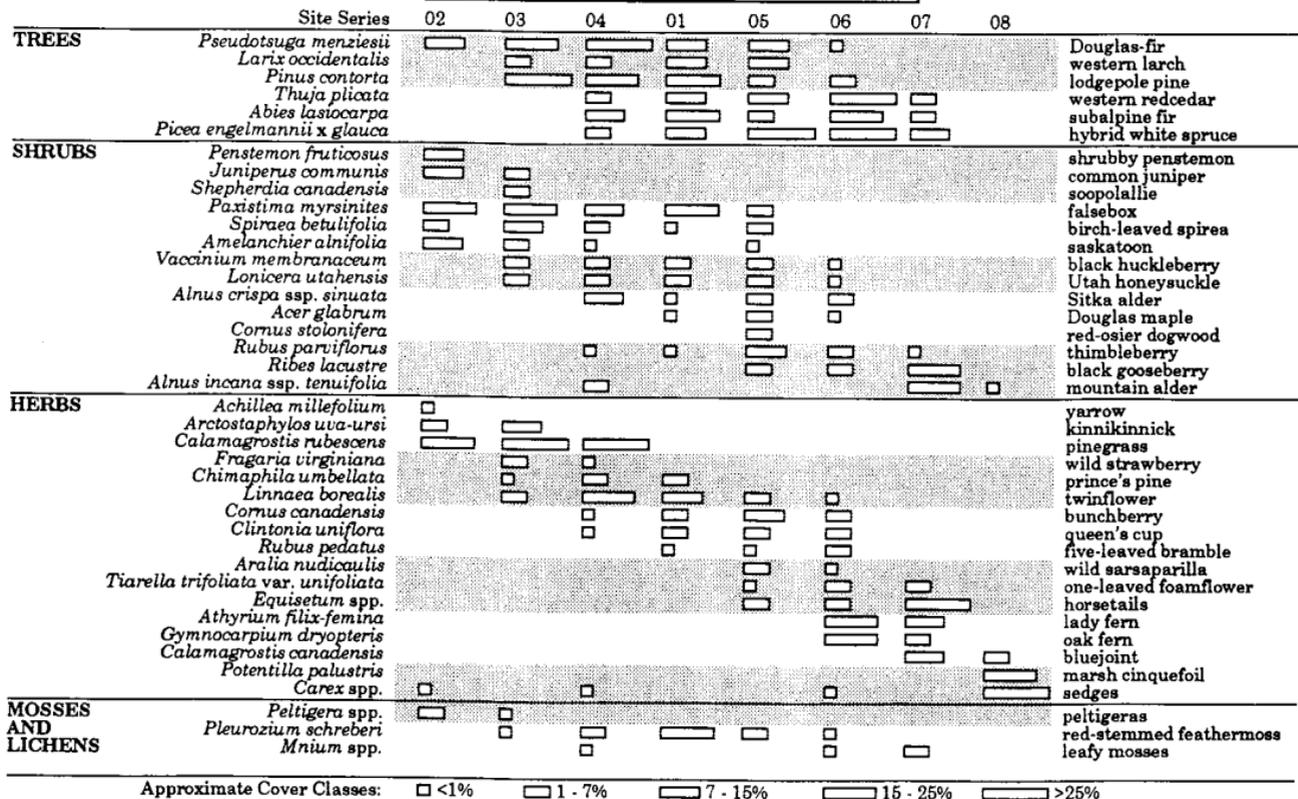


Shading used where considerable site series overlap occurs.

<sup>a</sup> Site Series 02 and 05 have different names in Lloyd *et al.* (1990)

<sup>b</sup> 01 - YS in Lloyd *et al.* (1990) not recognized.

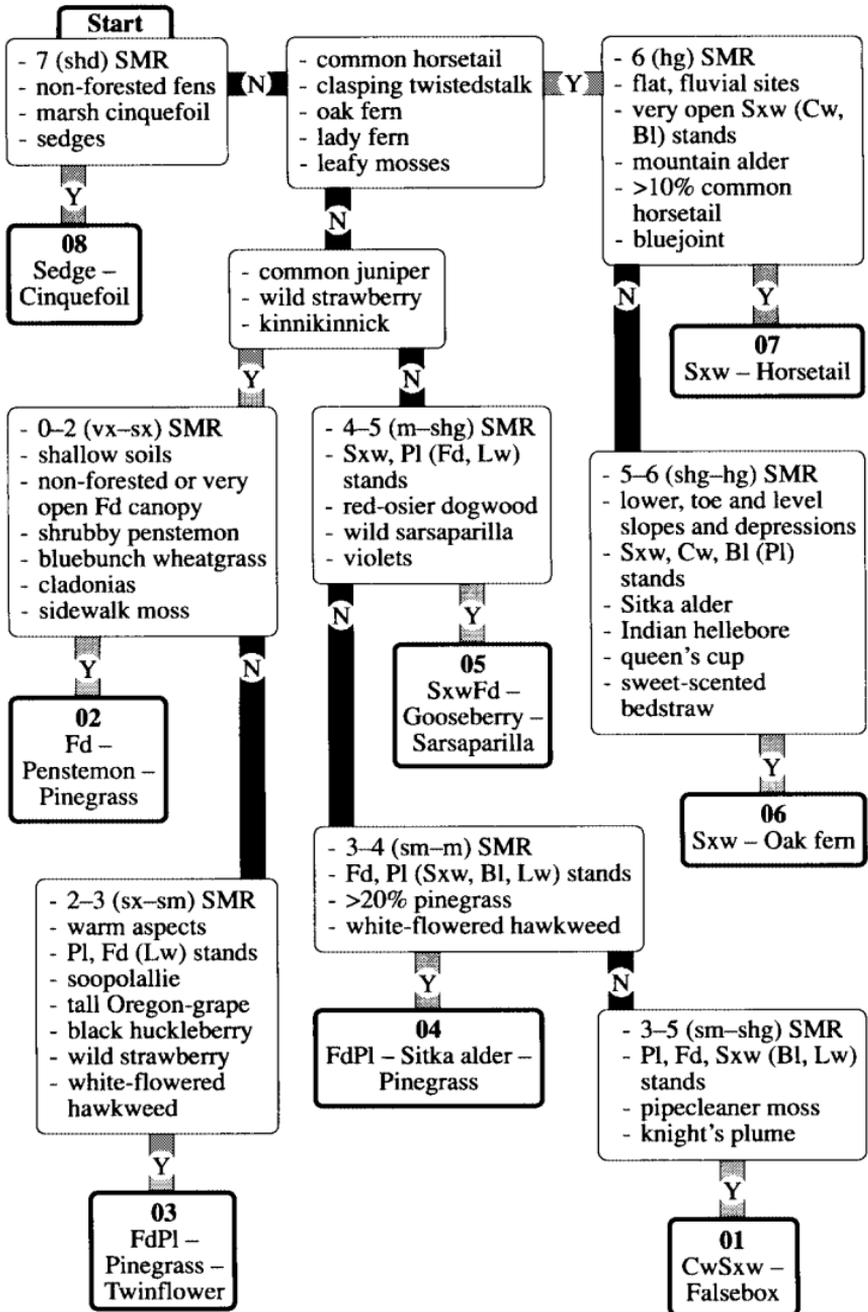
# ICHmk1 Vegetation Table



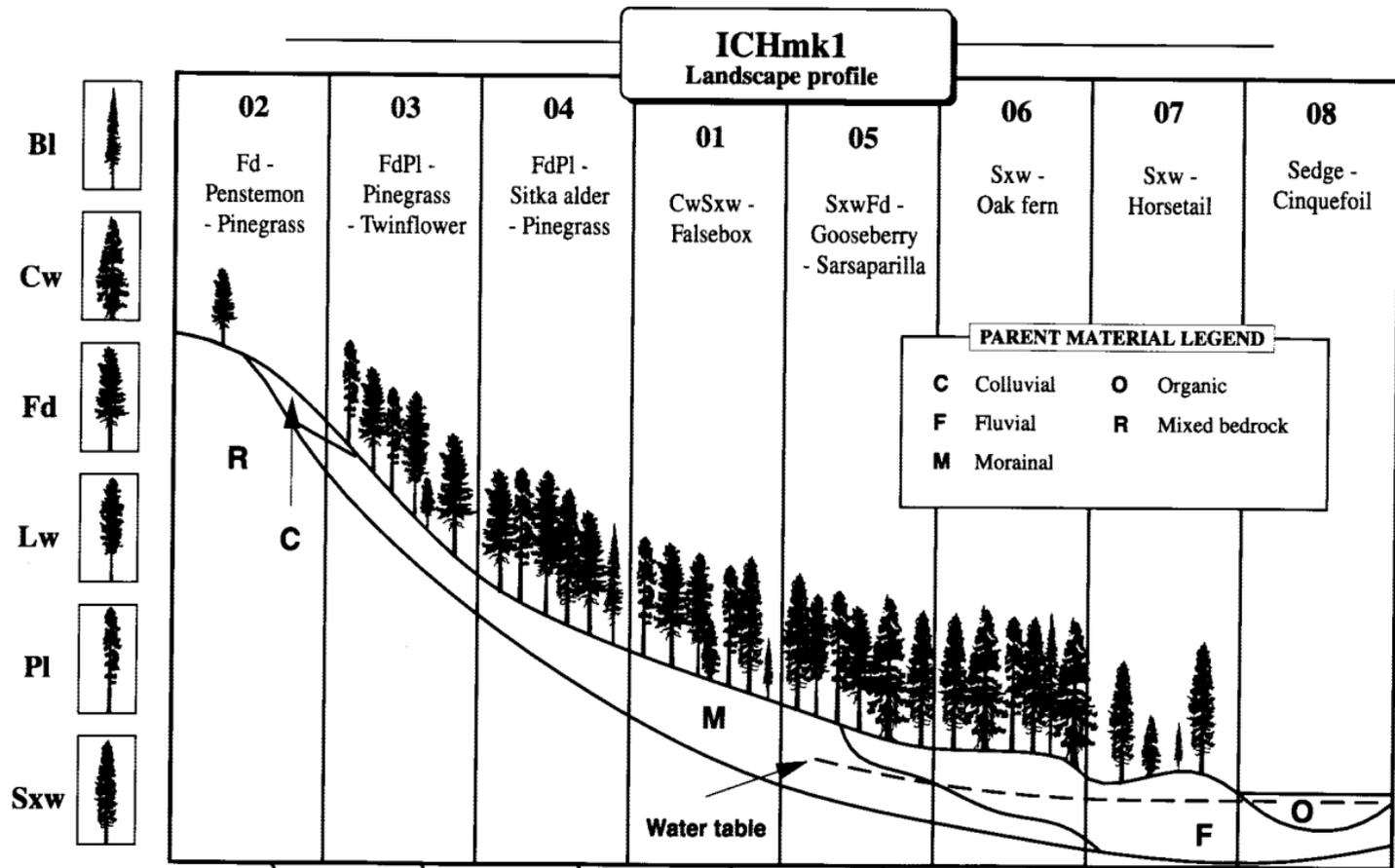
Approximate Cover Classes:    □ <1%    ▬ 1 - 7%    ▬ 7 - 15%    ▬ 15 - 25%    ▬ >25%

# ICHmk1

## Site Series Flowchart



Y = Yes; N = No



**ICHmk1 Environmental Table**

Site series		02	03	04	01	05	06	07	08
Number of plots		7	11	5	40	15	12	2	2
Soil moisture regime <sup>a</sup> (SMR)		0-2 vx-sx	2-3 sx-sm	3-4 sm-m	3-4(5) <sup>b</sup> sm-m(shg)	4-5 m-shg	5-6 shg-hg	6 hg	7 shd
Aspect		warm (variable)	warm	variable	variable	variable	variable	n.a.	n.a.
Slope gradient %		variable	20-53	variable	0-40	0-20	0-30	0	0
Slope position		crest and upper	upper-mid	upper- lower	upper-lower, level	mid-toe, depression	lower-toe, depression, level	level, depression	level, depression
Parent material		C(M)	M,C,FG(F)	M(C,F)	M,FG,F	F,M	F(M)	F	O
Soil texture coarse fragments % (min.- <b>mean</b> -max.)	0-30 cm	no data	L,S 25-31-27	L 40-40-40	L(\$,S) 5-23-40	\$,L(S) 0-10-20	S,L(C,\$) 0-8-15	no data	organic
	30+ cm	no data	L,S 28-42-55	L 67-67-67	S,C,L(\$) 16-40-60	S,L(C) 0-23-55	S,L(C,\$) 2-11-20	no data	organic
Humus form — LFH thickness cm (min.- <b>mean</b> -max.)		Moder, Mor 1-2-3	Moder, Mor 1-3-5	Mor 3-6-13	Mor 0-5-22	Mor (Moder) 2-8-20	Mor, Moder 4-8-16	Mor, Moder, Mull 3-7-10	organic soil
Important site features		restricting layers common	—	some eolian veneers	some restric- ting layers	some seepage at depths 30-100 cm	some seepage at depths 30-100 cm	water table at depths 10-100 cm	water table 0-30 cm deep

<sup>a</sup> Environmental features contained in this table are defined in Section 3.4.4.

<sup>b</sup> Values in brackets less common.

**ICHmk1**  
Management Interpretations<sup>a</sup>

Site series	Number of plots	Common seedling growth limiting factors <sup>a,b</sup>	Relative tree productivity		Vegetation potential - common complexes <sup>c</sup>	Road drainage control needs (see cautions <sup>a,e</sup> )	Common site sensitivities (see cautions <sup>a,e</sup> )	Other prescription considerations
			Gross volume productivity	Growth class (site index, tree species)				
02	7	Dry soil, Nutrients	Non-forest	n.a.	Low - pinegrass	Low	Insufficient data	No timber values
03	11	Dry soil, Nutrients	Low	Medium <sup>f</sup> (19, Fd)	Low - pinegrass, dry shrub, fireweed	Mod.	H forest floor displacement hazard on moderate slopes	Partial cutting recommended; seed banking species prolific after fire; Conserve limited organic matter on moderate and steeper slopes
04	5	Dry soil, Cold soil, Cold air temp., Nutrients (on >30% slopes)	No data	No data	Medium - pinegrass, dry alder	Mod.	-----	-----
01	40	Cold air temp., Cold soil, Dry soil, Nutrients (on >30% slopes)	Low	Medium (20, Fd)	Medium - mixed shrub, fireweed	Mod.	H forest floor displacement hazard on all sites; H mass wasting hazard on moderate slopes	Conserve limited organic matter; Special road construction/maintenance on moderate and steeper slopes

05	15	Cold soil, Cold air temp.	Med.	Good (22, Fd)	Medium - mixed shrub, fireweed	High	High compaction hazard	Flat sites frost prone
06	12	Vegetation, Cold air temp., Cold soil	Med.	No data	High - mixed shrub, fern, wet alder	High	-----	Windthrow hazard; Water table may rise post-harvest; Flat sites frost prone; Partial cutting questionable; Riparian
07	2	Cold air temp., Vegetation, Cold soil	No data	No data	High - wet alder, mixed shrub, fern	High	Insufficient data	No timber values; Random machine travel on snowpack if silty, clayey, or organic; Riparian
08	2	Moisture, Cold air temp., Cold soil	Non- forest, fen	n.a.	Medium - sedges	High	H compaction and displacement hazard on organic soils	No timber values; Riparian

<sup>a</sup> **Caution:** Based on sample plot data; some interpretations expected to vary with individual site conditions. Use of original interpretive tools is necessary; these interpretations are presented here to "red flag" common concerns. This table outlines key considerations that should go into management decisions. Rationale and interpretive tools are discussed in Section 3.6.

<sup>b</sup> These include air temperature, soil temperature, vegetation, soil moisture, and soil nutrients; use of SYTEPREP recommended, see Section 3.6.1.

<sup>c</sup> Complexes described in Newton and Comeau (1990).

<sup>d</sup> **Caution:** This is presented here to "red flag" common drainage needs and is not intended to substitute for site specific engineering interpretations, see Section 3.6.4.

<sup>e</sup> **Caution:** Site sensitivity keys must be used with your site data for the PHSP; see Section 3.6.5.

H = high, 30 - 45% = moderate slope.

<sup>f</sup> Sample size less than five plots for site index determination.

TABLE 6.1 Selected wildlife species by subzone and variant<sup>a</sup>

Species	Status <sup>b</sup>	Degree of old-growth need <sup>c</sup>	PP dh1	PP dh2	MS dm	MS dk	IDF xh	IDF dm1	IDF dm2	ICH dw, xw	ICH mk	ICH mw	ICH wk	ESSF dk, dc	ESSF wm, wc, vc
<b>AMPHIBIANS</b>															
Coeur d'Alene salamander	B									y <sup>d</sup>					
Ensatina salamander	G	a					y								
Tailed frog	B	a									y				
Tiger salamander	B						Y	Y							
<b>REPTILES</b>															
Gopher snake	B		Y				Y								
Night snake	B						y								
Western rattlesnake	B		Y				Y			y					
Painted turtle	Y		Y	Y			Y	Y	Y	Y	Y	Y	y		
<b>MAMMALS</b>															
Badger	B		y	y	y	y	Y	Y	Y	y	y	y	y	y	y
Big brown bat	G	a	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Bighorn sheep	Y			pw	y	Psaw	PW	Y	Y	y	s			Y	s
Black bear	Y	a	y	y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Bobcat	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Caribou	B	d				w						sW	Y	PsAW	Y
Cascade mantled ground squirrel	R	a			y		y	y						y	
Cougar	Y		y	y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Coyote	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Elk	Y		Y	Y	s	Y	y	Y	Y	Y	Y	Sy	y	PSAw	SA
Fisher	B	a			Y	Y	Y		Y		y	y	y	Y	Y

TABLE 6.1. (Continued)

Species	Status <sup>b</sup>	Degree of old-growth need <sup>c</sup>	PP dh1	PP dh2	MS dm	MS dk	IDF xh	IDF dm1	IDF dm2	ICH dw, xw	ICH mk	ICH mw	ICH wk	ESSF dk, dc	ESSF wm, wc, vc
<b>MAMMALS</b>															
Gray wolf	Y		y	y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Great Basin pocket mouse	B		Y												
Grizzly bear	B	a			y	PSAw	p	p	p	Psaw	y	y	Y	SAW	SAW
Long-legged myotis	G	a	S	S			S	S	S	S	S	S	S	S	S
Lynx	Y		y	y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Marten	Y	d	y	y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Moose	Y	a			Y	Y	PsAW		Y	y	Y	Y	y	pSAw	pSAw
Mountain goat	Y	a			y	PsAW	y		w			Y		Y	Y
Mule deer	Y	a	PsAW		PSAW	Y	Y	Y	Y	Y	S	Sw	S	SA	SA
Northern flying squirrel	G	a			Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Northern long-eared myotis	B	a										s	s		S
Porcupine	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Red-tailed chipmunk	B					Y				Y	y	Y			
River otter	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Silver-haired bat	Y	a	S	S	S	S	S	S	S	Y	Y	Y	Y	S	S
Southern red-backed vole	G	a			Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Townsend's big-eared bat	R		S				S	S		y	y	y			
White-tailed deer	Y		Y	Y	PSA	Y	Y	Y	Y	Y	S	S	s	PSA	PSA
Wolverine	Y	a	y	y	y	y	Y	Y	Y	y	y	y	y	y	y

TABLE 6.1. (Continued)

Species	Status <sup>b</sup>	Degree of old-growth need <sup>c</sup>	PP dh1	PP dh2	MS dm	MS dk	IDF xh	IDF dm1	IDF dm2	ICH dw, xw	ICH mk	ICH mw	ICH wk	ESSF dk, dc	ESSF wm, wc, vc
<b>BIRDS</b>															
American Avocet	B		p			p			ps	p	p				
American White Pelican	R		sm				sM	sM	sm		sm				
Anna's Hummingbird	B						aw	sw	w		pw				
Arctic Tern	B						sa	a							
Bald Eagle	B	a	swM		ps	ps	swM	swM	swM	sM	swM	Psa	ps	ps	
Barn Owl	Y						y	s			psw				
Barred Owl	G	a	pw				y	y	y	a	y	a			
Barrow's Goldeneye	Y	a	SwM		sm	sm	SwM	SwM	SwM	sm	y	y	sm	sm	
Black-backed Woodpecker	G	a	y	y	y	y	y	y	y	y	y	y	y	y	y
Black-chinned Hummingbird	B						ps	ps	ps		ps				
Black-crowned Night Heron	B						sm			s	ps				
Blue Grouse	Y	a	y	y	y	y	y	y	y	y	y	y	y	y	y
Bobolink	B		ps			s	ps	ps	ps	ps	ps				
Boreal Owl	G	a			a	a				p		p		y	y
Brewer's Sparrow	B		ps				ps	ps	ps	ps					
Brown Creeper	G	a	y	y	y	y	y	y	y	y	y	y	y	y	y
Bufflehead	Y	a	SwM	SwM	SwM	SwM	SwM	SwM	SwM	sm	SwM	ps	ps	ps	ps
Burrowing Owl	R		wm				y	a							
California Gull	B		sa				Y	ps	sm	sm	PSa w	sa			
Canyon Wren	R		y				sm			y					

TABLE 6.1. (Continued)

Species	Status <sup>b</sup>	Degree of old-growth need <sup>c</sup>	PP dh1	PP dh2	MS dm	MS dk	IDF xh	IDF dm1	IDF dm2	ICH dw, xw	ICH mk	ICH mw	ICH wk	ESSF dk, dc	ESSF wm, wc, vc
<b>BIRDS</b>															
Caspian Tern	B						ps			ps					
Chestnut-backed Chickadee	G	a			y	y				Y	y	Y	Y		
Clark's Nutcracker	G	a	AW		psAW	psAW	sMW		sMW	psAW	psAW	psAW	y	y	y
Common Merganser	Y	a	SwM		sm	sm	SwM		SwM	PSaw	SwM	SwM	sm	ps	ps
Common Poorwill	R		s				sm		s	ps					
Flammulated Owl	B	a	a		ps		s		sm					s	
Forster's Tern	R						sm			PSa					
Grasshopper Sparrow	B						sm		ps						
Gray Jay	G	a	w		y	y	y		y	y	y	y	y	y	y
Great Blue Heron	B	a	Y		s	s	Y		Y	SwM	sa	SwM	sa		
Great Gray Owl	G	a	y		s		y		y		w	w			
Green-backed Heron	B								s	p					
Gyrfalcon	B						wm		wm		a				
Hairy Woodpecker	G	a	y		y	y	y		y	y	y	y	y	ps	ps
Hermit Thrush	G	a	sm		sa	sa	sm		sm	sm	sm	sm	sm	s	s
Hooded Merganser	Y	a	SwM		sm	sm	SwM		SwM	PSaw	SwM	SwM	sm	ps	ps
Hudsonian Godwit	B					s	a		p						
Least Sandpiper	B		sm		a	a	sm		sm	a	a	a	a	a	a
Le Conte's Sparrow	B								s						

TABLE 6.1. (Continued)

Species	Status <sup>b</sup>	Degree of old-growth need <sup>c</sup>	PP dh1	PP dh2	MS dm	MS dk	IDF xh	IDF dm1	IDF dm2	ICH dw, xw	ICH mk	ICH mw	ICH wk	ESSF dk, dc	ESSF wm, wc, vc
<b>BIRDS</b>															
Lesser Golden-plover	B		m				m	m		a		a			
Lewis' Woodpecker	B	a	sm				SwM	sm		sm	sm	sm	a		
Long-billed Curlew	B		ps				psa	ps		ps					
Merlin	G	a	y	sm	sm	y	y	y	y	y	y	sm	sm	sm	
Northern Goshawk	G	a	y	y	y	y	y	y	y	y	y	y	y	y	y
Northern Shrike	B		mw	mw	mw	y	y	y		mw	mw	mw	mw	a	a
Olive-sided Flycatcher	G	a		ps	ps	sm	sm	sm		ps	ps	ps	ps	s	s
Osprey	Y	a	PSa	ps	ps	PSaw	PSa	SwM		ps	PSaw	sm			
Pacific Loon	B		swm	s		swm	swm	swm		sm	swm	sm	sm	sm	sm
Peregrine Falcon	B		sm	m	sm	y	sm	sm		sm	sm	sm	ps	ps	ps
Pileated Woodpecker	Y	a	y		y	y	y	y		y	y	y	y		ps
Prairie Falcon	R		m			y	sm	sw		y	s				
Pygmy Nuthatch	G	a	y			y	y								
Red-breasted Nuthatch	G	a	y	y	y	y	y	y		y	y	y	y	y	y
Red-breasted Sapsucker	G	a				s						ps			
Red Crossbill	G	a		Y	Y	Y	Y	Y		Y	Y	Y	Y	y	y
Red-throated Loon	B					aw	a								
Ring-billed Gull	B		sm			Y	sm	swM		sm	sM	s			
Short-billed Dowitcher	B		p		ps	a	m	s			s				
Spruce Grouse	Y	a	y	y	y	y	y	y		y	y	y	y	y	y
Three-toed Woodpecker	G	a	y	y	y	y	y	y		y	y	y	y	y	y
Townsend's Warbler	G	a		sm	sm	sm	sm	sm		sm	sm	sm	sm	sa	sa

TABLE 6.1. (Continued)

Species	Status <sup>b</sup>	Degree of old-growth need <sup>c</sup>	PP dh1	PP dh2	MS dm	MS dk	IDF xh	IDF dm1	IDF dm2	ICH dw, xw	ICH mk	ICH mw	ICH wk	ESSF dk, dc	ESSF wm, wc, vc
<b>BIRDS</b>															
Varied Thrush	G	a	w		sm	sm	y		y	psAW	smw	psA W	psA W	sm	sm
Vaux's Swift	B	a	PS				PSa	PSa	PSa	ps	PSa	s			
Western Bluebird	B		ms				sm			sm	sm	sm			
Western Flycatcher	G	a			sm	sm				sm	sm	sm	sm		
Western Grebe	B					m	SwM	sm	SwM	sm	sm	sm	sm		
White-breasted Nuthatch	G	a	y				y	y	y	y	y	m			
White-headed Woodpecker	B	a					y	ps							
White-throated Swift	B		ps				ps			ps					
White-winged Crossbill	G	a			sm	sm	sm	sm	sm	sm	sm	sm	sm	sa	sa
Williamson's Sapsucker	B	a	ps		sm		ps								
Wood Duck	Y	a	sm				w	ps		sm	ps	ps			
Yellow-breasted Chat	B									s					
Yellow-headed Blackbird	Y		PSaw		ps	ps	PSaw	PSaw	PSa	sm	PSa	ps			
<b>TOTAL<sup>e</sup> AMPHIBIANS</b>			4	4	5	8	7	6	7	6	6	3	3		
<b>TOTAL REPTILES</b>			6	0	0	10	3	7	6	6	4	0	0		
<b>TOTAL MAMMALS</b>			51	54	57	62	63	58	57	63	57	57	56		
<b>TOTAL BIRDS</b>			220	154	172	281	250	262	205	234	188	114	108		

See footnotes next page

TABLE 6.1. (Concluded)

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- a** The following subzones and variants are grouped to match the level of information available for the species listed. IDFxh includes data from IDFxh, xw, and xm; IDFdm includes data from IDFdm and dk; ICHmk includes data from ICHmk and dk; ESSFdk and dc includes data from ESSFdk, dc, and dv; and ESSFwm, wc, vc includes data from ESSFwm, wc, vc, vv, vw, and wk. The IDFxw, xm, and dk, ICHdk, and ESSFdv, vv, vw, and wk are not found in the Nelson Forest Region.
- b** R=red; B=blue; Y=yellow; G=green.
- c** a=attribute dependent. Species requires old-growth forest attributes such as large dead trees or coarse woody debris (stand level).  
d=forest dependent. Species requires intact old-growth forests (landscape level).
- d** Abundance is indicated by a lower or upper case letter. Common or abundant is an upper case letter. Uncommon, scarce, rare, or casual is a lower case letter. An upper case letter does not indicate abundance throughout a subzone variant, but nearly always refers to local abundance. However, if a species has a known abundance in only a small locality in a subzone or variant a lower case letter is used. Seasonality is indicated by a letter code.  
P - spring (March-May); S - summer (June -August); A - autumn (September-November); W - winter (December-February); M - migratory (Spring and Autumn);  
Y - yearlong. Some cases do not fit neatly into this scheme. For instance, a species which is known to be migratory, but has on occasion been seen in December in a particular subzone, would still be listed as M. All entries are based on the provincial wildlife data base prepared by Stevens (1992) for the Wildlife Interpretation Subgroup.
- e** Totals refer to the total number of species known to occur in each subzone.