#### EXPANDED LEGEND FOR THE UPLAND PORTION OF ROBSON BIGHT ECOLOGICAL RESERVE AND TSITIKA MORATORIUM AREA 1:20 000 BIOPHYSICAL HABITAT MAP

PAC 1623 Lower Tsitika

Prepared for:

South Coast Region,
Parks Division,
Ministry of Environment, Land and Parks

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# INTRODUCTION

# 1.1 Background

This project was requested by BC Parks of the Ministry of Environment, Lands and Parks to map biophysical terrain and habitat of the upland area of Robson Bight Ecological Reserve and the Tsitika Moratorium area (Figure 1). Terrain and habitat mapping can be used to characterize ecological units within the study area to provide assistance in management and planning of enhancement projects.

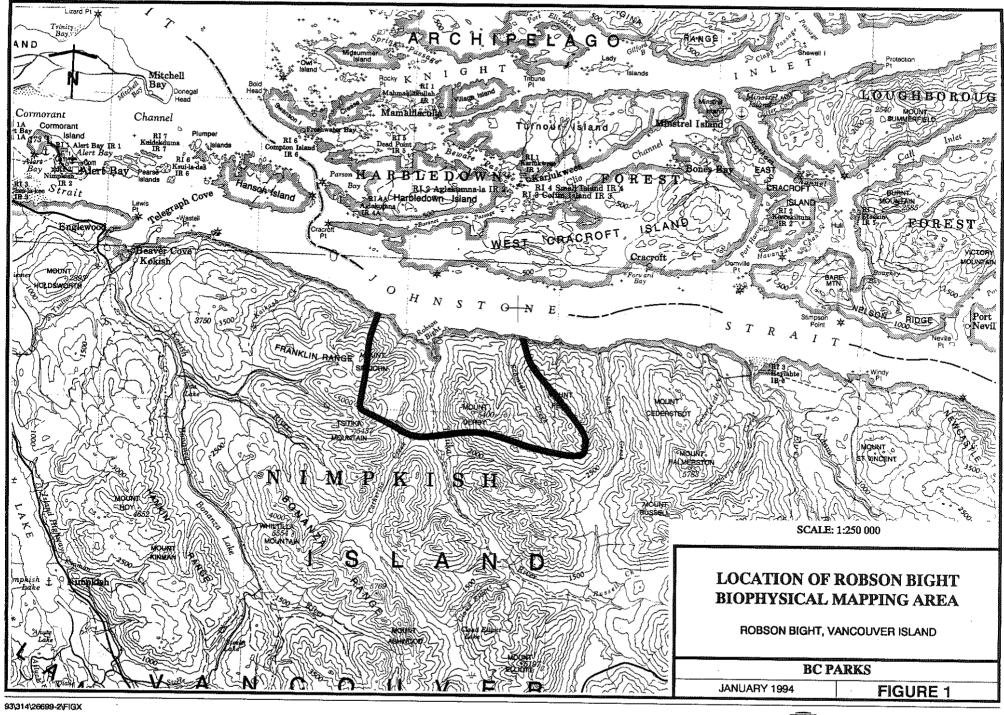
For the present study, the terms of reference provided by BC Parks specified the scale of mapping as 1:20 000 to include the immediate shoreline and upland areas. The marine area of the Robson Bight Ecological Reserve was not included in the present mapping project. The shoreline mapping was limited to the classification of shoreline units, as per the methodology being developed for shoreline classification in British Columbia.

The upland portion of Robson Bight Ecological Reserve and the adjacent Tsitika Moratorium area provide habitat for Roosevelt elk (Cervus elaphus roosvelti), blacktailed deer (Odocoileus hemionus columbianus), black bear (Ursus americanus) and a variety of smaller carnivores and small mammals. A wide variety of bird species also occurs in the area, ranging from aquatic birds associated with the estuary of the Tsitika River to species associated with mature coastal coniferous forests, to those species associated with subalpine krummholz plant communities.

Several wildlife species on the BC Red List or the BC Blue List occur, or may occur in the study area, on the basis of habitat association. The terms of reference provided by BC Parks specified that the project rates the biophysical habitat units for habitat potential for any Red Listed or Blue Listed wildlife species that may occur in the study area.

The present report provides the expanded legend for the mapping project, specifically the biophysical habitat mapping. Separate map legends have been prepared for the 1:20 000 scale terrain maps and the biophysical maps which were provided to BC Parks.

A separate component of the project involved a review of the existing information on archaeological resources of the uplands of the study area. This included a brief summary report and a separate 1:20 000 scale map which has been provided under separate cover to BC Parks.



# 1.2 Study Area

The study area for the present biophysical mapping project is limited to the upland portions of the Robson Bight Ecological Reserve and the adjacent Tsitika Moratorium area (Figure 1) plus the Tsitika Mountain Ecological Reserve and the Mt. Derby Ecological Reserve. This area is included on NTS map sheets 92L/7 and 92L/8. The study area was selected by BC Parks and specified in the terms of reference for the study.

#### 1.3 Methods

Soils, terrain, vegetation and wildlife habitat were assessed by field work undertaken in October and November, 1992. Data were collected at 22 sample plots throughout the study area. Data were collected following the forms and procedures as described in "Describing Ecosystems in the Field" (Luttmerding et al., 1990). All data sheets for site, soils, vegetation and wildlife for the 22 plots have been provided to BC Parks.

The 1:20 000 base map was prepared from existing 1:50 000 NTS map sheets 92L/7 and 92L/8 through a photographic process.

The habitat potential ratings for the Red Listed and Blue Listed Wildlife species that may occur in the study area were based on the following factors:

- cover/escape terrain
- food availability
- reproductive utilization; and
- animal movement routes.

The ratings were assigned as nil, low, moderate or high on a species wide basis in the context of southwestern British Columbia. Due to the limited time spent in the field and the limited knowledge of the area, the values were based mostly on habitat preferences/associations and by professional judgement.

The potential occurrence of any Red Listed or Blue Listed species in the study are was based on habitat preferences/associations and species distribution maps (Cowan and Guiguet 1965; Banfield 1974; Godfrey 1966). The Red Listed and Blue Listed Species were taken from a 1993 list prepared by the BC Wildlife Branch and included the following:

#### Red List

Northern Goshawk Water Shrew Keen's Long-eared Myotis Wolverine Accipiter gentilis laingi Sorex palustris brooksi Myotis keenii Gulo gulo vancouverensis

#### Blue List

Bald Eagle
White-tailed Ptarmigan
Marbled Murrelet
Western Screech-owl
Northern Pygmy-owl
Ermine
Roosevelt Elk

Haliaeetus leucocephalus Lagopus leucurus saxatilis Brachyramphus marmoratus Otus kennicottii kennicottii Glaucidium gnoma swarthi Mustela erminea anguinae Cervus elaphus roosevelti

# BIOPHYSICAL HABITAT CLASSIFICATION AND SYMBOLS

#### 2.1 Classification System

Three levels of biophysical classification are used in habitat mapping. These include Ecosections, Biogeoclimatic Units (zones and subzones), and Habitat Classes. Ecosections are a broad level of ecosystem classification based on macroclimatic processes and physiography (Pojar et al, 1991). Biogeoclimatic subzones are areas which have a distinct climax plant community on zonal sites. A subzone consists of unique sequences of geographically related ecosystems in which climatic climax ecosystems are members of the same zonal plant association (Pojar et al, 1991).

The principle difference between ecosection classification and biogeoclimatic classification is that ecosection classification divides the landscape into geographical units that include all elevations, whereas biogeoclimatic classification delineates altitudinal ecological zones within geographical areas. Biophysical habitat classes are areas within biogeoclimatic subzones that are relatively homogenous with regards to terrain (soil, surficial material and topography), disturbance history, climate, animal use and vegetation.

One ecosection and four biogeoclimatic subzones are present in the map area.

# 2.2 Examples of Map Symbols and Labels

On the biophysical habitat maps the following types of map symbols are used:

Ecosections and Biogeoclimatic Units

Ecosection ---- NIM CWHvm1 ---- Biogeoclimatic Unit

Biophysical Habitat Classes

Example 1 WBw5—— Successional Stage

Habitat Unit

Example 2 ROc

Habitat Unit

The successional stages are:

- 1 Herb Shrub
- 2 Pole Sapling (20-40 years old)
- 3 Young Forest (40-100 years old)
- 4 Mature Forest (100-250 years old)
- 5 Old-growth Forest (>250 years old)

Successional stages are not used for non-forested units such as rock outcrop, avalanche track areas, estuaries, wetlands, and sub-alpine.

# DESCRIPTION OF MAP UNITS

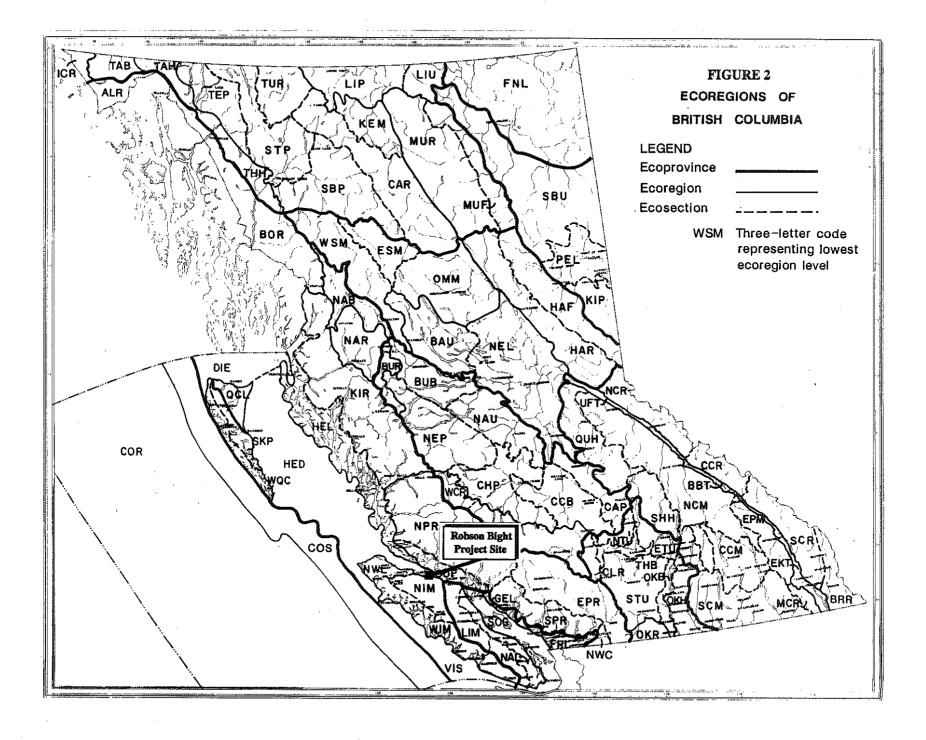
#### 3.1 Ecosections

The study area occurs within the Western Vancouver Island Ecoregion of the Coast and Mountains Ecoprovince (Figure 2). The Western Vancouver Island Ecoregion contains three ecosections, one of which comprises the study area, namely the Northern Island Mountains Ecosection. The Outer Fjordland Ecoregion Comprises the marine environment adjacent to the study area.

Map Symbol	Ecosection	Ecoregion	Ecoprovince
NIM	Northern Island Mountains	Western Vancouver Island	Coast and Mountains
OUF	Outer Fjordland	Pacific Ranges	Coast and Mountains

#### Description

- NIM Northern Island Mountains Ecosection. This ecosection encompasses the northern and leeward mountain sections of the Western Vancouver Island Ecoregion. All of the terrestrial portion of Robson Bight Ecological Reserve is located in this ecosection. This ecosection usually has an elevational sequence of Coastal Western Hemlock Biogeoclimatic Zone in the valley bottoms and lower mountain slopes, and Mountain Hemlock Biogeoclimatic Zone on the valley sides and upper slopes. It extends seaward to the -20 m level and includes a nearshore and an intertidal marine component.
- OUF Outer Fjordland Ecosection. This ecosection encompasses the channels, sounds and straits as well as the islands off the northwestern portion of the Pacific Ranges Ecoregion. The marine portion of the Robson Bight Ecological Reserve deeper than -20 m is located in this ecosection. The islands and peninsula in this ecosection usually have only Coastal Western Hemlock although the Mountain Hemlock zone occurs in the highest inland and peninsulas. Intertidal, nearshore and shallow marine zones occupy the marine waters.



# 3.2 Biogeoclimatic Units

Four biogeoclimatic units are found within the terrestrial or upland portion of the map area. These are described below:

CWHvm1 Very Wet Maritime Coastal Western Hemlock - Submontane Variant

The submontane variant of the Very Wet Maritime Coastal Western Hemlock subzone occurs along the valley bottoms and lower mountain slopes at elevations which range from sea level to approximately 600 m. The Coastal Western Hemlock (CWH) zone typically has cool summers and mild winters. The CWHvm1 is one of the wettest subzones of the CWH zone (Meidinger and Pojar, 1991). Western hemlock, amabilis fir and western redcedar are the common species in the forest cover. Sitka spruce is present along floodplains and the shoreline. Red alder also occurs on disturbed sites (floodplains and slides). Species typically present in the shrub layer include red huckleberry, Alaskan blueberry, and salal. Salmonberry is common on wetter sites (floodplains and seepage areas). Deer fern and sword fern are found in the herb layer. All of the terrestrial portions of Robson Bight Ecological Reserve fall within this biogeoclimatic unit.

CWHvm2 Very Wet Maritime Coastal Western Hemlock - Montane Variant

This variant occurs on the middle to lower mountain slopes above the CWHvm1 variant. Climatic conditions are similar to submontane variant. Western hemlock, amabilis fir and western redcedar are the common tree species. Yellow-cedar and mountain hemlock are present at higher elevations or on cool, wet sites. Common shrub species are similar to those found in the submontane variant.

MHmm1 Moist Maritime Mountain Hemlock - Windward Variant

The Moist Maritime Mountain Hemlock subzone occurs on the middle to upper mountain slopes above the CWHvm subzone. This subzone is characterized by short, cool summers and long, cool, wet winters. Mountain hemlock, amabilis fir and yellow-cedar are the dominant species in the tree layer. The shrub layer is generally well developed and may consist of black huckleberry, Alaskan and oval-leaved blueberry, copperbush, false azalea and white rhododendron. Mountain heathers are common on slightly drier sites (shallow soils or where bedrock is near surface). Parts of the Mr. Derby and Tsitika Mountain ecological reserves fall within this biogeoclimatic zone.

MHmmp1 Moist Maritime Parkland Mountain Hemlock - Windward Variant

The Moist Maritime Parkland subzone occurs on the upper slopes and mountain tops within the map area. This subalpine parkland is subject to a deeper winter snowpack which is slow to disappear and a shorter growing season than the MHmm1 subzone. Common tree and shrub species are similar to those of the MHmm1 subzone. Tree growth is poorer and cover is not continuous in this subzone. Patches of trees are interspersed with subalpine meadows, wetlands and exposed bedrock. The upper elevation of the Tsitika Mountain and Mt. Derby Ecological reserves fall within this Biogeoclimatic zone.

# 3.3 Biophysical Habitat Classes

Symbol Biophysical Habitat Class
----------------------------------

Habitat Classes of the Submontane Variant of the Coastal Western Hemlock - Very Wet Maritime Subzone (CWHvm1)

ES	Estuarine
ROc	Rock outcrop, cool aspect
ROw	Rock outcrop, warm aspect
SF	Sitka spruce - salal, shoreline forest
SS	Sitka alder - salmonberry floodplain
SSf	Sitka spruce - salmonberry, rich soil
SM	Sedge wetland
WBw	Western hemlock - blueberry, warm aspect
WBc	Western hemlock - blueberry, cool aspect
WD	Western hemlock - deer fern, moist gentle slope
WSc	Western redcedar - salal, dry, cool aspect
WSw	Western redcedar - salal, dry, warm aspect

Habitat Classes of the Montane Variant of the Coastal Western Hemlock - Very Wet Maritime Subzone (CWHvm2)

CG	Yellow-cedar - goldthread, very moist site
ROc	Rock outcrop, cool aspect
ROw	Rock outcrop, warm aspect
SM	Sedge wetland
WBw	Western hemlock - blueberry, warm aspect
WBc	Western hemlock - blueberry, cool aspect
WSc	Western redcedar - salal, dry, cool aspect
WSw	Western redcedar - salal, dry, warm aspect

Habitat Classes of the Windward Variant of the Mountain Hemlock - Moist Maritime Subzone (MHmm1)

HBc	Mountain I	hemlock -	blueberry,	cool aspect
HBw	Mountain I	hemlock -	blueberry,	warm aspect
HBm	Mountain I	hemlock -	blueberry,	moderate slope

HD Mountain hemlock - deer cabbage, very moist, moderate slope
HHc Mountain hemlock - mountain-heather forest, dry, cool aspect
HHw Mountain hemlock - mountain-heather forest, dry, warm aspect
HHm Mountain hemlock - mountain-heather forest, dry, moderate slope

LH Leatherleaf saxifrage - hellebore, moist meadow
MBm Mountain hemlock - bramble, moist moderate slope

ROc Rock outcrop, cool aspect
ROw Rock outcrop, warm aspect
ROm Rock outcrop, moderate slope

SAc Sitka alder avalanche chute, cool aspect SAw Sitka alder avalanche chute, warm aspect

SM Sedge wetland

Habitat Classes of the Windward Variant of the Mountain Hemlock - Moist Maritime Parkland Subzone (MHmmp1)

AHm	Mountain heather-meadow, moderate slope
AHc	Mountain heather-meadow, cool aspect
AHw	Mountain heather-meadow, warm aspect

HKc Mountain hemlock - mountain-heather krummholz, cool aspect

HKw Mountain hemlock - mountain-heather krummholz, warm aspect

HKm Mountain hemlock - mountain-heather krummholz, gentle to moderate

slopes

HMm Mountain hemlock - mountain-heather parkland, moderate slope
HMc Mountain hemlock - mountain-heather parkland forest, cool aspect
HMw Mountain hemlock - mountain-heather parkland forest, warm aspect

ROc Rock outcrop, cool aspect
ROw Rock outcrop, warm aspect
ROm Rock outcrop, moderate slope

SAc Sitka alder avalanche chute, cool aspect SAw Sitka alder avalanche chute, warm aspect

TAc Talus and rubble, cool aspect Taw Talus and rubble, warm aspect

# REFERENCES

Banfield, A.W.F. 1974. The Mammals of Canada. University of Toronto Press, Toronto.

Cowan, I. McT. and C.J. Guiquet. 1965. The Mammals of British Columbia. BC Provincial Museum, Handbook 11.

Cseska, A. 1981. Vegetation of the Tsitika River Estuary. Prepared for Ecological Reserves Unit, Ministry of Lands, Parks and Housing, British Columbia.

Godfrey, W.E. 1966. The Birds of Canada. National Museum of Canada Bulletin No. 203. Ottawa.

Luttmerding, H.A., D.A. Demarchi, E.C. Lea, D.V. Meidinger and T. Vold. 1990. Describing Ecosystems in the Field. Second Edition. MOE Manual 11, Ministry of Environment. Victoria, BC.

Meidinger, D.V. and J. Pojar (eds). 1991. Ecosystems of British Columbia. Research Branch, BC Ministry of Forests.

	BG	C Unit: CWHvm1
	ES - E	stuarine habitat class
Description:	occurs on fluvial materials in marine and fresh waters.	the estuary of the Tsitika River. The unit is flooded by
Pl	ant Species and	Map Symbol
Poten	tial Habitat Use by	ES - Edaphic Climax
	Wildlife	
Plant	Dominants	Four vegetation types were identified by A. Ceska, during a detailed survey of the area. These include: Elymus mollis, Deschampsia beringensis, Plantago maritima community and Carex lyngbei communities.
Species		
(	Associates	
Potential Wildlife Use	General	Lack of tree cover limits use by listed species. Feeding habitat for Bald Eagles.
	White-tailed Ptarmigan (saxatilis)(B)	
	Northern Goshawk (laingi) (R)	
Potential Use	Bald Eagle (B)	Н
By Red/Blue	Marbled Murrelet (B)	
Listed Species	Screech-Qwl (kennicotti) (B)	
	Pygmy-Owi (swarthi)(B)	
(R) = Red	Water Shrew (brooksi) (R)	
(B) = Blue	Keen's Long-eared Myotis (R)	
	Wolverine (vancouverensis)(R)	
	Ermine (anginae) (B)	
	Roosevelt Elk (B)	м-н
Comments:		,

M = Moderate

BGC Unit: CWHvm1					
	ROc - Rock out	crop, cool aspect habitat class			
Description:	areas of bedrock outcrop on	steeply sloping, cool aspects			
ž.					
	ant Species and	Map Symbol			
Poten	tial Habitat Use by	ROc - Edaphic Climax			
	Wildlife				
Plant	Dominants				
Species	Associates				
Potential Wildlife Use	General	lack of large trees limits use by red/blue listed species			
	White-tailed Ptarmigan (saxatilis)(B)				
	Northern Goshawk (laingi) (R)				
Potential Use	Bald Eagle (B)				
By Red/Blue	Marbled Murrelet (B)				
Listed Species	Screech-Qwl (kennicotti) (B)				
	Pygmy-Owl (swarthi)(B)				
(R) = Red	Water Shrew (brooksi) (R)				
(B) = Blue	Keen's Long-eared Myotis (R)				
	Wolverine (vancouverensis)(R)				
	Ermine (anginae) (B)	-			
	Roosevelt Elk (B)	Nil			
Comments:					

M = Moderate

	BGO	C Unit: CWHvm1
	ROw - Roo	ck outcrop, warm aspect
Description:	areas of bedrock outcrop on	steeply sloping, warm aspects
\$F	·	
	ant Species and	Map Symbol
Poten	tial Habitat Use by	ROw - Edaphic Climax
	Wildlife	
Plant	Dominants	
Species	Associates	
Potential Wildlife Use	General	lack of large trees limits use by red/blue listed species
	White-tailed Ptarmigan (saxatilis)(B)	
	Northern Goshawk (laingi) (R)	
Potential Use	Bald Eagle (B)	
By Red/Blue	Marbled Murrelet (B)	
Listed Species	Screech-Qwl (kennicotti) (B)	
	Pygmy-Owl (swarthi)(B)	
(R) = Red	Water Shrew (brooksi) (R)	
(B) = Blue	Keen's Long-eared Myotis (R)	
١	Wolverine (vancouverensis)(R)	
	Ermine (anginae) (B)	
	Roosevelt Elk (B)	Nil
Comments:		

M = Moderate

			, shoreline forest soil habitat	··········		BGC Unit: CWHvm1
Description:	occurs as a fringe forest on til		ong coastline and near the T	sitika River estuary. Soils a	are typically Orthic Ferro-I	Iumic or Humo-Ferric
	Podzols. Influenced by salt s	pray.				
	ant Species and			Symbol and Successional		
Poter	tial Habitat Use by	SF1	SF2	SF3	SF4	SF5
	Wildlife	Shrub - Herb	Pole - Sapling	Young Forest	Mature Forest	Old Growth
Plant	Dominants	salal, grasses	red alder, salal, grasses	red alder, western hemlock, western redcedar, salal, sword fern	western hemlock, western redcedar, salal, sword fern	western hemlock, western redcedar, salal, sword fern
Species	Associates	Sitka alder, red alder, salmonberry	Sitka spruce, Sitka alder, western hemlock, western redcedar, sword fern, red huckleberry		Sitka spruce, western redceaddar, amabilis fir, red alder, deer fern	Sitka spruce, false azalea, red huckleberry, deer fern
Potential Wildlife Use	General					
	White-tailed Ptarmigan (saxatilis)(B)					
	Northern Goshawk (laingi) (R)			L	L	L
Potential Use	Bald Eagle (B)			L	H	H
By Red/Blue	Marbled Murrelet (B)		<u> </u>	L ·	М	М
Listed Species	Screech-Qwl (kennicotti) (B)			L	L	L
	Pygmy-Owl (swarthi)(B)			L	L	L
(R) = Red	Water Shrew (brooksi) (R)					
(B) = Blue	Keen's Long-eared Myotis (R)			" "	M	M
	Wolverine (vancouverensis)(R)					
	Ermine (anginae) (B)	L	M	М	L	
	Roosevelt Elk (B)	L	L	M	M	M

SS - Sitka spruce - salmonberry floodplain habitat class BGC Unit: CWHvm1 occurs on fluvial material along the Tsitika River. Soils are typically Cumulic or Gleved Cumulic Regosols and moderately well to well drained. Description: Plant Species and Map Symbol and Successional Stage SS2 SS4 **SS5** Potential Habitat Use by SS1 **SS3** Pole - Sapling Young Forest Mature Forest Old Growth Wildlife Shrub - Herb Sitka spruce, red alder, Sitka spruce, western Sitka spruce, western salmonberry, red hemlock, salmonberry, hemlock, salmonberry, salmonberry, pearly red alder, salmonberry, huckleberry, threered huckleberry, sword red huckleberry, sword everlasting, horsetail, **Dominants** grasses flowered bedstraw, sword fern, three-flowered fern, three-flowered grasses fern, grasses bedstraw, grasses bedstraw, grasses Plant Species Sitka spruce, western Dougals-fir, false azalea, Dougals-fir, red alder. hemlock, Douglas-fir. false azalea, lilv-of-thefalse azalea, hedge, lilythree flowered bedstraw. thimbleberry, three valley, three-leaved of-the-valley. red alder, thimbleberry thimbleberry, three-Associates flowered bedstraw. foamflower, deer fern, leaved foamflower, bunchberry, threleaved woodrush, sword fern. bunchbery woodrush foamflower red huckleberry Potential General Wildlife Use White-tailed Ptarmigan (saxatilis)(B) L M Northern Goshawk (laingi) (R) M H Potential Use Bald Eagle (B) L Н By Red/Blue Marbled Murrelet (B) L M H Listed Species L M M Screech-Qwl (kennicotti) (B) L M M Pygmy-Owl (swarthi)(B) (R) = RedWater Shrew (brooksi) (R) streams only streams only streams only (B) = BlueKeen's Long-eared Myotis (R) M M Wolverine (vancouverensis)(R) Ermine (anginae) (B) M H M T. H Roosevelt Elk (B)

Comments:

Douglas-fir is dominant in some younger forests near the estuary. High quality wildlife habitat in mid- to latter successional stages.

L = Low

H = High

# SSf - Sitka spruce - salmonberry, rich soil habitat class

BGC Unit: CWHvm1

Description:

occurs on fluvial fans along the Tsitika River and coastal shoreline. Soils are typically Podzols or Regosols and are moderately well to well drained.

Plant Species and		Map Symbol and Successional Stage					
Potential Habitat Use by Wildlife		SSf1	SSf2	SSf3	SSf4	SSf5	
		Shrub - Herb	Pole - Sapling	Young Forest	Mature Forest	Old Growth	
Plant Species	Dominants	salmonberry, horsetail, grasses	red alder, salmonberry, grasses	red alder, western hemlock, salmonberry, red huckleberry. three- leaved foamflower, sword fern, grasses	western hemlock, amabilis fir, salmonberry, red huckleberry, false azalea, sword fern, three- leaved foamflower	western hemlock,, amabilis fir, red huckleberry, sword fern, false azalea, three-leaved foamflower	
	Associates	red alder, pearly everlasting, western yarrow	Sitka spruce, western hemlock, western redcedar, thimbleberry, sword fern, red huckleberry	Sitka spruce, western redcedar, amablis fir, false azalea, three-flowered bedstraw, thimbleberry	Sitka spruce, western redceaddar, red alder, bunchberry, three- flowered bedstraw, deer fern	Sitka spruce, western redcedar, salmonberry, deer fern, bunchberry	
Potential Wildlife Use	General	·					
	White-tailed Ptarmigan (saxatilis)(B)						
-	Northern Goshawk (laingi) (R)			L	М	М	
Potential Use	Bald Eagle (B)			L	H	Н	
By Red/Blue	Marbled Murrelet (B)			L	M	H	
Listed Species	Screech-Qwl (kennicotti) (B)			L	M	M	
	Pygmy-Owl (swarthi)(B)			L	M	M	
(R) = Red	Water Shrew (brooksi) (R)						
(B) = Blue	Keen's Long-eared Myotis (R)				M	M	
	Wolverine (vancouverensis)(R)						
	Ermine (anginae) (B)	M	H	H	L		
	Roosevelt Elk (B)	L	L	M	H	H	

Comments: high quality wildlife habitat in mid- to latter- successional stage

L = Low

H = High

BGC Unit: CWHvm1				
SM - Sedge wetland habitat class				
Description: occurs on fluvial and till materials on floodplains and poorly drained depressions in forested areas. Soils are typically Gleysols.				
Pla	ant Species and	Map Symbol		
Potential Habitat Use by		SM - Edaphic Climax		
Wildlife				
Plant	Dominants	sedges		
Species	Associates	bulrush, rushes, skunk cabbage		
Potential Wildlife Use	General			
	White-tailed Ptarmigan (saxatilis)(B)			
	Northern Goshawk (laingi) (R)			
Potential Use	Bald Eagle (B)			
By Red/Blue	Marbled Murrelet (B)			
Listed Species	Screech-Qwl (kennicotti) (B)			
	Pygmy-Owl (swarthi)(B)			
(R) = Red	Water Shrew (brooksi) (R)	M		
(B) = Blue	Keen's Long-eared Myotis (R)			
•	Wolverine (vancouverensis)(R)			
	Ermine (anginae) (B)	L		
	Roosevelt Elk (B)	М		
Comments: generally small areas confined to depressions				

L = Low

M = Moderate H = High

WBw - Western hemlock - blueberry, warm aspect habitat class BGC Unit:: CWHvm1 occurs on colluvial and till materials on moderate to steep mountain slopes to approximately 600m in elevation. Soils are typically Orthic Ferro-Humic Description: and Humo-Ferric Podzols. Soils are well to moderately well drained. Map Symbol and Successional Stage Plant Species and WBw5 Potential Habitat Use by WBw2 WBw3 WRw4 WBw1 Shrub - Herb Pole - Sapling Young Forest Mature Forest Old Growth Wildlife western hemlock. western hemlock. red alder, western red alder, salmonberry, red alder, salmonberry, amabilis fir. red amabilis fir, red grasses, pearly hemlock, salmonberry. **Dominants** western hemlock, grasses huckleberry, oval-leaved huckleberry, oval-leaved deer fern everlasting blueberry, deer fern blueberry, deer fern Plant Species western redcedar. western redcedar, red amabilis fir. red Sitka alder, western western redcedar, false Sitka alder, salal. alder, false azalea, thimbleberry, horsetail. huckleberry, oval-leaved azalea, salal, bunchberry, redcedar, salal, deer fern. Associates salmonberry, salal, blueberry, salal, sword sword fern western hemlock sword fern bunchberry, sword fern fern Potential General Wildlife Use White-tailed Ptarmigan (saxatilis)(B) Northern Goshawk (laingi) (R) L M L M Potential Use Bald Eagle (B) By Red/Blue L M Marbled Murrelet (B) **Listed Species** Screech-Qwl (kennicotti) (B) L M T. M Pygmy-Owl (swarthi)(B) (R) = RedWater Shrew (brooksi) (R) (B) = BlueKeen's Long-eared Myotis (R) Wolverine (vancouverensis)(R) L L L Ermine (anginae) (B) Roosevelt Elk (B) L L ۲. Comments:

L = Low

H = High

WBc - Western hemlock - blueberry, cool aspect habitat class BGC Unit:: CWHvm1 occurs on colluvial and till materials on moderately to steep mountain slopes to approximately 600m in elevation. Soils are typically Orthic Ferro-Humic Description: and Humo-Ferric Podzols. Soils are well to imperferctly drained. Plant Species and Map Symbol and Successional Stage Potential Habitat Use by WBc2 WBc1 WBc3 WBc4 WBc5 Young Forest Wildlife Shrub - Herb Pole - Sapling Mature Forest Old Growth western hemlock. western hemlock. red alder, salmonberry, red alder, western red alder, salmonberry, amabilis fir. red amabilis fir. red grasses, pearly hemlock, salmonberry, Dominants western hemlock, grasses huckleberry, oval-leaved huckleberry, oval-leaved everlasting deer fern blueberry, deer fern blueberry, deer fern Plant Species western redcedar. western redcedar, red amabilis fir, red Sitka alder, salal. Sitka alder, western western redcedar, false alder, false azalea. thimbleberry, horsetail, redcedar, salal, deer fern, huckleberry, oval-leaved azalea, salal, bunchberry. **Associates** salmonberry, salal, western hemlock sword fern blueberry, salal, sword sword fern bunchberry, sword fern fern Potential General Wildlife Use White-tailed Ptarmigan (saxatilis)(B) Northern Goshawk (laingi) (R) L M Potential Use Bald Eagle (B) L M By Red/Blue Marbled Murrelet (B) L M Listed Species Screech-Qwl (kennicotti) (B) L М Pygmy-Owl (swarthi)(B) L M (R) = RedWater Shrew (brooksi) (R) (B) = BlueKeen's Long-eared Myotis (R) Wolverine (vancouverensis)(R)

L

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L

L

L

Comments:

L = Low H = High

Ermine (anginae) (B)

Roosevelt Elk (B)

L

L

#### WD - Western hemlock - deer fern, moist gentle slope habitat classs

BGC Unit: CWHvm1

Description: occurs on gently to moderately sloping areas of till and fluvial materials. Situated on lower slope receiving areas. Soils are typically Orthic Ferro-Humic, Humo-Ferric, or Gleved Humo-Ferric Podzols. Groundwater seepage occurs near suface. Soils are moderately well to imperfectly drained.

	Humo-Ferric, or Gleyed Hum	o-Ferric Podzols. Ground	<del></del>			ned.	
Plant Species and		Map Symbol and Successional Stage					
Potential Habitat Use by		WD1	WD2	WD3	WD4	WD5	
Wildlife		Shrub - Herb	Pole - Sapling	Young Forest	Mature Forest	Old Growth	
Plant Species	Dominants	red alder, salmonberry, pearly everlasting, horsetail	red alder, salmonberry, horsetail	western hemlock, red alder, salmonberry, red huckleberry, sword fern, three-leaved and cut- leaved foamflower	western hemlock, amabilis fir, red huckleberry, sword fern, deer fern	western hemlock, amabilis fir, red huckleberry, sword fern, deer fern	
	I ASSOCIATES !	thimbleberry, sword fern, grasses	western hemlock, red huckleberry, salal, thimbleberry, sword fern, grasses	amabilis fir, salal, deer fern	red alder, salmonberry, salal, three-leaved and cut-leaved foamflower	salmonberry, salal, three- leaved and cut-leaved foamflower	
Potential Wildlife Use	General						
	White-tailed Ptarmigan (saxatilis)(B)						
	Northern Goshawk (laingi) (R)			L	L	L	
Potential Use	Bald Eagle (B)		· · · · · · · · · · · · · · · · · · ·	L	М	М	
By Red/Blue	Marbled Murrelet (B)			1	М	Н	
Listed Species	Screech-Qwl (kennicotti) (B)			L	М	М	
- !	Pygmy-Owl (swarthi)(B)			L	М	М	
(R) = Red	Water Shrew (brooksi) (R)			streams only	streams only	streams only	
(B) = Blue	Keen's Long-eared Myotis (R)			L	L	М	
	Wolverine (vancouverensis)(R)						
]	Ermine (anginae) (B)	M	M	M			
	Roosevelt Elk (B)	L	L	L	M	M	
Comments:	Windthrow is common in this		<del>                                     </del>		<u> </u>	<u> </u>	

L = Low

H = High

WSc - Western redcedar - salal, dry cool aspect habitat class BGC Unit: CWHvm1 occurs on moderately to steeply sloped areas of till (or occasionally colluvial) material which overlies rock on lower mountain slopes. Soils are typically Description: Orthic Humo-Ferric Podzols. Slightly dry moisture regime. Plant Species and Map Symbol and Successional Stage Potential Habitat Use by WSc1 WSc2 WSc4 WSc3 WSc5 Mature Forest Wildlife Shrub - Herb Pole - Sapling Young Forest Old Growth western hemlock, western red alder, Douglas-fir, western redcedar, western western redcedar, western Dougals-fir, red alder. redcedar, Douglas--fir, salal, horsetail, pearly hemlock, salal, sword hemlock, salal, sword **Dominants** salal, pearly everlasting red alder, salal, sword everlasting, varrow fern, sword fern fern fern Plant Species Douglas-fir, red alder, red Douglas-fir, red western hemlock, western salmonberry, false azalea, salmonberry, grasses redcedar, salmonberry, huckleberry, false azalea, hucklebery, false azalea. Associates deer fern salmonberry, deer fern deer fern grasses Potential. General Wildlife Use White-tailed Ptarmigan (saxatilis)(B) Northern Goshawk (laingi) (R) L L M Potential Use L Bald Eagle (B) L L By Red/Blue Marbled Murrelet (B) L L Listed Species Screech-Qwl (kennicotti) (B) L I. M L Pygmy-Owl (swarthi)(B) L M (R) = RedWater Shrew (brooksi) (R) (B) = BlueKeen's Long-eared Myotis (R) M M Wolverine (vancouverensis)(R) Ermine (anginae) (B) Roosevelt Elk (B) T, L L T. L Comments: Species poor herb layer with ferns dominant.

L = Low

H = High

Comments: Description: Listed Species By Red/Blue Potential Use Wildlife Use (B) = Blue(R) = RedPotential Species Plant Potential Habitat Use by Plant Species and occurs on moderately to steeply sloped areas of till (or occasionally colluvial) material which overlies rock on lower mountain slopes. Soils are typically Species poor herb layer with ferns dominant. White-tailed Ptarmigan (saxatilis)(B) Orthic Humo-Ferric Podzols. Slightly dry moisture regime. Wildlife Wolverine (vancouverensis)(R) Northern Goshawk (laingi) (R) Keen's Long-eared Myotis (R) Screech-Qwl (kennicotti) (B) Water Shrew (brooksi) (R) Pygmy-Owl (swarthi)(B) Ermine (anginae) (B) Marbled Murrelet (B) Roosevelt 理k (B) Bald Eagle (B) **Dominants Associates** General WSw - Western redcedar - salal, dry warm aspect habitat class salal,, horsetail, pearly salmonberry, grasses everlasting, yarrow red alder, Douglas-fir, Shrub - Herb WSw1 redcedar, salmonberry, western hemiock, western salmonberry, false azalea, salal, pearly everlasting grasses Dougals-fir, red alder, Pole - Sapling WSw2 Map Symbol and Successional Stage deer fern alder, salal, sword fern redcedar, Douglas-fir, red hemlock, salal, sword western hemlock, western western redcedar, western western redcedar, western Young Forest WSw3 U C huckleberry, false azalea, hucklebery, false azalea, fern Douglas-fir, red alder, red Douglas-fir, red salmonberry, deer fern Mature Forest WSw4 Z ۳ ۳ deer fem hemlock, salal, sword fern, sword fern BGC Unit: CWHvm1 Old Growth WSw5 Z Z Z Ľ |┌ Z t

L = Low H = High

CG - Yellow-cedar - goldthread, very moist, receiving habitat class BGC Unit: CWHvm2 occurs on glacial till on gently sloping receiving areas on middle slope positions. Soils are typically Gleved or Orthic Humic Podzols. Soil drainage Description: is imperfect is to poor. Surface is hummocky with wet depressions; a high water table is present for much of the year. Plant Species and Map Symbol and Successional Stage Potential Habitat Use by CG1 CG2 CG3 CG4 CG5 Shrub - Herb Wildlife Young Forest Pole - Sapling Mature Forest Old Growth vellow-cedar, mountain vellow-cedar, mountain vellow-cedar, mountain hemlock. Vaccinium mountain hemlock. hemlock. Vaccinium hemlock. Vaccinium **Dominants** sedges, grasses, hellebore vellow-cedar, salal. spp., salal, false azalea, spp., false azalea, salal, spp., salal, fern-leaved fern-leaved goldthread, fern-leaved goldthread. grasses, sedges goldthread bunchberry, crowberry bunchberry, crowberry Plant Species western hemlock. western hemlock, amablis western hemlock, amablis amabilis fir, false azalea deer cabbage, salal. Vacinium spp., false fir. red mountainfir. red mountainred mountain-heather. mountain hemlock. azalea, fern-leaved Associates heather, hellebore. heather, hellebore, crowberry, bunchberry, goldthread, deer cabbage vellow-cedar twinflower, sedges. sedges, grasses, hellebore, deer fern. twinflower grasses grasses Potential General Wildlife Use White-tailed Ptarmigan (saxatilis)(B) Northern Goshawk (laingi) (R) L L L Potential Use Bald Eagle (B) By Red/Blue Marbled Murrelet (B) Listed Species Screech-Qwl (kennicotti) (B) L L L Pygmy-Owl (swarthi)(B) L L L (R) = RedWater Shrew (brooksi) (R) (B) = BlueKeen's Long-eared Myotis (R) L L Wolverine (vancouverensis)(R) Ermine (anginae) (B) L L L M Roosevelt Elk (B) M M M M Comments:

L = Low

H = High

BGC Unit: CWHvm2				
ROc - Rock outcrop, cool aspect habitat class				
Description: areas of bedrock outcrop on steeply sloping, cool aspects				
Plant Species and Map Symbol				
Poter	ntial Habitat Use by	ROc - Edaphic Climax		
	Wildlife			
Plant	Dominants			
Species	Associates			
Potential Wildlife Use	General	lack of large trees limits use by red/blue listed species		
	White-tailed Ptarmigan (saxatilis)(B)			
	Northern Goshawk (laingi) (R)	·		
Potential Use	Bald Eagle (B)			
By Red/Blue	Marbled Murrelet (B)			
Listed Species	Screech-Qwl (kennicotti) (B)			
:	Pygmy-Owl (swarthi)(B)			
(R) = Red	Water Shrew (brooksi) (R)			
(B) = Blue	Keen's Long-eared Myotis (R)			
	Wolverine (vancouverensis)(R)			
	Ermine (anginae) (B)			
•	Roosevelt Elk (B)	Nil		
Comments:		,		

M = Moderate

BGC Unit: CWHvm2				
ROw - Rock ooutcrop, warm aspect				
Description: areas of bedrock outcrop on steeply sloping, warm aspects				
Pla	ant Species and	Map Symbol		
Poten	tial Habitat Use by	ROw - Edaphic Climax		
	Wildlife			
Plant	Dominants			
Species	·			
	Associates			
Potential Wildlife Use	General	lack of large trees limits use by red/blue listed species		
	White-tailed Ptarmigan (saxatilis)(B)			
	Northern Goshawk (laingi) (R)			
Potential Use	Bald Eagle (B)			
By Red/Blue	Marbled Murrelet (B)			
Listed Species	Screech-Qwl (kennicotti) (B)			
	Pygmy-Owl (swarthi)(B)			
(R) = Red	Water Shrew (brooksi) (R)			
(B) = Blue	Keen's Long-eared Myotis (R)			
	Wolverine (vancouverensis)(R)			
	Ermine (anginae) (B)	-		
	Roosevelt Elk (B)	Nil		
Comments:		,		

M = Moderate

BGC Unit: CWHvm2				
SM - Sedge wetland habitat class				
Description: occurs on flat to gently sloping benches and depressions on glacial till. Soils are are typically Gleysols or Organic. A high water table is present for most of the year.				
Pl	ant Species and	Map Symbol		
Potential Habitat Use by		SM - Edaphic Climax		
	Wildlife			
Plant	Dominants	sedges, narrow-leaved cottongrass		
Species	Associates	sticky false asphodel, grasses, Labrador tea, swamp laurel, crowberry, Vaccinium spp. (buckbean, water lily, aquatic mosses in small pools).		
Potential Wildlife Use	General			
	White-tailed Ptarmigan (saxatilis)(B)			
	Northern Goshawk (laingi) (R)			
Potential Use	Bald Eagle (B)			
By Red/Blue	Marbled Murrelet (B)			
Listed Species	Screech-Qwl (kennicotti) (B)			
	Pygmy-Owl (swarthi)(B)	^		
(R) = Red	Water Shrew (brooksi) (R)	streams only		
(B) = Blue	Keen's Long-eared Myotis (R)			
	Wolverine (vancouverensis)(R)			
	Ermine (anginae) (B)	M		
	Roosevelt Elk (B)	M		
Comments:				

L = Low

M = Moderate

H = High

WBw - Western hemlock - blueberry, warm aspect habitat class BGC Unit:: CWHvm2 occurs on colluvial and till materials on moderate to steep mountain slopes. Soils are typically Orthic Ferro-Humic and Humo-Ferric Podzols. Description: Soils are well to moderately well drained. Plant Species and Map Symbol and Successional Stage Potential Habitat Use by WBw4 WBw5 WBw1 WBw2 WBw3 Mature Forest Wildlife Shrub - Herb Pole - Sapling Young Forest Old Growth western hemlock. western hemlock. red alder, salmonberry, red alder, western amabilis fir. red red alder, salmonberry, amabilis fir. red hemlock, salmonberry, grasses, pearly **Dominants** western hemlock, grasses huckleberry, oval-leaved huckleberry, oval-leaved everlasting deer fern blueberry, deer fern blueberry, deer fern Plant Species western redcedar. western redcedar, red Sitka alder, western amabilis fir, red western redcedar, false Sitka alder, salal, alder, false azalea, Associates horsetail, western redcedar, salal, deer fern. huckleberry, oval-leaved azalea, salal, bunchberry, salmonberry, salal, sword fern blueberry, salal, sword hemlock sword fern bunchberry, sword fern fern Potential General Wildlife Use White-tailed Ptarmigan (saxatilis)(B) L M Northern Goshawk (laingi) (R) L L Potential Use Bald Eagle (B) By Red/Blue L M Marbled Murrelet (B) L Listed Species M Screech-Qwl (kennicotti) (B) Pygmy-Owl (swarthi)(B) L М Water Shrew (brooksi) (R) (R) = Red(B) = BlueKeen's Long-eared Myotis (R) L M Wolverine (vancouverensis)(R) Ermine (anginae) (B) L L L L L L L Roosevelt Elk (B) L Comments:

L = Low

H = High

WBc - Western hemlock - blueberry, cool aspect habitat class BGC Unit:: CWHvm2 occurs on colluvial and till materials on moderate to steep mountain slopes. Soils are typically Orthic Ferro-Humic and Humo-Ferric Podzols Description: Soils are well to imperferctly drained. Plant Species and Map Symbol and Successional Stage WBc2 Potential Habitat Use by WBc3 WBc4 WRc5 WBc1 Young Forest Mature Forest Wildlife Pole - Sapling Old Growth Shrub - Herb western hemlock. western hemlock. red alder, salmonberry, red alder, western red alder, salmonberry, amabilis fir. red amabilis fir. red hemlock, salmonberry, **Dominants** grasses, pearly huckleberry, oval-leaved western hemlock, grasses huckleberry, oval-leaved deer fern everlasting blueberry, deer fern blueberry, deer fern Plant Species western redcedar. western redcedar, red Sitka alder, salal, Sitka alder, western amabilis fir. red western redcedar, false alder, false azalea. huckleberry, oval-leaved azalea, salal, bunchberry, horsetail, western redcedar, salal, deer fern. Associates salmonberry, salal, sword fern blueberry, salal, sword hemlock sword fern bunchberry, sword fern fern Potential General Wildlife Use White-tailed Ptarmigan (saxatilis)(B) Northern Goshawk (laingi) (R) L M T. T. Potential Use Bald Eagle (B) By Red/Blue Marbled Murrelet (B) L M L M **Listed Species** Screech-Qwl (kennicotti) (B) Τ. M Pygmy-Owl (swarthi)(B) (R) = RedWater Shrew (brooksi) (R) (B) = BlueKeen's Long-eared Myotis (R) T. M Wolverine (vancouverensis)(R) Ermine (anginae) (B) L Ι. L T. T. Ŧ. T. T. Roosevelt Elk (B) Comments:

L = Low

H = High

BGC Unit: CWHvm2 WSc - Western redcedar - salal, dry cool aspect habitat class occurs on moderately to steeply sloped areas of till or colluvial material which overlies rock on lower to middle mountain slopes. Soils are typically Description: Orthic Humo-Ferric Podzols. Slightly dry moisture regime. Map Symbol and Successional Stage Plant Species and WSc3 WSc4 WSc5 Potential Habitat Use by WSc1 WSc2 Old Growth Pole - Sapling Young Forest Mature Forest Shrub - Herb Wildlife red alder, salal., horsetail, western hemlock, western western redcedar, western western redcedar, western red alder, salal, pearly pearly everlasting. **Dominants** hemlock, salal redcedar, red alder, salal hemlock, salal everlasting varrow Plant Species western hemlock, western Douglas-fir, red alder, red red hucklebery, false Douglas-fir, salmonberry. huckleberry, false azalea, redcedar, Dougals fir, salmonberry, deer fern Associates azalea, deer fern grasses salmonberry, deer fern salmonberry, grasses Potential General Wildlife Use White-tailed Ptarmigan (saxatilis)(B) Τ. T. L Northern Goshawk (laingi) (R) L L L Potential Use Bald Eagle (B) L L By Red/Blue Marbled Murrelet (B) L Ι. L Listed Species Screech-Qwl (kennicotti) (B) T. L L Pygmy-Owl (swarthi)(B) (R) = RedWater Shrew (brooksi) (R) M M (B) = BlueKeen's Long-eared Myotis (R) Wolverine (vancouverensis)(R) Ermine (anginae) (B) L L L Roosevelt Elk (B) L Salal layer can be very dense; species poor herb layer. Comments:

 $L = I \cap w$ 

H = High

WSw - Western redcedar - salal, dry warm aspect habitat class Description: occurs on moderately to steeply sloped areas of till or colluvial material which overlies rock on lower to middle mountain slopes. Soils are typically Orthic Humo-Ferric Podzols. Slightly dry moisture regime. Map Symbol and Successional Stage Plant Species and WSw4 WSw5 WSw1 WSw2 WSw3 Potential Habitat Use by Mature Forest Young Forest Old Growth Pole - Sapling Shrub - Herb Wildlife red alder, salal, horsetail, western hemlock, western western redcedar, western western redcedar, western red alder, salal, pearly pearly everlasting. **Dominants** redcedar, red alder, salal hemlock, salal hemlock, salal everlasting varrow Plant Species Douglas-fir, red alder, red western hemlock, western red hucklebery, false Douglas-fir, salmonberry huckleberry, false azalea, redcedar, Dougals fir, salmonberry, deer fern Associates azalea, deer fern grasses salmonberry, deer fern salmonberry, grasses Potential General Wildlife Use White-tailed Ptarmigan (saxatilis)(B) L L L Northern Goshawk (laingi) (R) L L T. Bald Eagle (B) Potential Use L T. By Red/Blue Marbled Murrelet (B) L T. L Listed Species Screech-Qwl (kennicotti) (B) T. Τ. L Pygmy-Owl (swarthi)(B) (R) = RedWater Shrew (brooksi) (R) M M (B) = BlueKeen's Long-eared Myotis (R) Wolverine (vancouverensis)(R) Ermine (anginae) (B) L Τ. L Roosevelt Elk (B) L L Species poor herb layer with ferns dominant. Comments:

BGC Unit: CWHvm2

L = Low

H = High

HBc - Mountain hemlock - blueberry, cool aspect habitat class BGC Unit · MHmm1 occurs on colluvial material on moderate to steep middle to upper mountain slopes on cool aspects. Soils are typically Orthic Ferro-Humic Description: or Humo-Ferric Podzols. Soils are well to imperfectly drained. Plant Species and Map Symbol and Successional Stage Potential Habitat Use by HBc2 HBc3 HRc4 HBc5 HBc1 Pole - Sapling Young Forest Mature Forest Old Growth Shrub - Herb Wildlife mountain hemlock. amabilis fir, mountain amabilis fir. Vaccinium Sitka alder, mountain hemlock, copperbush, hemlock, copperbush, spp., copperbush, white Sitka alder, mountain Vaccinium spp., fern-**Dominants** Sitka alder, grasses rhododendron, fernhemlock, grasses Vaccinium spp., fernleaved goldthread, deer leaved goldthread leaved goldthread, deer fern fern Plant Species vellow-cedar, white vellow-cedar, amabilis vellow-cedar. vellow-cedar, false rhododendron, false copperbush, mountain fir, Vaccinium spp., five azalea, five-leaved copperbush, Vaccinium Associates azalea, five-leaved hemiock leaved bramble, deer fern bramble, bunchberry bramble, bunchberry Potential General Wildlife Use White-tailed Ptarmigan (saxatilis)(B) Northern Goshawk (laingi) (R) M L T.

L

M

M

L

L

L L

L

L

L

L

L

T.

(R) = Red

Potential Use

By Red/Blue

Listed Species

(B) = Blue

Roosevelt Elk (B)

L

L

Yellow-cedar may be co-dominant in some stands. Western hemlock is present in lower elevations.

L = Low

Comments:

H = High

Bald Eagle (B)

Marbled Murrelet (B)

Screech-Qwl (kennicotti) (B)

Pygmy-Owl (swarthi)(B)

Water Shrew (brooksi) (R)

Keen's Long-eared Myotis (R)
Wolverine (vancouverensis)(R)
Ermine (anginae) (B)

#### BGC Unit<sup>11</sup> MHmm1 HBw - Mountain hemlock - blueberry, warm aspect habitat class occurs on colluvial material on moderate to steep middle to upper mountain slopes on warm aspects. Soils are typically Orthic Ferro-Humic Description: or Humo-Ferric Podzols. Soils are well to imperfectly drained. Map Symbol and Successional Stage Plant Species and HRw4 HBw5 Potential Habitat Use by HBw1 HBw2 HRw3 Old Growth Shrub - Herb Young Forest Mature Forest Wildlife Pole - Sapling mountain hemlock. amabilis fir, mountain Sitka alder, mountain amabilis fir. Vaccinium hemlock, copperbush, spp., copperbush, white hemlock, copperbush, Sitka alder, mountain Vaccinium spp., fern-Sitka alder, grasses **Dominants** Vaccinium spp., fernrhododendron, fernhemlock, grasses leaved goldthread, deer leaved goldthread, deer leaved goldthread fern fern Plant Species vellow-cedar, white vellow-cedar, false vellow-cedar. vellow-cedar, amabilis rhododendron, false copperbush, mountain fir. Vaccinium spp., five azalea. five-leaved copperbush, Vaccinium Associates hemlock azalea, five-leaved leaved bramble, deer fern bramble, bunchberry spp. bramble, bunchberry **Potential** General Wildlife Use White-tailed Ptarmigan (saxatilis)(B) Northern Goshawk (laingi) (R) M L L Potential Use Bald Eagle (B)

L

L

L

L

L

L

L

L

L

M

M

L

L

Comments:

By Red/Blue

Listed Species

(R) = Red

(B) = Blue

Yellow-cedar may be co-dominant in some stands. Western hemlock is present in lower elevations.

L

L = Low

H = High

Marbled Murrelet (B)

Screech-Qwl (kennicotti) (B)

Pygmy-Owl (swarthi)(B)

Water Shrew (brooksi) (R)

Keen's Long-eared Myotis (R)
Wolverine (vancouverensis)(R)
Ermine (anginae) (B)
Roosevelt Elk (B)

HBm - Mountain hemlock - blueberry, moderate slope aspect habitat class

BGC Unit:: MHmm1

Description: occurs on coll

occurs on colluvial material on gently to moderately sloping benches and ridge tops. Soils are typically Orthic Ferro-Humic or Humo-Ferric Podzols.

Soils are well to imperfectly drained.

	Soils are well to imperfectly dra	inico.	Map	Symbol and Successional S	Stage	
Plant Species and Potential Habitat Use by		HBm1	HBm2	HBm3	HBm4	HBm5
		Shrub - Herb	Pole - Sapling	Young Forest	Mature Forest	Old Growth
Plant	Wildlife  Dominants	Sitka alder, grasses	Sitka alder, mountain hemlock, grasses	Cide alder mountain	amabilis fir, mountain hemlock, copperbush, Vaccinium spp., fern- leaved goldthread, deer fern	mountain hemlock, amabilis fir, Vaccinium spp., copperbush, white rhododendron, fern- leaved goldthread, deer fern
Species	A secondates	copperbush, mountain hemlock	yellow-cedar, copperbush, Vaccinium spp.	yellow-cedar, amabilis fir, Vaccinium spp., five- leaved bramble, deer fern	yellow-cedar, white rhododendron, false azalea, five-leaved bramble, bunchberry	yellow-cedar, false azalea, five-leaved bramble, bunchberry
Potential Wildlife Use	General					
	White-tailed Ptarmigan (saxatilis)(B)				<u> </u>	M
	Northern Goshawk (laingi) (R)			L	L	- Mi
Potential Use	Bald Eagle (B)				<del>                                     </del>	L
By Red/Blue	Marbled Murrelet (B)				<u>L</u>	M
Listed Species	Screech-Qwl (kennicotti) (B)			L ·	L	M M
	Pygmy-Owl (swarthi)(B)			L	L	
(R) = Red	Water Shrew (brooksi) (R)			streams only	streams only	streams only
(B) = Blue	Keen's Long-eared Myotis (R)			<u> L</u>	L	<u>L</u>
( )	Wolverine (vancouverensis)(R)					
	Ermine (anginae) (B)				_	<del></del>
	Roosevelt Elk (B)	L	L	L	<u>L</u>	L

Comments:

Yellow-cedar may be co-dominant in some stands.

L = Low

H = High

So Plan	ocurs on glacial till and colluv	vial material on gently to	1 1 1 1 1 1 1				
Plan	oil drainage is imperfect to po	67 ** *	occurs on glacial till and colluvial material on gently to moderatley sloping receiving areas Soils are typically Gleyed or Orstein Humic Podzols.				
	on dramage is imperient to po	oor.					
wa	nt Species and		Мар	Symbol and Successional	Stage		
Potenti	al Habitat Use by	HD1	HD2	HD3	HD4	HD5	
	Wildlife	Shrub - Herb	Pole - Sapling	Young Forest	Mature Forest	Old Growth	
Plant	I lominante i	Sitka alder, grasses, sedges, deer cabbage	Sitka alder, grasses, mountain hemlock, yellow-cedar, deer cabbage	yellow-cedar, mountain hemlock, Vaccinium spp., deer cabbage, grasses, sedges	yellow-cedar, mountain hemlock, Vaccinium spp., red and white mountain-heathers, deer cabbage, grasses, sedges	yellow-cedar, mountain hemlock, Vaccinium spp., red and white mountain-heathers, deer cabbage, grasses, sedges	
Species	Associates	mountain hemlock, yellow-cedar	Vaccinium spp., red and white mountain-heathers, fern-leaved goldthread	Sitka alder, red and white mountain-heathers, copperbush, bunchberry, deer fern	amablis fir, false azalea, copperbush, five-leaved bramble, bunchberry. fern-leaved goldthread, deer fern	amablis fir, five-leaved bramble, copperbush, fern-leaved goldthread, false azalea, fern-leaved goldthread, deer fern	
Potential Wildlife Use	General				·		
	White-tailed Ptarmigan (saxatilis)(B)						
-	Northern Goshawk (laingi) (R)			L	L	L	
Potential Use	Bald Eagle (B)						
By Red/Blue	Marbled Murrelet (B)						
Listed Species	Screech-Qwl (kennicotti) (B)			L	L	M	
	Pygmy-Owl (swarthi)(B)			L	L	М	
(R) = Red	Water Shrew (brooksi) (R)			streams only	streams only	streams only	
(B) = Blue	Keen's Long-eared Myotis (R)			L	L	М	
\-\ \	Wolverine (vancouverensis)(R)						
	Ermine (anginae) (B)						
<b> </b>	Roosevelt Elk (B)	М	M	<b>M</b> .	М	М	

H = High

HHc - Mountian hemlock - mountain-heather forest, dry, cool aspect habitat class Occurs on moderate to steep upper slopes and ridges on cool, north aspects. Soils are typically shallow (bedrock close to surface) and consist of Description: Lithic Podzols and Orthic Humo-Ferric Podzols. Soil moisture regime is slightly drv. Map Symbol and Successional Stage Plant Species and HHc5 HHc4 HHc3 HHc2 HHc1 Potential Habitat Use by Old Growth Mature Forest Young Forest Pole - Sapling Shrub - Herb Wildlife mountain hemlock. mountain hemlock. mountain hemlock, red amabilis fir. Vaccinium amabilis fir. Vaccinium red mountain-heather. mountain hemlock, red mountain-heather, white spp., red mountainspp., red mountainwhite mountain-heather. mountain-heather, white **Dominants** mountain-heather. heather, white mountainheather, white mountainmountain-heather erasses Vaccinium spp. heather heather Plant Species vellow-cedar, five-leaved vellow-cedar, amabilis vellow-cedar. vellow-cedar, grasses, sedges, mountain bramble, Viola sp., partridgefoot, Viola sp., fir. five-leaved bramble, Associates Vaccinium spp. hemlock partridgefoot five-leaved bramble partridgefoot Potential General Wildlife Use M M M M White-tailed Ptarmigan (saxatilis)(B) Μ. L T. Northern Goshawk (laingi) (R) Bald Eagle (B) Marbled Murrelet (B) Potential Use M L L Screech-Owl (kennicotti) (B) by Red/Blue M ۲. T. Pygmy-Owl (swarthi)(B) Listed Water Shrew (brooksi) (R) Species L L L Keen's Long-eared Myotis (R) (R) = RedT, L L L L Wolverine (vancouverensis)(R) (B) = BlueErmine (anginae) (B) L L L Τ. L Roosevelt Elk (B) Open, poorly developed shrub and her layers Comments:

BGC Unit: MHmm1

L = Low

H = High

BGC Unit: MHmm1 HHw - Mountain hemlock - mountain-heather forest, dry, warm aspect habitat class Occurs on moderate to steep upper slopes and ridges on warm, south aspects. Soils are typically shallow (bedrock close to surface) and consist of Description: Lithic Podzols and Orthic Humo-Ferric Podzols. Soil moisture regime is slightly dry. Man Symbol and Successional Stage Plant Species and HHw4 HHw5 HHw2 HHw3 Potential Habitat Use by HHw1 Young Forest Mature Forest Old Growth Pole - Sapling Wildlife Shrub - Herb mountain hemlock. mountain hemlock. mountain hemlock, red amabilis fir. Vaccinium amabilis fir. Vaccinium red mountain-heather. mountain hemlock, red mountain-heather, white spp., red mountainspp., red mountainmountain-heather, white white mountain-heather. Dominants mountain-heather. heather, white mountainheather, white mountainmountain-heather grasses Vaccinium spp. heather heather Plant Species vellow-cedar, five-leaved vellow-cedar, amabilis vellow-cedar. vellow-cedar, grasses. sedges, mountain fir, five-leaved bramble, partridgefoot, Viola sp., bramble, Viola sp., Associates Vaccinium spp. hemlock partridgefoot partridgefoot five-leaved bramble Potential General Wildlife Use M M М M White-tailed Ptarmigan (saxatilis)(B) M L Ŧ. Northern Goshawk (laingi) (R) Bald Eagle (B) Marbled Murrelet (B) Potential Use M L L Screech-Qwl (kennicotti) (B) by Red/Blue L M L Listed Pygmy-Owl (swarthi)(B) Species Water Shrew (brooksi) (R) L L L (R) = RedKeen's Long-eared Myotis (R) L T. L Wolverine (vancouverensis)(R) L L (B) = BlueErmine (anginae) (B) L L Roosevelt Elk (B) τ, L L Uneven, open tree canopy Comments:

L = Low

H = High

		ntain hemlock - mountain-				BGC Unit: MHmm1
Description:	Occurs on gently to moderate	ly sloping ridge crests and	mountain tops. Soils are ty	pically shallow (bedrock c	lose to surface) and consist	of
	Lithic Podzols and Orthic Hu	mo-Ferric Podzols. Soil m	oisture regime is slightly d	lry.		
P	Plant Species and Map Symbol and Successional Stage					
Poter	ntial Habitat Use by	HHm1	HHm2	HHm3	HHm4	HHm5
	Wildlife	Shrub - Herb	Pole - Sapling	Young Forest	Mature Forest	Old Growth
Plant	Dominants	red mountain-heather, white mountain-heather, grasses	mountain hemlock, red mountain-heather, white mountain-heather	mountain hemlock, red mountain-heather, white mountain-heather, Vaccinium spp.	mountain hemlock, amabilis fir, Vaccinium spp., red mountain- heather, white mountain- heather	mountain hemlock, amabilis fir, Vaccinium spp., red mountain- heather, white mountain- heather
Species	Associates	sedges, mountain hemlock	yellow-cedar, grasses, Vaccinium spp.	yellow-cedar, amabilis fir, five-leaved bramble, partridgefoot	yellow-cedar, partridgefoot, Viola sp., five-leaved bramble	yellow-cedar, five-leaved bramble, Viola sp., partridgefoot
Potential Wildlife Use	General					
	White-tailed Ptarmigan (saxatilis)(B)	M ·	M	M	М	M
	Northern Goshawk (laingi) (R)				L	<u>L</u>
	Bald Eagle (B)					
Potential Use	Marbled Murrelet (B)					
by Red/Blue	Screech-Qwl (kennicotti) (B)			L	L	M
Listed	Pygmy-Owl (swarthi)(B)			L	L	M
Species	Water Shrew (brooksi) (R)				<u> </u>	+
(R) = Red	Keen's Long-eared Myotis (R)			L	L	L L
(B) = Blue	Wolverine (vancouverensis)(R)	L	L	L	L	L
	Ermine (anginae) (B)		<u> </u>		*	<del>                                     </del>
	Roosevelt Elk (B)	<u>L</u>	L	L	L	L
Comments:	Uneven, open tree canopy					

H = High

#### BGC Unit: MHmm1 LH - Leatherleaf saxifrage - hellebore, moist meadow habitat class occurs on flat to gently fluvial material (floodplains of small creeeks, seepage areas). Description: Soils are typically Gleysols. A high water table is present for much of the year. Map Symbol Plant Species and LH - Edaphic Climax Potential Habitat Use by Wildlife leatherleaf saxifrage, hellebore, sedges, grasses **Dominants** Plant Species red mountain-heather, partridgefoot, cow-parsnip, rushes, Associates Vioal sp. General Potential Wildlife Use L White-tailed Ptarmigan (saxatilis)(B) Northern Goshawk (laingi) (R) Potential Use Bald Eagle (B) Marbled Murrelet (B) By Red/Blue Listed Species Screech-Qwl (kennicotti) (B) Pygmy-Owl (swarthi)(B) along streams (R) = RedWater Shrew (brooksi) (R) (B) = BlueKeen's Long-eared Myotis (R) L Wolverine (vancouverensis)(R) M Ermine (anginae) (B) M Roosevelt Elk (B) Comments:

L = Low

M = Moderate

restration seemit			mble, moderate slope aspect			BGC Unit:: MHmm1
-	occurs on colluvial material or imperfectly drained.	gently to moderately slo	ping receiving areas. Soils a	are typically Orthic Ferro-I	Iumic Podzols and are	• .
	ant Species and		Map	Symbol and Successional	Stage	
	tial Habitat Use by	MB1	MB2	MB3	MB4	MB5
-	Wildlife	Shrub-herb	Pole - Sapling	Young Forest	Mature Forest	Old Growth
Plant	Dominants	Sitka alder, grasses	Sitka alder, mountain hemlock, grasses	mountain hemlock, Vaccinium spp., five- leaved bramble	amabilis fir, mountain hemlock, Vaccinium spp., fern-leaved bramble	mountain hemlock, amabilis fir, Vaccinium spp., five-leaved bramb
Species	Associates	sedges, mountain hemlock	yellow-cedar, Vaccinium spp., five-leaved bramble, deer fern	1*	yellow-cedar, one-leaved and three-leaved foamflower, deer fern, fern-leaved goldthread	yellow-cedar, three- leaved and one-leaved foamflower, five-leaved goldthread, deer fern
Potential Wildlife Use	General					
	White-tailed Ptarmigan (saxatilis)(B)					
	Northern Goshawk (laingi) (R)			L	M	М
Potential Use	Bald Eagle (B)					
By Red/Blue	Marbled Murrelet (B)				L	L
Listed Species	Screech-Qwl (kennicotti) (B)			L	M	M
_	Pygmy-Owl (swarthi)(B)			L	M	M
(R) = Red	Water Shrew (brooksi) (R)			streams only	streams only	streams only
(B) = Blue	Keen's Long-eared Myotis (R)			L	L	L
	Wolverine (vancouverensis)(R)					
	Ermine (anginae) (B)					
	Roosevelt Elk (B)	L	L	L	L	L

H = High

# BGC Unit: MHmm1 ROc - Rock outcrop, cool aspect habitat class areas of steeply sloping bedrock on cool, north aspects. Mountain tops and Description: cliffs on upper slopes. Map Symbol Plant Species and ROc - Edaphic Climax Potential Habitat Use by Wildlife Not applicable **Dominants** Plant Species Not applicable Associates Lack of tree cover and forage limits use. General Potential Wildlife Use White-tailed Ptarmigan (saxatilis)(B) Northern Goshawk (laingi) (R) Bald Eagle (B) Potential Use Marbled Murrelet (B) By Red/Blue Screech-Qwl (kennicotti) (B) Listed Species Pygmy-Owl (swarthi)(B) (R) = RedWater Shrew (brooksi) (R) (B) = BlueKeen's Long-eared Myotis (R) Wolverine (vancouverensis)(R) Ermine (anginae) (B) Nil Roosevelt Elk (B) Comments:

L = Low

M = Moderate

	BG	C Unit: MHmm1
	ROw - Rock out	crop, warm aspect habitat class
		ck on cool, north aspects. Mountain tops and
**	cliffs on upper slopes.	
Pla	ant Species and	Map Symbol
Poten	tial Habitat Use by	ROw - Edaphic Climax
<u></u>	Wildlife	
Plant	Dominants	Not applicable
Species	Associates	Not applicable
Potential Wildlife Use	General	Lack of tree cover and forage limits use.
	White-tailed Ptarmigan (saxatilis)(B)	
	Northern Goshawk (laingi) (R)	
Potential Use	Bald Eagle (B)	
By Red/Blue	Marbled Murrelet (B)	
Listed Species	Screech-Qwl (kennicotti) (B)	
	Pygmy-Owl (swarthi)(B)	
(R) = Red	Water Shrew (brooksi) (R)	
(B) = Blue	Keen's Long-eared Myotis (R)	
	Wolverine (vancouverensis)(R)	
	Ermine (anginae) (B)	
	Roosevelt Elk (B)	Nil
Comments:		

	BG	C Unit: MHmm1			
		op, moderate slope habitat class			
Description: areas of gently to moderately sloping bedrock on upper slopes and mountain					
e .	plateaus.	c .			
Pla	ant Species and	Map Symbol			
	tial Habitat Use by	ROm - Edaphic Climax			
<u> </u>	Wildlife	- American Administration - Administrati			
	Dominants	Not applicable			
		••			
Plant					
Species		•			
	Associates	Not applicable			
	rissociatos	Tiot application			
Potential	General	Lack of tree cover and forage limits use.			
Wildlife Use		,			
	White-tailed Ptarmigan (saxatilis)(B)				
	Northern Goshawk (laingi) (R)				
Potential Use	Bald Eagle (B)				
By Red/Blue	Marbled Murrelet (B)				
Listed Species	Screech-Qwl (kennicotti) (B)				
	Pygmy-Owl (swarthi)(B)				
(R) = Red	Water Shrew (brooksi) (R)				
(B) = Blue	Keen's Long-eared Myotis (R)				
	Wolverine (vancouverensis)(R)				
	Ermine (anginae) (B)				
,	Roosevelt Elk (B)	Nil			
Comments:					

L = Low
M = Moderate
H = High

	BG	C Unit: MHmm1			
	SAc - Sitka alder sli	de forest, cool aspect habitat class			
Description: occurs on colluvial and fluvial materials on steeply sloping, cool, north aspects.					
Pl	ant Species and	Map Symbol			
Poten	tial Habitat Use by	SAc - Edaphic Climax			
	Wildlife				
Plant	Dominants	Sitka alder, grasses			
Species					
	Associates	sedges, (salmonberry on lower areas)			
Potential Wildlife Use	General	lack of large trees limits use by red/blue listed species			
	White-tailed Ptarmigan (saxatilis)(B)				
	Northern Goshawk (laingi) (R)				
Potential Use	Bald Eagle (B)				
By Red/Blue	Marbled Murrelet (B)				
Listed Species	Screech-Qwl (kennicotti) (B)				
	Pygmy-Owl (swarthi)(B)				
(R) = Red	Water Shrew (brooksi) (R)				
(B) = Blue	Keen's Long-eared Myotis (R)				
	Wolverine (vancouverensis)(R)	·			
	Ermine (anginae) (B)	L			
	Roosevelt Elk (B)	L			
Comments:					

M = Moderate

# BGC Unit: MHmm1 SAw - Sitka alder slide forest, warm aspect habitat class Description: occurs on colluvial and fluvial materials on steeply sloping, warm, south aspects. Map Symbol Plant Species and SAw - Edaphic Climax Potential Habitat Use by Wildlife Sitka alder, grasses **Dominants** Plant Species sedges, (salmonberry on lower areas) Associates lack of large trees limits use by red/blue listed species General Potential Wildlife Use White-tailed Ptarmigan (saxatilis)(B) Northern Goshawk (laingl) (R) Bald Eagle (B) Potential Use Marbled Murrelet (B) By Red/Blue Listed Species Screech-Qwl (kennicotti) (B) Pygmy-Owl (swarthi)(B) Water Shrew (brooksi) (R) (R) = RedKeen's Long-eared Myotis (R) (B) = BlueWolverine (vancouverensis)(R) L Ermine (anginae) (B) L Roosevelt Elk (B) Comments:

L = Low

M = Moderate

	BC	GC Unit: MHmm1			
	SM - Sed	lge wetland habitat class			
Description:	occurs on flat to gently sloping benches and depressions on glacial till. Soils are				
	· · · · · · · · · · · · · · · · · · ·	. A high water table is present for most of the			
P!	year. lant Species and	Map Symbol			
	ntial Habitat Use by	SM - Edaphic Climax			
	Wildlife	-			
Plant	Dominants	sedges, narrow-leaved cottongrass			
Species	Associates	sticky false asphodel, grasses, Labrador tea, swamp laurel			
Potential Wildlife Use	General				
	White-tailed Ptarmigan (saxatilis)(B)				
	Northern Goshawk (laingi) (R)				
Potential Use	Bald Eagle (B)				
By Red/Blue	Marbled Murrelet (B)				
Listed Species	Screech-Qwl (kennicotti) (B)				
	Pygmy-Owi (swarthi)(B)				
(R) = Red	Water Shrew (brooksi) (R)				
(B) = Blue	Keen's Long-eared Myotis (R)				
	Wolverine (vancouverensis)(R)				
	Ermine (anginae) (B)	L			
	Roosevelt Elk (B)	M			
Comments:					

	BG	C Unit: MHmmp				
		er - crowberry heathland, warm aspect				
Description: occurs on gently to moderately sloping mountain tops and plateaus on colluvial materials. Associated with areas of shallow bedrock. Soils are typically poorly developed Regosols.						
	ant Species and	Map Symbol				
	ntial Habitat Use by Wildlife	AHm - Edaphic Climax				
Plant	l llominante l	white mountain-heather, red mountain-heather, partridgefoot				
Species	Associates	grasses, Saxifrage sp., mounatin hemlock, crowberry				
Potential Wildlife Use	General	lack of tree cover limits use				
	White-tailed Ptarmigan (saxatilis)(B)	Н				
·	Northern Goshawk (laingi) (R)					
Potential Use	Bald Eagle (B)					
By Red/Blue	Marbled Murrelet (B)					
Listed Species	Screech-Qwl (kennicotti) (B)					
	Pygmy-Owl (swarthi)(B)					
(R) = Red	Water Shrew (brooksi) (R)					
(B) = Blue	Keen's Long-eared Myotis (R)					
	Wolverine (vancouverensis)(R)	Н				
	Ermine (anginae) (B)					
	Roosevelt Elk (B)	Nil				
Comments:						

	BG	C Unit: MHmmp
	AHc - Mountain-heath	er - crowberry heathland, cool aspect
**	occurs on upper slopes and mo Associated with areas of shall Regosols.	ountain tops on colluvial material on cool aspects.  low bedrock Soils are typically poorly develped
	ant Species and	Map Symbol
	tial Habitat Use by Wildlife	AHc - Edaphic Climax
Plant	Dominants	white mountain-heather, red mountain-heather, partridgefoot
Species	Associates	grasses, Saxifrage sp., mounatin hemlock, crowberry
Potential Wildlife Use	General	lack of tree cover limits use
	White-tailed Ptarmigan (saxatilis)(B)	Н
	Northern Goshawk (laingi) (R)	
Potential Use	Baid Eagle (B)	
By Red/Blue	Marbled Murrelet (B)	
Listed Species	Screech-Qwl (kennicotti) (B)	
	Pygmy-Owl (swarthi)(B)	
(R) = Red	Water Shrew (brooksi) (R)	
(B) = Blue	Keen's Long-eared Myotis (R)	
	Wolverine (vancouverensis)(R)	Н
	Ermine (anginae) (B)	
	Roosevelt Elk (B)	Nil
Comments:		

L = Low

M = Moderate

H = High

	BG	C Unit: MHmmp
	AHw - Mountain-heathe	er - crowberry heathland, warm aspect
Description:		ountain tops on colluvial material on cool aspects.  low bedrock Soils are typically poorly develped
Pl	ant Species and	Map Symbol
Poten	itial Habitat Use by Wildlife	AHw - Edaphic Climax
Plant	Dominants	white mountain-heather, red mountain-heather, partridgefoot
Species	Associates	grasses, Saxifrage sp., mounatin hemlock, crowberry
Potential Wildlife Use	General	lack of tree cover limits use
	White-tailed Ptarmigan (saxatilis)(B)	Н
	Northern Goshawk (laingi) (R)	
Potential Use	Bald Eagle (B)	
By Red/Blue	Marbled Murrelet (B)	
Listed Species	Screech-Qwl (kennicotti) (B)	
	Pygmy-Owi (swarthi)(B)	
(R) = Red	Water Shrew (brooksi) (R)	
(B) = Blue	Keen's Long-eared Myotis (R)	
	Wolverine (vancouverensis)(R)	Н
	Ermine (anginae) (B)	
	Roosevelt Elk (B)	Nil
Comments:		

	BG	C Unit: MHmmp
	HKc - Mountain hemlock -	mountain-heather krummholz, cool aspect
*	occurs on moderately to steep colluvial materials. Soils are Lithic Podzols. Soils are well	ly sloping upper mountain slopes (cool aspects) on shallow and are typically Orstein Ferro-Humic or to rapidly drained.
	ant Species and	Map Symbol
Poten	itial Habitat Use by	HKc - Edaphic Climax
	Wildlife	MATERIAL MAT
Plant	Dominants	mountain hemlock, crowberry, red mountain-heather, white mountain-heather
Species	Associates	common juniper, Vaccinium spp., partridge foot, five- leaved bramble
Potential Wildlife Use	General	
,	White-tailed Ptarmigan (saxatilis)(B)	M
•	Northern Goshawk (laingi) (R)	
Potential Use	Baid Eagle (B)	
By Red/Blue	Marbled Murrelet (B)	
Listed Species	Screech-Qwl (kennicotti) (B)	
	Pygmy-Owl (swarthi)(B)	
(R) = Red	Water Shrew (brooksi) (R)	
(B) = Blue	Keen's Long-eared Myotis (R)	
	Wolverine (vancouverensis)(R)	M
	Ermine (anginae) (B)	
	Roosevelt Elk (B)	Nil
Comments:	areas exposed to wind, cold to	emperatures

	BG	C Unit: MHmmp			
HKw - Mountain hemlock - mountain-heather krummholz, warm aspect					
**					
	ant Species and	Map Symbol			
	tial Habitat Use by	HKw - Edaphic Climax			
	Wildlife				
Plant	Dominants	mountain hemlock, crowberry, red mountain-heather, white mountain-heather			
Species	Associates	common juniper, Vaccinium spp., partridge foot, five- leaved bramble			
Potential Wildlife Use	General				
	White-tailed Ptarmigan (saxatilis)(B)	M			
	Northern Goshawk (laingi) (R)				
Potential Use	Bald Eagle (B)				
By Red/Blue	Marbled Murrelet (B)				
Listed Species	Screech-Qwl (kennicotti) (B)				
	Pygmy-Owl (swarthi)(B)				
(R) = Red	Water Shrew (brooksi) (R)				
(B) = Blue	Keen's Long-eared Myotis (R)				
	Wolverine (vancouverensis)(R)	M			
,	Ermine (anginae) (B)				
	Roosevelt Elk (B)	Nil			
Comments:	areas exposed to wind, cold to	emperatures			

	BG	C Unit: MHmmp		
HKm - Mountain hemlock - mountain-heather krummholz, gentle to moderate slopes				
Description occurs on ridge tops and mountain plateaus on colluvial material.  Soils are shallow and are typically Orstein Ferro-Humic or Lithic Podzols.				
PI	Soils are well to rapidly draine ant Species and	Map Symbol		
1	itial Habitat Use by Wildlife	HKm - Edaphic Climax		
Plant	Dominants	mountain hemlock, crowberry, red mountain-heather, white mountain-heather		
Species	Associates	common juniper, Vaccinium spp., partridge foot, five- leaved bramble		
Potential Wildlife Use	General			
	White-tailed Ptarmigan (saxatilis)(B)	М		
	Northern Goshawk (laingi) (R)			
Potential Use	Baid Eagle (B)			
By Red/Blue	Marbled Murrelet (B)			
Listed Species	Screech-Qwl (kennicotti) (B)			
	Pygmy-Owl (swarthi)(B)			
(R) = Red	Water Shrew (brooksi) (R)			
(B) = Blue	Keen's Long-eared Myotis (R)			
	Wolverine (vancouverensis)(R)	M		
	Ermine (anginae) (B)			
	Roosevelt Elk (B)	Nil		
Comments:	areas exposed to wind, cold te	mperatures		

M = Moderate

BGC Unit: MHmmp HMm - Mountain hemlock - mountain-heather parkland, moderate slope habitat class Occurs on gently to moderately sloping ridge crests and mountain tops. Soils are typically shallow (bedrock close to surface) and consist of Description: Folisols and Lithic Podzols and Orthic Humo-Ferric Podzols. Trees are found in clumps interspersed with patches of subapline heathland and meadow. Map Symbol and Successional Stage Plant Species and HMm5 Potential Habitat Use by HMm1 HM<sub>m</sub>2 HMm3 HMm4 Pole - Sapling Old Growth Wildlife Shrub - Herb Young Forest Mature Forest mountain hemlock, red mountain hemlock, red mountain hemlock, red red mountain-heather. mountain hemlock, red mountain-heather, white mountain-heather, white mountain-heather, white mountain-heather, white **Dominants** white mountai-hemlock. mountain-heather. mountain-heather. mountain-heather. mountain-heather, sedges grasses, sedges partridgefoot partridgefoot partridgefoot Plant Species amabilis fir, sedges, amabilis fir. five-leaved amabilis fir, five-leaved partridgefoot, grasses Associates mountain hemlock grasses, Vaccinium spp. bramble, Vaccinium spp. bramble, Vaccinium spp Potential General Wildlife Use White-tailed Ptarmigan (saxatilis)(B) M М M M M Northern Goshawk (laingi) (R) Bald Eagle (B) Marbled Murrelet (B) Potential Use by Red/Blue Screech-Qwl (kennicotti) (B) Listed Pygmy-Owl (swarthi)(B) L L L Water Shrew (brooksi) (R) Species

M

T.

Poor tree growth; yellow cedar is present in some stands. Lichens may be abundant. Concentrated elk activity noted in this habitat. in the fall.

M

М

M

M

M

M

L = Low

(R) = Red

Comments:

H = High

М

M = Moderate

Keen's Long-eared Myotis (R)
Wolverine(vancouverensis)(R)

Ermine (anginae) (B)

Roosevelt Elk (B)

	HMc - M	ountain hemlock - mounta	in-heather parkland cool as	spect habitat class		BGC Unit: MHmmp
	Occurs on moderate to steeply					
	Folisols and Lithic Podzols ar	nd Orthic Humo-Ferric Poo	Izols. Trees are found in cl	umps interspersed with pat	ches of subapline heathlan	d and meadow.
P	ant Species and		Мар	Symbol and Successional	Stage	
Pote	ntial Habitat Use by	HMc1	HMc2	НМсЗ	HMc4	HMc5
	Wildlife	Shrub - Herb	Pole - Sapling	Young Forest	Mature Forest	Old Growth
Plant	Dominants	red mountain-heather, white mountai-hemlock, grasses, sedges	mountain hemlock, red mountain-heather, white mountain-heather, sedges	mountain hemlock, red mountain-heather, white mountain-heather, partridgefoot	1	mountain hemlock, red mountain-heather, white mountain-heather, partridgefoot
Species	Associates	mountain hemlock	partridgefoot, grasses	amabilis fir, sedges, grasses, Vaccinium spp.	amabilis fir, five-leaved bramble, Vaccinium spp.	amabilis fir, five-leaved bramble, Vaccinium spp
Potential Wildlife Use	General	-				
	White-tailed Ptarmigan (saxatilis)(B)	M	M	M	M	M
	Northern Goshawk (laingi) (R)					
	Bald Eagle (B)					
Potential Use	Marbled Murrelet (B)					
by Red/Blue	Screech-Qwl (kennicotti) (B)					
Listed	Pygmy-Owl (swarthi)(B)			L	L	L
Species	Water Shrew (brooksi) (R)					
(R) = Red	Keen's Long-eared Myotis (R)					ļ
(B) = Blue	Wolverine (vancouverensis)(R)	M	M	M	M	M
	Ermine (anginae) (B)			L		
	Roosevelt Elk (B) Poor tree growth; yellow cee	L	L	L	L	L

H = High

	HMw - Me	ountain hemlock - mounta	in-heather parkland warm a	spect habitat class		BGC Unit: MHmmp
Description:	Description: Occurs on moderate to steeply sloping upper slopes on warm, south aspects. Soils are typically shallow (bedrock close to surface) and consist of					
-	~ -		-			:
	Folisols and Lithic Podzols and Orthic Humo-Ferric Podzols. Trees are found in clumps interspersed with patches of subapline heathland and meadow.  Plant Species and  Map Symbol and Successional Stage					
	ntial Habitat Use by	HMw1	HMw2	HMw3	HMw4	HMw5
1 0.01	Wildlife	Shrub - Herb	Pole - Sapling	Young Forest	Mature Forest	Old Growth
Plant		red mountain-heather, white mountai-hemlock, grasses, sedges	mountain hemlock, red mountain-heather, white mountain-heather, sedges	mountain hemlock, red mountain-heather, white mountain-heather, partridgefoot	mountain hemlock, red mountain-heather, white mountain-heather, partridgefoot	mountain hemlock, red mountain-heather, white mountain-heather, partridgefoot
Species	Associates	mountain hemlock	partridgefoot, grasses	amabilis fir, sedges, grasses, Vaccinium spp.	amabilis fir, five-leaved bramble, Vaccinium spp.	amabilis fir, five-leaved bramble, Vaccinium spp
Potential Wildlife Use	General <sub>.</sub>					
	White-tailed Ptarmigan (saxatilis)(B)	M	M	М	M	M
1	Northern Goshawk (laingi) (R)					
,	Bald Eagle (B)				<u></u>	
Potential Use	Marbled Murrelet (B)					
by Red/Blue	Screech-Qwl (kennicotti) (B)					
Listed	Pygmy-Owl (swarthi)(B)			L	L	L
Species	Water Shrew (brooksi) (R)					
(R) = Red	Keen's Long-eared Myotis (R)					
(B) = Blue	Wolverine (vancouverensis)(R)	M	M	M	M	M
	Ermine (anginae) (B)					
'	Roosevelt Elk (B)	L	L	L	L	L
Comments:	Poor tree growth; yellow cec	dar is present in some stand	ds. Lichens may be abunda	int.	<del></del>	

L = Low M = Moderate

H = High
\* May occur in this habitat type

BGC Unit: MHmmp					
ROc - Rock outcrop, cool aspect habitat class					
Description:					
Pl	Plant Species and Map Symbol				
Poter	ntial Habitat Use by Wildlife	ROc - Edaphic Climax			
Plant	Dominants	Not applicable			
Species	Associates	Not applicable			
Potential Wildlife Use	General	Lack of tree cover and forage limits use.			
	White-tailed Ptarmigan (saxatilis)(B)				
	Northern Goshawk (laingi) (R)				
Potential Use	Bald Eagle (B)	-			
By Red/Blue	Marbled Murrelet (B)				
Listed Species	Screech-Qwl (kennicotti) (B)				
	Pygmy-Owl (swarthi)(B)	·			
(R) = Red	Water Shrew (brooksi) (R)				
(B) = Blue	Keen's Long-eared Myotis (R)				
	Wolverine (vancouverensis)(R)				
	Ermine (anginae) (B)				
	Roosevelt Elk (B)	Nil			
Comments:	, ,				

L = Low
M = Moderate

	BG	C Unit: MHmmp	
	The state of the s	crop, warm aspect habitat class	
Description:	areas of steeply sloping bedro- cliffs on upper slopes.	ck on cool, north aspects. Mountain tops and	
Pl	Plant Species and Map Symbol		
Poter	ntial Habitat Use by Wildlife	ROw - Edaphic Climax	
Plant	Dominants	Not applicable	
Species	Associates	Not applicable	
Potential Wildlife Use	General	Lack of tree cover and forage limits use.	
	White-tailed Ptarmigan (saxatilis)(B)		
	Northern Goshawk (laingi) (R)		
Potential Use	Bald Eagle (B)		
By Red/Blue	Marbled Murrelet (B)		
Listed Species	Screech-Qwl (kennicotti) (B)		
	Pygmy-Owl (swarthi)(B)		
(R) = Red	Water Shrew (brooksi) (R)		
(B) = Blue	Keen's Long-eared Myotis (R)		
	Wolverine (vancouverensis)(R)		
	Ermine (anginae) (B)		
	Roosevelt Elk (B)	Nil	
Comments:			

L = Low
M = Moderate
H = High

BGC Unit: MHmmp					
ROm - Rock outcrop, moderate slope habitat class					
Pla	ant Species and	Map Symbol			
î e e e e e e e e e e e e e e e e e e e	tial Habitat Use by	ROm - Edaphic Climax			
	Wildlife	A SAME OF THE SAME			
Plant Species	Dominants	Not applicable			
	Associates	Not applicable			
Potential Wildlife Use	General	Lack of tree cover and forage limits use.			
	White-tailed Ptarmigan (saxatilis)(B)				
	Northern Goshawk (laingi) (R)				
Potential Use	Bald Eagle (B)				
By Red/Blue	Marbled Murrelet (B)				
Listed Species	Screech-Qwl (kennicotti) (B)				
	Pygmy-Owl (swarthi)(B)				
(R) = Red	Water Shrew (brooksi) (R)				
(B) = Blue	Keen's Long-eared Myotis (R)				
	Wolverine (vancouverensis)(R)				
	Ermine (anginae) (B)				
	Roosevelt Elk (B)	Nil			
Comments:					

# BGC Unit: MHmmp SAc - Sitka alder slide forest, cool aspect habitat class occurs on colluvial and fluvial materials on steeply sloping, cool, north aspects. Description: Map Symbol Plant Species and SAc - Edaphic Climax Potential Habitat Use by Wildlife **Dominants** Sitka alder, grasses Plant Species Associates sedges lack of large trees limits use by red/blue listed species General Potential Wildlife Use White-tailed Ptarmigan (saxatilis)(B) Northern Goshawk (laingi) (R) Potential Use Bald Eagle (B) By Red/Blue Marbled Murrelet (B) Listed Species Screech-Qwl (kennicotti) (B) Pygmy-Owl (swarthi)(B) (R) = RedWater Shrew (brooksi) (R) (B) = BlueKeen's Long-eared Myotis (R) L Wolverine (vancouverensis)(R) Ermine (anginae) (B) L Roosevelt Elk (B) Comments:

L = Low

M = Moderate

BGC Unit: MHmmp				
SAw - Sitka alder slide forest, warm aspect habitat class				
Description: occurs on colluvial and fluvial materials on steeply sloping, warm, south aspects.				
Pls	Plant Species and Map Symbol			
	tial Habitat Use by	SAw - Edaphic Climax		
	Wildlife			
	Dominants	Sitka alder, grasses		
		. •		
Plant				
Species				
	Associates	· ·		
	Associates	sedges		
Potential	General	lack of large trees limits use by red/blue listed species		
Wildlife Use				
	White-tailed Ptarmigan (saxatilis)(B)			
	Northern Goshawk (laingi) (R)	·		
Potential Use	Bald Eagle (B)			
By Red/Blue	Marbled Murrelet (B)			
Listed Species	Screech-Qwl (kennicotti) (B)			
	Pygmy-Owl (swarthi)(B)			
(R) = Red	Water Shrew (brooksi) (R)			
(B) = Blue	Keen's Long-eared Myotis (R)			
	Wolverine (vancouverensis)(R)	L		
	Ermine (anginae) (B)			
	Roosevelt Elk (B)	L		
Comments:				

BGC Unit: MHmmp					
TAc - Talus and rubble, cool aspect habitat class					
Description:	Description: areas of steeply sloping talus and colluvial rubble on cool, north aspects.  Found below steep cliff faces and ridges.				
		and riages.			
1	lant Species and	Map Symbol			
Poter	ntial Habitat Use by Wildlife	TAc - Edaphic Climax			
	Wilding				
Plant	Dominants	Not applicable			
Species					
upovo.					
	Associates	Not applicable			
	!				
Potential Wildlife Use	General	Lack of tree cover and forage limits use.			
	White-tailed Ptarmigan (saxatilis)(B)				
	Northern Goshawk (laingi) (R)				
Potential Use	Bald Eagle (B)				
By Red/Blue	Marbled Murrelet (B)				
Listed Species	Screech-Qwl (kennicotti) (B)				
	Pygmy-Owl (swarthi)(B)				
(R) = Red	Water Shrew (brooksi) (R)				
(B) = Blue	Keen's Long-eared Myotis (R)				
	Wolverine (vancouverensis)(R)	L			
,	Ermine (anginae) (B)				
	Roosevelt Elk (B)				
Comments:	· · · · · · · · · · · · · · · · · · ·				

M = Moderate

H = High

\* May occur in this habitat type

# **BGC Unit: MHmmp** TAw - Talus and rubble, warm aspect habitat class areas of steeply sloping talus and colluvial rubble on warm, south aspects. Description: Found below steep cliff faces and ridges. Map Symbol Plant Species and TAw - Edaphic Climax Potential Habitat Use by Wildlife **Dominants** Not applicable Plant Species Not applicable Associates Lack of tree cover and forage limits use. General Potential Wildlife Use White-tailed Ptarmigan (saxatilis)(B) Northern Goshawk (laingi) (R) Potential Use Bald Eagle (B) By Red/Blue Marbled Murrelet (B) Screech-Qwi (kennicotti) (B) Listed Species Pygmy-Owl (swarthi)(B) (R) = RedWater Shrew (brooksi) (R) (B) = BlueKeen's Long-eared Myotis (R) L Wolverine (vancouverensis)(R) Ermine (anginae) (B) Roosevelt Elk (B) Comments:

L = Low

M = Moderate

H = High

<sup>\*</sup> May occur in this habitat type