
Renfrew Aggregate Landscape Unit Plan (Draft) V6



Nitinat Lake (photo M. Davis)

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Table of Contents

1.0	Introduction	7
2.0	Landscape Unit Descriptions	9
2.1	Nitinat	9
	Biophysical.....	9
	Physical Geography, Climate and Ecology.....	12
	Land Status.....	12
	Wildlife and Biodiversity	13
2.2	Caycuse	14
	Biophysical.....	14
	Physical Geography, Climate and Ecology.....	14
	Land Status.....	14
	Wildlife and Biodiversity	17
2.3	Walbran.....	18
	Biophysical.....	18
	Physical Geography, Climate and Ecology.....	18
	Land Status.....	18
	Wildlife and Biodiversity	22
2.4	Gordon	22
	Biophysical.....	22
	Physical Geography, Climate and Ecology.....	22
	Land Status.....	26
	Wildlife and Biodiversity	26
2.5	San Juan.....	27
	Biophysical.....	27

Physical Geography, Climate and Ecology.....	27
Land Status.....	30
Wildlife and Biodiversity	30
3.0 Key Resource Tenure Holders.....	31
3.1 Nitinat	31
Forest Tenure Holders.....	31
Mining Tenure Holders.....	32
3.2 Caycuse	32
Forest Tenure Holders.....	32
Mining Tenure Holders.....	32
3.3 Walbran.....	32
Forest Tenure Holders.....	32
Mining Tenure Holders.....	32
3.4 Gordon	33
Forest Tenure Holders.....	33
Mining Tenure Holders.....	33
3.5 San Juan.....	33
Forest Tenure Holders.....	33
Mining Tenure Holders.....	33
4.0 Significant Resource Values	34
4.1 Nitinat	34
Fish.....	34
Minerals.....	34
Recreation.....	34
Timber.....	34
Private Land.....	35
Water.....	35

4.2	Caycuse	35
	Fish.....	35
	Minerals.....	36
	Recreation.....	36
	Timber	36
	Private Land.....	37
	Water.....	37
4.3	Walbran.....	37
	Fish.....	37
	Minerals.....	37
	Recreation.....	37
	Timber	37
	Private Land.....	38
	Water.....	38
4.4	Gordon	38
	Fish.....	38
	Minerals.....	39
	Recreation.....	39
	Timber	39
	Private Land.....	40
	Water.....	40
4.5	San Juan.....	40
	Fish.....	40
	Minerals.....	40
	Recreation.....	40
	Timber	40
	Private Land.....	41

Water.....	41
5.0 Existing Higher Level Plans.....	41
5.1 Special Management Zone 21.....	42
5.2 General Management Zones 45 and 46.....	43
6.0 First Nations.....	43
7.0 OGMA Methodology.....	44
7.1 OGMA Targets.....	44
7.2 OGMA Placement.....	44
Marbled Murrelet Habitat.....	45
Northern Goshawk WHA.....	46
Archaeological / heritage Sites.....	46
Rare Site Series and Rare Ecosystems.....	46
Special Management Zones (SMZs).....	46
Ungulate Winter Range (UWR).....	47
FENs.....	47
Monumental Cedars.....	47
Other Factors.....	47
7.3 Mitigation of Timber Supply Impacts.....	47
7.4 Boundary Mapping.....	48
7.5 Amendment Policy.....	48
7.6 Rare and Endangered Species and Ecosystems.....	48
8.0 OGMA Analysis.....	50
9.0 Wildlife Tree Retention.....	51
10.0 Landscape Unit Objectives.....	51
11.0 References.....	51

List of Tables

Table 1: Land Status of the Nitinat Landscape Unit (includes private land north of E and N line).....	12
Table 2: Land Status using Crown Forested Land Base Classification by Biogeoclimatic Subzone in the Planning Area of the Nitinat Landscape Unit prior to OGMA Delineation (excludes the private land north of the E and N line).....	13
Table 3: Land Status of the Caycuse Landscape Unit (including the land north of the E and N line).....	14
Table 4: Land Status using Crown Forest Land Base Classification by Biogeoclimatic Subzone in the Planning Area of the Caycuse Landscape Unit prior to OGMA Delineation.....	17
Table 5: Land Status of the Walbran Landscape Unit	21
Table 6: Land Status using Crown Forest Land Base Classification by Biogeoclimatic Subzone Within the Planning Area of the Walbran Landscape Unit prior to OGMA Delineation.	21
Table 7: Land Status of the Gordon Landscape Unit (including the private land north of the E and N line).....	26
Table 8: Land Status using Crown Forest Land Base Classification by Biogeoclimatic Subzone Within the Planning Area of the Gordon Landscape Unit prior to OGMA Delineation (excluding the private land north of the E and N line).....	26
Table 9: Land Status of the San Juan Landscape Unit (including the land north of the E and N line).....	30
Table 10: Land Status using Crown Forest Land Base Classification by Biogeoclimatic Subzone Within the Planning Area of the San Juan Landscape Unit prior to OGMA Delineation (excludes the land north of the E and N line).....	30

List of Figures

Figure 1: The Five Landscape Units of the Planning Area in the Renfrew Aggregate.....	8
Figure 2: British Columbia with the Nitinat Landscape Unit and its Biogeoclimatic Classification.....	10
Figure 3: Landbase Classification of the Nitinat Landscape Unit.	11
Figure 4: British Columbia with the Caycuse Landscape Unit and its Biogeoclimatic Classification.....	15
Figure 5: Landbase Classification of the Caycuse Landscape Unit.	16
Figure 6. British Columbia with the Walbran Landscape Unit and its Biogeoclimatic Classification.....	19
Figure 7: Landbase Classification of the Walbran LU.	20

Figure 8:	British Columbia with the Gordon Landscape Unit and its Biogeoclimatic Classification.....	24
Figure 9:	Landbase Classification of the Gordon Landscape Unit.....	25
Figure 10:	British Columbia with the San Juan Landscape Unit and its Biogeoclimatic Classification.....	28
Figure 11:	Landbase Classification of the San Juan LU.....	29
Figure 11:	Age distribution of forests within the Nitinat LU.....	35
Figure 12:	Age distribution of forests within the Caycuse LU.....	36
Figure 13:	Age distribution of forests within the Walbran LU.....	38
Figure 14:	Age distribution of forests within the Gordon LU.....	39
Figure 15:	Age distribution of forests within the San Juan LU.....	41

1.0 Introduction

This report provides documentation regarding the background information and processes used during the preparation of the Landscape Unit Plan for five Landscape Units (LUs) in the Renfrew Aggregate and associated proposed legal objectives. A description of the planning units, discussion of significant resource values, and an Old Growth Management Area (OGMA) summary and rationale are provided. The Renfrew Aggregate consists of seven Landscape Units, but only five LUs (San Juan, Caycuse, Nitinat, Walbran and Gordon; see Figure 1) are considered here. Planning for the remaining two LUs is being done by others.

The planning area covered here does not include the land north of the E and N line, which is mostly private forest land outside of a TFL. This land is not subject to Landscape Unit Planning. As this private land was a large contiguous area for which there was no data, it has been excluded from some of the summaries presented in this report.

Biological diversity or biodiversity is defined as: *'the diversity of plants, animals and other living organisms in all their forms and levels of organisation, and includes the diversity of genes, species and ecosystems as well as the evolutionary and functional processes that link them'*¹. British Columbia is the most biologically diverse province in Canada. Over 150 taxa of known mammals, birds, reptiles, and amphibians and over 600 vascular plants are listed for legal designation as threatened or endangered in British Columbia. Landscape level planning is directed at reducing threats to biological diversity and major impacts on the health and functioning of ecosystems (Resources Inventory Committee 1998).

Planning for OGMA and Wildlife Tree Patch (WTP) biodiversity values is recognized as a high priority for the province. LU planning was an important component of the Forest Practices Code of BC Act (FPC) and this importance continues under the Forest and Range Practices Act (FRPA) this planning allows legal establishment of objectives to address landscape level biodiversity values. Implementation of this initiative is intended to help maintain certain biodiversity values. Managing for biodiversity through retention of old growth forests is considered not only important for wildlife, but can also provide important benefits to ecosystem management, protection of water quality and preservation of other natural resources. Although not all elements of biodiversity can be, or need be, maintained on every hectare, a broad geographic distribution of old growth ecosystems is intended to help sustain the genetic and functional diversity of native species across their historic ranges.

The Nitinat, Caycuse, Gordon, San Juan and Walbran LUs are Intermediate Biodiversity Emphasis landscape units. The Provincial non spatial order for old growth has made the biodiversity emphasis legal along with the boundaries of the landscape units.

All landscape unit objectives on Vancouver Island must be consistent with the Vancouver Island Land Use Plan Order, which came into effect on December 1, 2000.

¹ BC Ministry of established Special Forests and BC Environment. 1995. Biodiversity Guidebook.

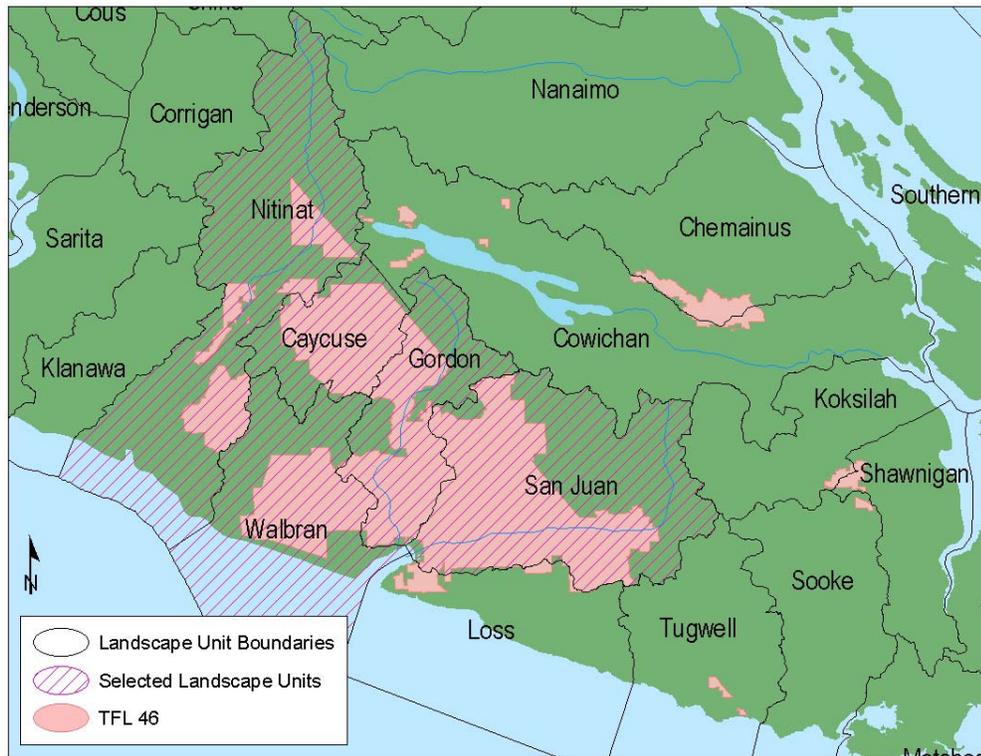


Figure 1: The Five Landscape Units of the Planning Area in the Renfrew Aggregate.

Co-ordination of landscape unit planning is the responsibility of the Integrated Land Management Bureau (ILMB) in the Ministry of Agriculture and Lands, with statutory decision-making authority delegated to the Regional Director. Previously this work was done by the Ministry of Sustainable Resource Management (MSRM). Work for the biodiversity planning in the five Lus covered by this document was completed by Keystone Wildlife Research Ltd. under contract to Teal Jones Forest Limited. Funding was provided by the Forest Investment Account and the Integrated Land Management Bureau. Agencies such as the Ministry of Forests and Range (MOFR) and the Ministry of Environment (MOE) were also involved.

Input from First Nations will be gathered during consultation (prior to public review) between Integrated Land Management Bureau regional staff and individual First Nations. Also prior to public review Mineral tenure holders are notified if any draft OGMAs are in their tenure area. Comments from the public will be sought during the 60-day public review and comment period. Refer to the attached map for the locations of the OGMAs.

Supporting documentation regarding government policy, planning processes and biodiversity concepts are provided in the *Biodiversity Guidebook*, the *Landscape Unit Planning Guide*², the *Vancouver Forest Region Landscape Unit Planning Strategy*³,

² BC Ministry of Forests and Ministry of Environment, Lands and Parks. 1999. Landscape Unit Planning Guide. Victoria, BC

³ BC Ministry of Forests. 1999. Vancouver Forest Region Landscape Unit Planning Strategy

Sustainable Resource Management Planning: A Landscape-level Strategy for Resource Development⁴

The distribution of OGMA's will have to be reviewed periodically to ensure the objective and ecological suitability through time is maintained. For example, windthrow and other natural disturbances may occur within old seral forests with varying effects on their ecological attributes. Each instance will have to be considered separately. In some cases, disturbances in old seral forests have minimal effect or enhance the ecological attributes of an OGMA and it remains valuable for conservation (e.g., following a low intensity fire that serves to create more large snags). In other instances, a natural disturbance may remove specific habitat features and make the area unsuitable as an OGMA. If an assessment of the damage to an OGMA determines that an area is no longer suitable, a replacement OGMA will need to be identified. Wildlife management practices and operational procedures will improve as more information and technology is acquired through the years.

2.0 Landscape Unit Descriptions

2.1 Nitinat

Biophysical

The Nitinat LU is located on the western side of Vancouver Island (see Figure 2). The Landscape Unit covers a total area of 80,199 ha (including the private land north of the E and N line) and includes Nitinat Lake and the Nitinat and Little Nitinat Rivers.

Only 73,002 ha of the Nitinat LU are included in this planning exercise. Of the total planning area within the Nitinat LU, 46,530 ha (64%) are within the Crown forested land base (CFLB), and 27,972 ha (60% of the CFLB) of Crown forest are within the Timber Harvesting Land Base (THLB⁵). The remaining 26,472 ha (46%) are non-forested or non-Crown (rock, alpine tundra, water, First Nations reserve, private land etc.) and form the landbase excluded (X) from OGMA contributions. Figure 3 summarizes the landbase classification for the Nitinat LU. Note that inventory data was not available for some portions of the landscape unit (Roseander Mountain) that were included in OGMA planning.

⁴ BC Ministry of Sustainable Resource Management. 2002. Sustainable Resource Management Planning: A Landscape-level Strategy for Resource Development

⁵ THLB prior to OGMA delineation is defined as P+C (see Appendix 7)

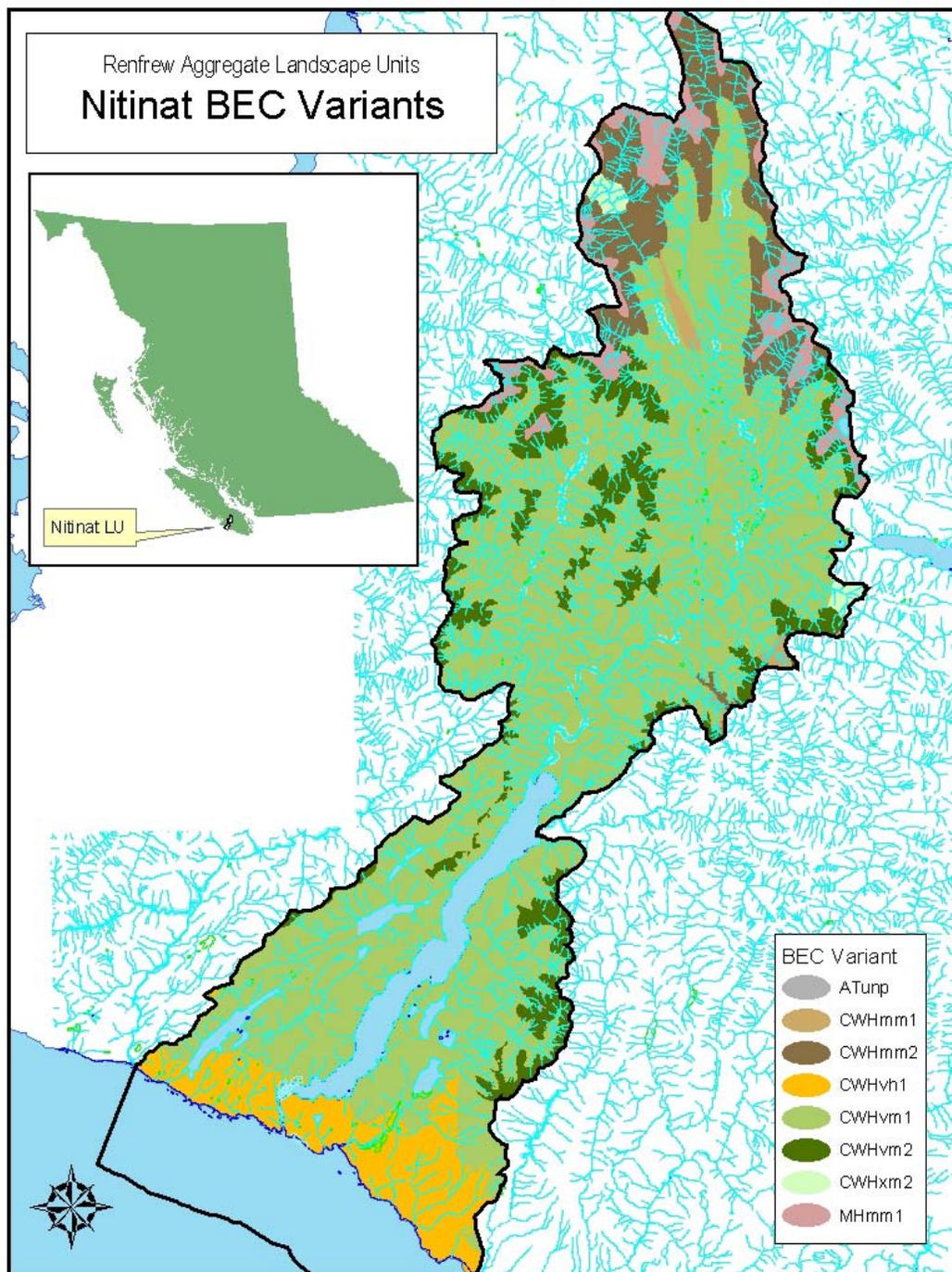


Figure 2: British Columbia with the Nitinat Landscape Unit and its Biogeoclimatic Classification. Note the ATunp Subzone is considered as X for OGMA planning predominantly alpine with few trees.

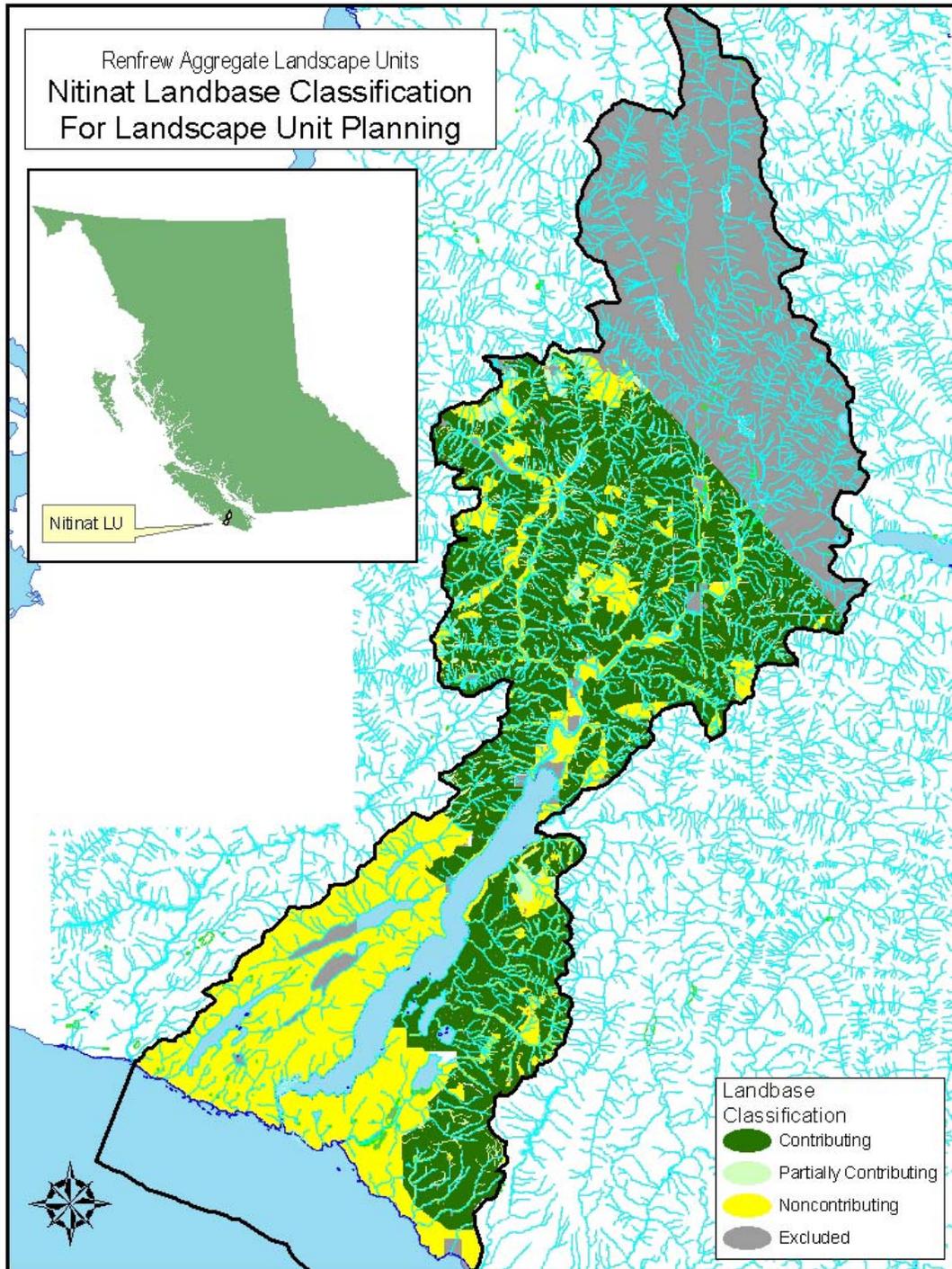


Figure 3: Landbase Classification of the Nitinat Landscape Unit. Note: Private land in the northern portion of the LU was excluded from OGMA planning and the protected areas are shown as part of the Noncontributing landbase.

Physical Geography, Climate and Ecology

The Nitinat Landscape Unit contains four ecoregions: Western Vancouver Island, Eastern Vancouver Island, Georgia Basin, and Outer Pacific Shelf. Four ecosections are present: the Leeward Island Mountains, Windward Island Mountains, Vancouver Island Shelf, and Juan de Fuca Strait⁶. The climate is temperate and rainy with warm summers. Precipitation is abundant through the year but is markedly reduced in summer⁷.

There are eight biogeoclimatic (BEC) subzone variants present within the Nitinat LU, which falls within three natural disturbance types (NDTs)⁸ (see Figure 2 for location). The Coastal Western Hemlock Zone – submontane very wet maritime variant (CWH vm1), montane very wet maritime variant (CWH vm2), the very wet hyper-maritime variant (CWHvh1) and Mountain Hemlock Zone – windward moist maritime variant (MH mm1) fall within NDT 1. Small amounts of the submontane moist maritime CWH variant (CWHmm1), and the montane moist maritime biogeoclimatic variant (CWHmm2) are present and are classified as NDT 2. A very small amount of the western very dry maritime Coastal Western Hemlock variant (CWHxm2) is also present and is listed as NDT2. There is also a small amount of Alpine Tundra (AT), which is classified as NDT5.

Land Status

Land status within the entire Nitinat LU (including the private land north of the E and N line) is summarized in Table 1. The Crown forested land base within the Planning Area of the Nitinat LU is provided in Table 2.

Table 1: Land Status of the Nitinat Landscape Unit (includes private land north of E and N line).

Code	Ownership Class	Total Area (ha)	% of Total LU
0	Unknown	189	0.24
40	Private	15,071	18.79
50	Federal Reserve	25	0.03
51	National Park	14,573	18.17
52	Indian Reserve	778	0.97
60	Crown Ecological Reserve	84	0.10
62	TSA or PSYU	9,075	11.32
63	Provincial Park	476	0.59
69	Crown Misc. Reserve	84	0.11
72	Crown/Private Schedule A & B Lands	39,808	49.64
76	Crown and Private TFL - Status Unreported	36	0.05
Total		80,199	100.00

⁶ Demarchi, D. 1996. An introduction to the ecoregions of British Columbia. Wildlife Branch, Ministry of Environment, Lands and Parks, Victoria. Ministry of Sustainable Resource Management. Update March 2004. British Columbia; Ecoregion Ecosystem Classification Units, Ver. 2.01.

⁷ See <http://srmwww.gov.bc.ca/ecology/ecoregions/humidtemp.html>

⁸ NDT1 includes ecosystems with rare stand-initiating events. NDT2 includes ecosystems with infrequent stand initiating events. For a more complete description of NDTs see the *Biodiversity Guidebook* (1995).

Table 2: Land Status using Crown Forested Land Base Classification by Biogeoclimatic Subzone in the Planning Area of the Nitinat Landscape Unit prior to OGMA Delineation (excludes the private land north of the E and N line).

BEC Variant	Total Area (ha)	Crown Forested Land Base (ha) ⁹	C	P	N	X ¹⁰
ATunp	67	0	0	0	0	67
CWHmm1	451	205	153	39	13	245
CWHmm2	5,555	90	82	4	4	5,464
CWHvh1	8,078	5,314	1,457	196	3,661	2,764
CWHvm1	49,315	34,998	18,406	3,453	13,140	14,316
CWHvm2	6,519	5,810	3,491	664	1,656	709
CWHxm2	461	3	3	0	0	458
MHmm1	3,075	314	148	68	98	2,761
Total	73,002	46,530	23,588	4,384	18,558	26,472

Wildlife and Biodiversity

Wildlife resources of primary management concern in the Nitinat LU include Marbled Murrelet, Queen Charlotte Goshawk, fish, ten species at risk that are considered Identified Wildlife¹¹ and 24 species that are listed as 'Regionally Important'¹². Excluding marine mammals, there are 26 Red-listed wildlife species and 44 Blue-listed wildlife species on the provincial tracking list for the South Island Forest District (see Appendix 3). Habitat requirements for other species of wildlife are generally managed within habitat areas provided for primary species or through access management provisions.

The Crown forested land base has been classified according to its suitability as nesting habitat for Marbled Murrelets. Where moderate (class 3) to very high quality habitat (class 1) has been captured in OGMAs, it will provide key features important for nesting and also provide habitat for other wildlife species.

⁹ The Crown forested land base is comprised of Contributing (C), Partially Contributing (P), and Non-Contributing (N) forests. C and P forests make up the Timber Harvesting Land Base (THLB prior to OGMA delineation). N forest lands do not contribute to the Allowable Annual Cut (AAC).

¹⁰ Excluded land base (X) is area excluded from contributing to old forest and wildlife tree targets, such as non-Crown, non-forest, and non-productive forest.

¹¹ The *Identified Wildlife Management Strategy (2004)* includes a list of 10 wildlife species /subspecies and 1 plant species that are considered to be at risk within the South Island Forest District. These species require special management of critical habitat to maintain or restore populations or distributions. Critical habitat is protected within Wildlife Habitat Areas. See the *Identified Wildlife Management Strategy Version 2004* for more information.

¹² 'Regionally Important' species are not considered at risk provincially but are affected by forest or range practices and require specific habitat management prescriptions in order to maintain regional populations (MOE 1997).

2.2 Caycuse

Biophysical

The Caycuse LU is located on the western side of Vancouver Island south and west of Cowichan Lake, between the Nitinat and Gordon LUs (see Figure 4). The Landscape Unit covers a total area of approximately 21,661 ha (including the land north of the E and N line) and includes the Caycuse River drainage.

Of the total Planning Area (excluding land north of E and N line), 20,711 ha (96%) are within the Crown forested land base (CFLB), and 15,757 ha (76% of the CFLB) of Crown forest are within the Timber Harvesting Land Base (THLB¹³). The remaining 918 ha (4%) are non-forested or non-Crown (rock, alpine tundra, water, First Nations reserve, private land etc.) and form the Excluded (X) landbase, excluded from OGMA contributions and calculations. Figure 5 summarizes the landbase classification in the Caycuse LU.

Physical Geography, Climate and Ecology

The Caycuse Landscape Unit contains two ecoregions: Western Vancouver Island, and Eastern Vancouver Island. Two ecosections are present: the Leeward Island Mountains, and the Windward Island Mountains. Precipitation is abundant through the year but is markedly reduced in summer (Demarchi 1996).

There are six biogeoclimatic (BEC) subzone variants present within the Caycuse LU, which fall within two natural disturbance types (NDTs) (see Figure 4 for location). The Coastal Western Hemlock Zone – submontane very wet maritime variant (CWH vm1), montane very wet maritime variant (CWH vm2), and Mountain Hemlock Zone – windward moist maritime variant (MH mm1) fall within NDT 1. The submontane moist maritime CWH variant (CWHmm1), the montane moist maritime biogeoclimatic variant (CWHmm2), and the western very dry maritime Coastal Western Hemlock variant (CWHxm2) are classified as NDT 2.

Land Status

Land status within the Caycuse LU is summarised in Table 3. The Crown forested land base within the Planning Area of the Caycuse LU is provided in Table 4.

Table 3: Land Status of the Caycuse Landscape Unit (including the land north of the E and N line).

Code	Ownership Class	Total Area (ha)	% of Total LU
40	Private	628	2.90
62	TSA or PSYU	1	0.00
63	Provincial Park	21	0.10
72	Crown/Private Schedule A & B Lands	21,006	96.98
72	Provincial Park	5	0.02
	Total	21,661	100.00

¹³ THLB prior to OGMA delineation is defined as P+C (see Appendix 7)

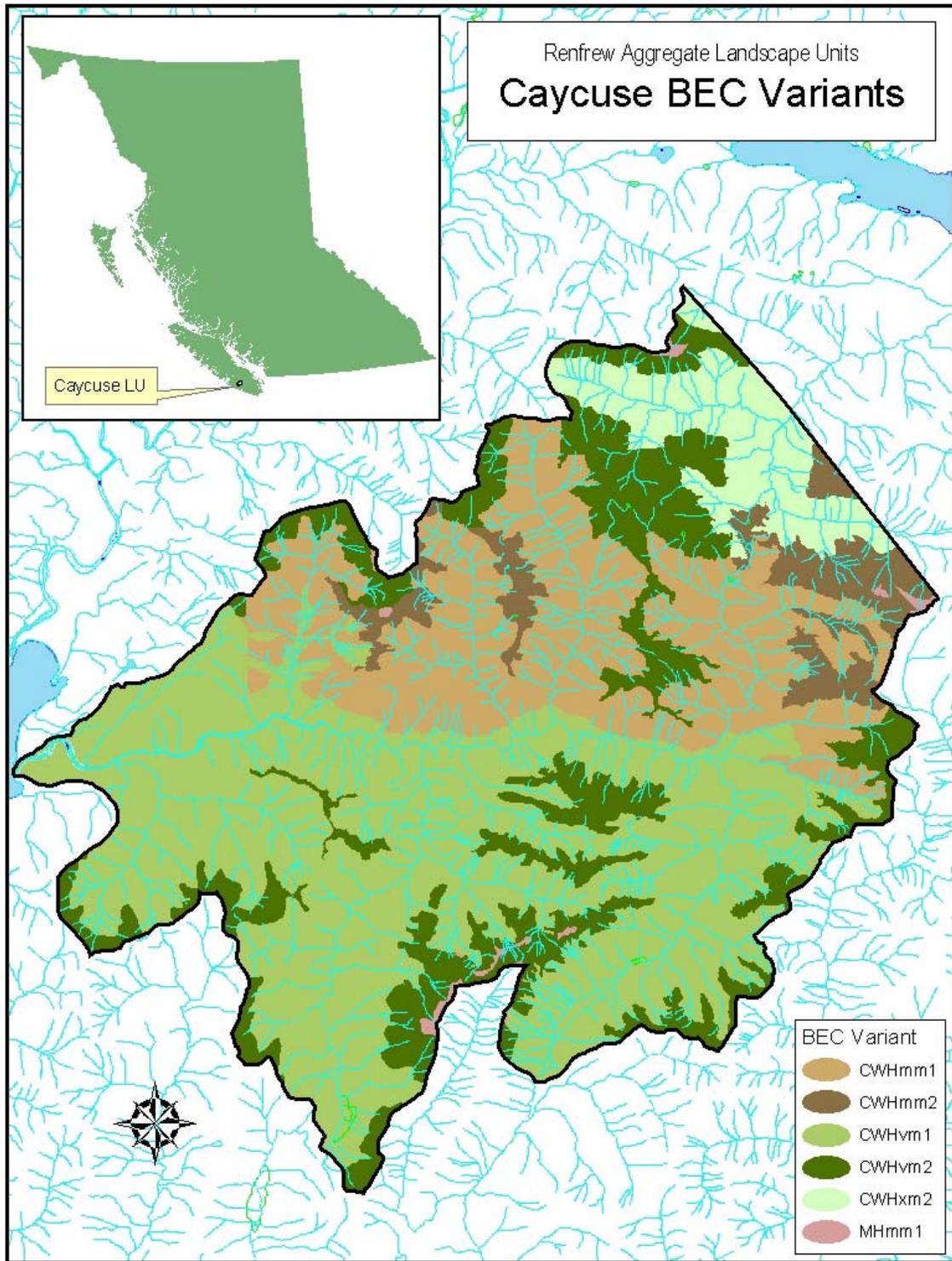


Figure 4: British Columbia with the Caycuse Landscape Unit and its Biogeoclimatic Classification.

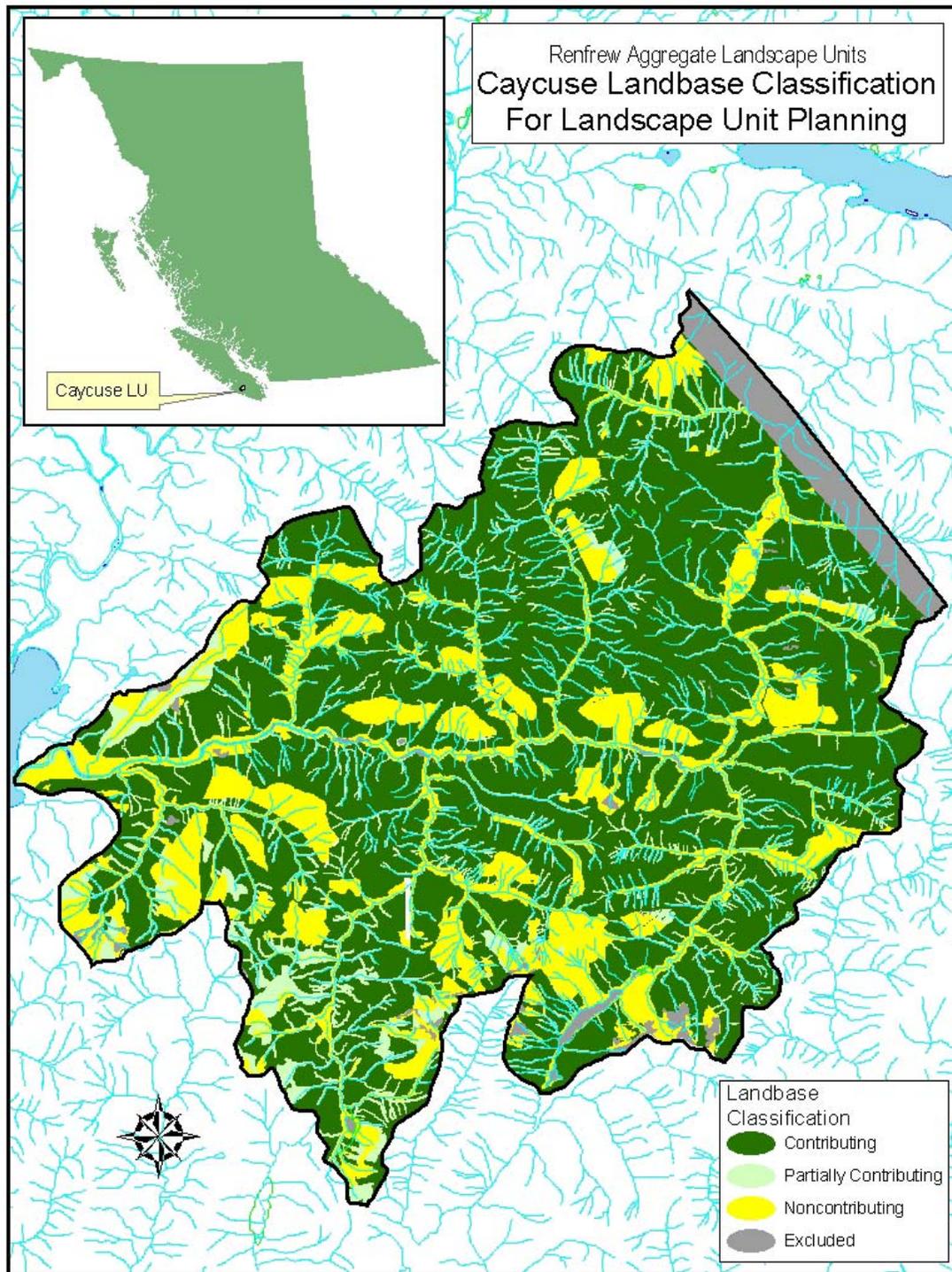


Figure 5: Landbase Classification of the Caycuse Landscape Unit

Table 4: Land Status using Crown Forest Land Base Classification by Biogeoclimatic Subzone in the Planning Area of the Caycuse Landscape Unit prior to OGMA Delineation

BEC Variant	Total Area (ha)	Crown Forested Land Base (ha) ¹⁴	C	P	N	X ¹⁵
CWHmm1	5,042	5,031	3,277	531	1,222	11
CWHmm2	1,179	1,004	779	85	140	175
CWHvm1	9,913	9,746	5,717	1,456	2,573	167
CWHvm2	3,937	3,778	2,596	378	804	159
CWHxm2	1,453	1,071	762	144	165	381
MHmm1	105	81	27	4	49	24
Total	21,629	20,711	13,158	2,599	4,954	918

Wildlife and Biodiversity

Wildlife resources of primary management concern in the Caycuse LU include Marbled Murrelet, Queen Charlotte Goshawk, fish, ten species at risk that are considered Identified Wildlife¹⁶ and 24 species that are listed as 'Regionally Important'¹⁷. Excluding marine mammals, there are 26 Red-listed wildlife species and 44 Blue-listed wildlife species on the provincial tracking list for the South Island Forest District (see Appendix 3). Habitat requirements for other species of wildlife are generally managed within habitat areas provided for primary species or through access management provisions (e.g. Marbled Murrelets).

The Crown forested land base has been classified according to its suitability as nesting habitat for Marbled Murrelets. Where moderate (class 3) to very high quality (class 1) habitat has been captured in OGMA, it will provide key features important for nesting and also provide habitat for other wildlife species.

¹⁴ The Crown forested land base is comprised of Contributing (C), Partially Contributing (P), and Non-Contributing (N) forests. C and P forests make up the Timber Harvesting Land Base (THLB prior to OGMA delineation). N forest land does not contribute to the Allowable Annual Cut (AAC).

¹⁵ Excluded land base (X) is area excluded from contributing to old forest and wildlife tree targets, such as non-Crown, non-forest, and non-productive forest.

¹⁶ The *Identified Wildlife Management Strategy (2004)* includes a list of 10 wildlife species /subspecies and 1 plant species that are considered to be at risk within the South Island Forest District. These species require special management of critical habitat to maintain or restore populations or distributions. Critical habitat is protected within Wildlife Habitat Areas. See the *Identified Wildlife Management Strategy Version 2004* for more information.

¹⁷ 'Regionally Important' species are not considered at risk provincially but are affected by forest or range practices and require specific habitat management prescriptions in order to maintain regional populations (MOE 1997).

2.3 Walbran

Biophysical

The Walbran LU is located on the western side of Vancouver Island south of Cowichan Lake (see Figure 6). The landscape unit covers a total area of approximately 55,191 ha and includes the drainages of Carmanah and Walbran Creeks.

Of the total Planning Area 30,230 ha (93%) are within the Crown forested land base, and 8,634 ha (29% of the CFLB) of Crown forest are within the Timber Harvesting Land Base (THLB prior to OGMA delineation¹⁸). The remaining 2,334 ha (7%) are non-forested or non-Crown (rock, alpine tundra, water, First Nations reserve, private land etc.) and form the Excluded (X) landbase, excluded from OGMA contributions and calculations. The landbase classification is shown in Figure 7.

Physical Geography, Climate and Ecology

The Walbran Landscape Unit contains two ecoregions: Western Vancouver Island, and Georgia Basin¹⁹. Two ecosections are present: the Windward Island Mountains and Juan de Fuca Strait. Precipitation is abundant through the year but is markedly reduced in summer²⁰.

There are four biogeoclimatic (BEC) subzone variants of productive forest present within the Walbran LU, which fall within a single natural disturbance types (NDT) (see Figure 6 for location). The Coastal Western Hemlock Zone – submontane very wet maritime variant (CWH vm1), montane very wet maritime variant (CWH vm2), the very wet hyper-maritime variant (CWHvh1) and Mountain Hemlock Zone – windward moist maritime variant (MH mm1) all fall within NDT 1. There is also a small amount of MHmm1 parkland (MHmm1p), which is NDT5 and will not be included in OGMA calculations. The Walbran LU has had a relatively low level of disturbance and significant amounts of old seral forests are present in the non-contributing landbase.

Land Status

Land status within the Walbran LU is summarised in Table 5. The Crown forested land base within the Planning Area of the Walbran LU is provided in Table 6.

¹⁸ THLB prior to OGMA delineation is defined as P+C (see Appendix 7)

¹⁹ Demarchi, D. 1996. An introduction to the ecoregions of British Columbia. Wildlife Branch, Ministry of Environment, Lands and Parks, Victoria. Ministry of Sustainable Resource Management. Update March 2004. British Columbia; Ecoregion Ecosystem Classification Units, Ver. 2.01.

²⁰ See <http://srmwww.gov.bc.ca/ecology/ecoregions/humidtemp.html>

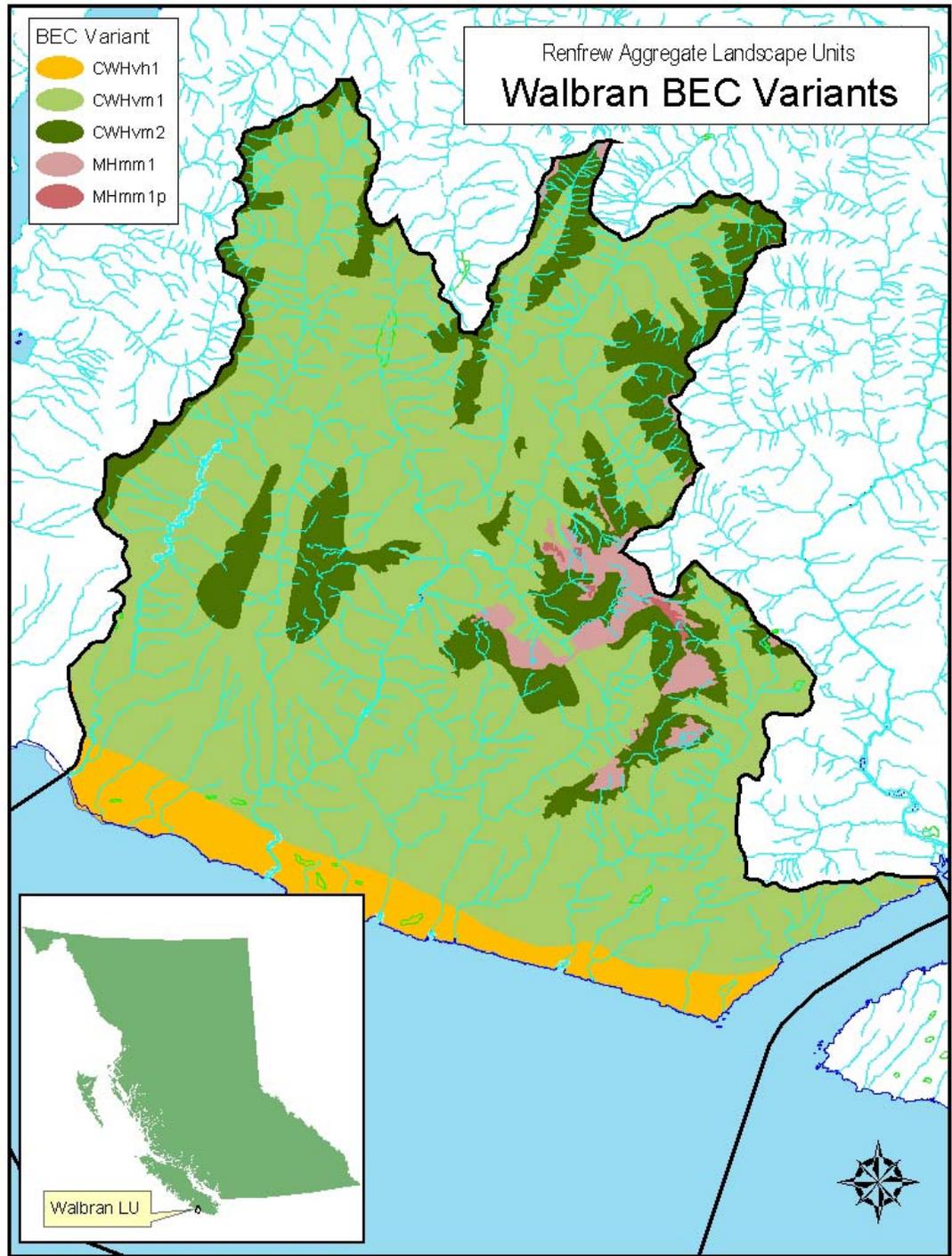


Figure 6. British Columbia with the Walbran Landscape Unit and its Biogeoclimatic Classification.

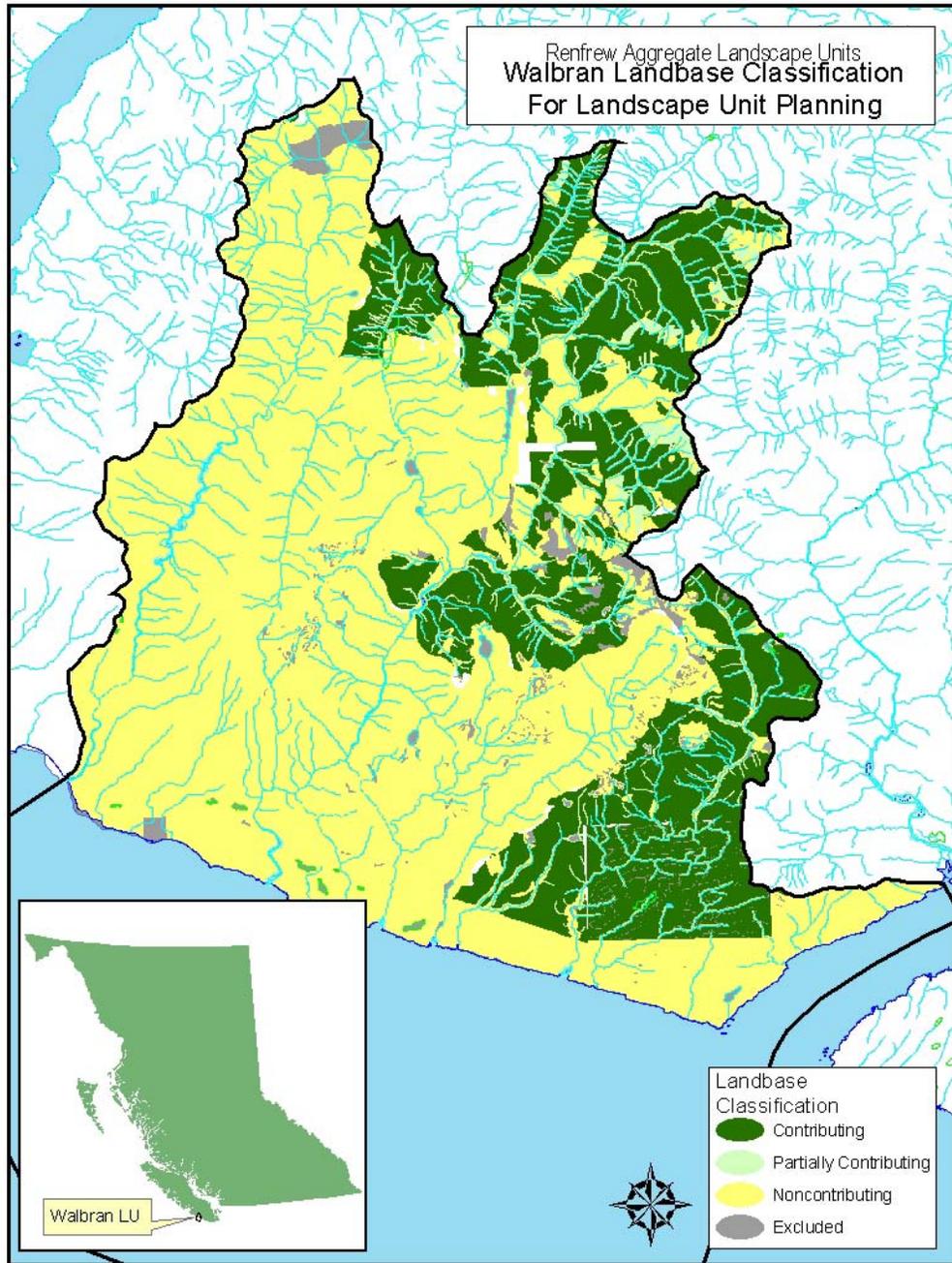


Figure 7: Landbase Classification of the Walbran LU. Note protected areas are part of the Noncontributing landbase.

Table 5: Land Status of the Walbran Landscape Unit .

Code	Ownership Class	Total Area (ha) ¹	% of Total LU
0		6,211	11.25
51	National Park	4,425	8.02
52	Indian Reserve	36	0.07
62	TSA or PSYU	17,509	31.72
63	Provincial Park	16,443	29.79
69	Crown Misc. Reserve	1	0.00
70	Crown Active Timber License in a TSA or TFL	81	0.15
72	Crown/Private Schedule A & B Lands	10,484	19.00
	Total	55,191	100.00

Table 6: Land Status using Crown Forest Land Base Classification by Biogeoclimatic Subzone Within the Planning Area of the Walbran Landscape Unit prior to OGMA Delineation.

BEC Variant	Total Area (ha)	Crown Forested Land Base (ha) ²¹	C	P	N	X ²²
CWHvh1	3,599	2,101	0	0	2,101	1,499
CWHvm1	23,095	22,578	5,673	654	16,251	517
CWHvm2	4,965	4,837	1,512	425	2,901	128
MHmm1	847	692	342	24	326	155
MHmm1p	56	21	5	1	16	35
Total	32,564	30,230	7,531	1,103	21,595	2,334

²¹ The Crown forested land base is comprised of Contributing (C), Partially Contributing (P), and Non-Contributing (N) forests. C and P forests make up the Timber Harvesting Land Base (THLB*). N forest land does not contribute to the Allowable Annual Cut (AAC).

²² Excluded land base (X) is area excluded from contributing to old forest and wildlife tree targets, such as non-Crown, non-forest, and non-productive forest.

Wildlife and Biodiversity

Wildlife resources of primary management concern in the Walbran LU include Marbled Murrelet, Queen Charlotte Goshawk, fish, ten species at risk that are considered Identified Wildlife²³ and 24 species that are listed as 'Regionally Important'²⁴. Excluding marine mammals, there are 26 Red-listed wildlife species and 44 Blue-listed wildlife species on the provincial tracking list for the South Island Forest District (see Appendix 3). Habitat requirements for other species of wildlife are generally managed within habitat areas provided for primary species or through access management provisions (e.g. Marbled Murrelets).

The Crown forested land base has been classified according to its suitability as nesting habitat for Marbled Murrelets. Where moderate to very high quality habitat has been captured in OGMAs, it will provide key features important for nesting and also provide habitat for other wildlife species.

2.4 Gordon

Biophysical

The Gordon LU is located on the western side of Vancouver Island south of Cowichan Lake (see Figure 8). The Landscape Unit covers a total area of approximately 30,738 ha (including the land north of the E and N line) and includes the Gordon Creek drainage.

The total Planning Area within the LU (excluding the land north of the E and N line) covers 21,916 ha. Of the total Planning Area within the LU, 16,787 ha (77%) are within the Crown forested land base, and 12,824 ha (76% of the CFLB) of Crown forest are within the Timber Harvesting Land Base (THLB²⁵). The remaining 5,129 ha (23%) are non-forested or non-Crown (rock, alpine tundra, water, First Nations reserve, private land etc.) and form the landbase excluded (X) from OGMA contributions. The landbase classification of the Gordon LU is shown in Figure 9.

Physical Geography, Climate and Ecology

The Gordon Landscape Unit contains three ecoregions: Georgia Basin, Western Vancouver Island, and Eastern Vancouver Island. Three ecosections are present: the Leeward Island Mountains, the Windward Island Mountains, and the Georgia Basin. Precipitation is abundant through the year but is markedly reduced in summer (Demarchi 1996).

There are seven biogeoclimatic (BEC) subzone variants present within the Gordon LU, which fall within three natural disturbance types (NDTs) (see Figure 8 for location). The Coastal Western Hemlock Zone – submontane very wet maritime variant (CWH vm1),

²³ The *Identified Wildlife Management Strategy (2004)* includes a list of 10 wildlife species /subspecies and 1 plant species that are considered to be at risk within the South Island Forest District. These species require special management of critical habitat to maintain or restore populations or distributions. Critical habitat is protected within Wildlife Habitat Areas. See the *Identified Wildlife Management Strategy Version 2004* for more information.

²⁴ 'Regionally Important' species are not considered at risk provincially but are affected by forest or range practices and require specific habitat management prescriptions in order to maintain regional populations (MOE 1997).

²⁵ THLB prior to OGMA delineation is defined as P+C (see Appendix 7)

montane very wet maritime variant (CWH vm2), the very wet hyper-maritime variant (CWHvh1) and Mountain Hemlock Zone – windward moist maritime variant (MH mm1) fall within NDT 1. The submontane moist maritime CWH variant (CWHmm1), the montane moist maritime biogeoclimatic variant (CWHmm2), and the western very dry maritime Coastal Western Hemlock variant (CWHxm2) are classified as NDT 2. A small amount of the parkland phase of the MHmm1 (MHmm1p; NDT5) is also present.

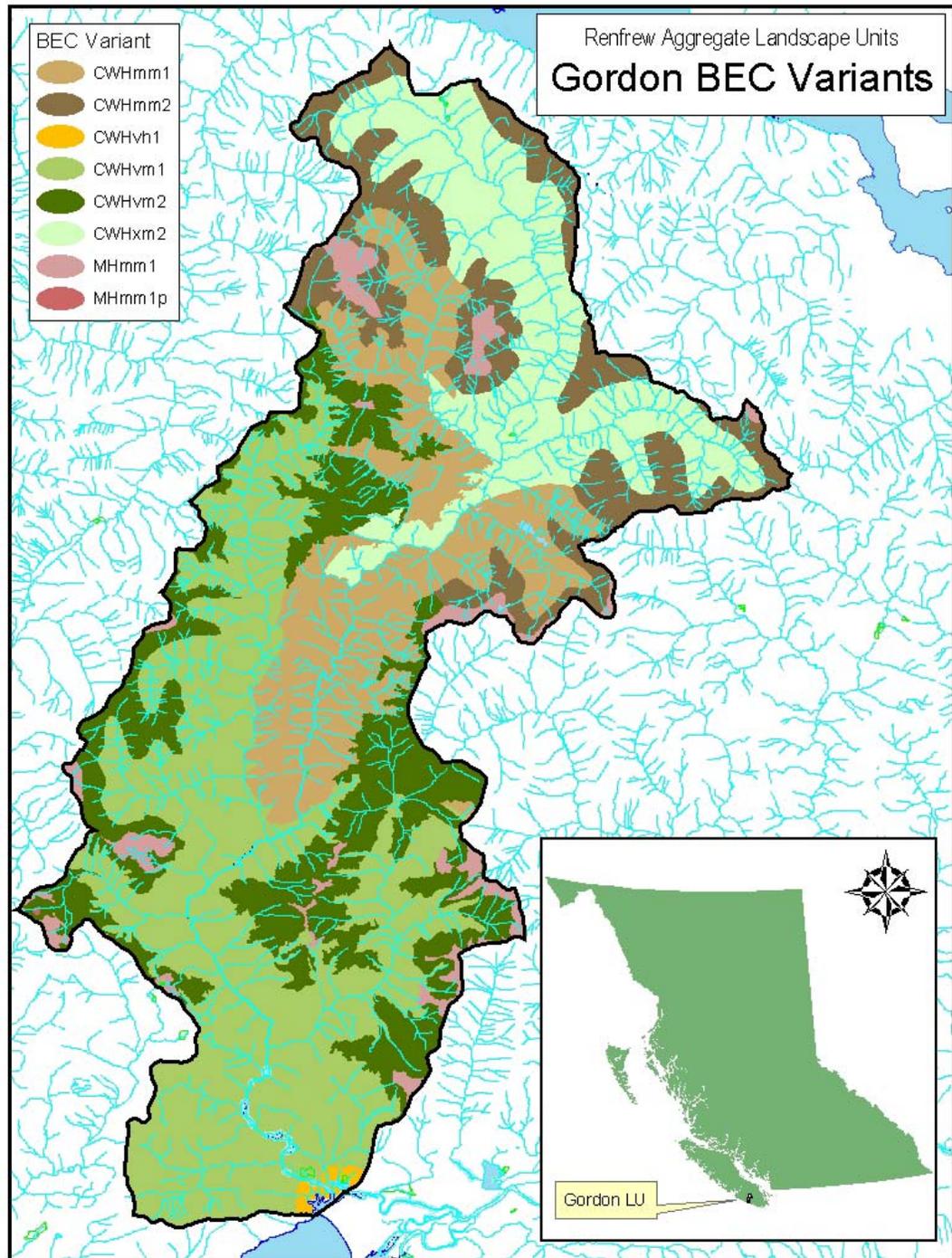


Figure 8: British Columbia with the Gordon Landscape Unit and its Biogeoclimatic Classification.

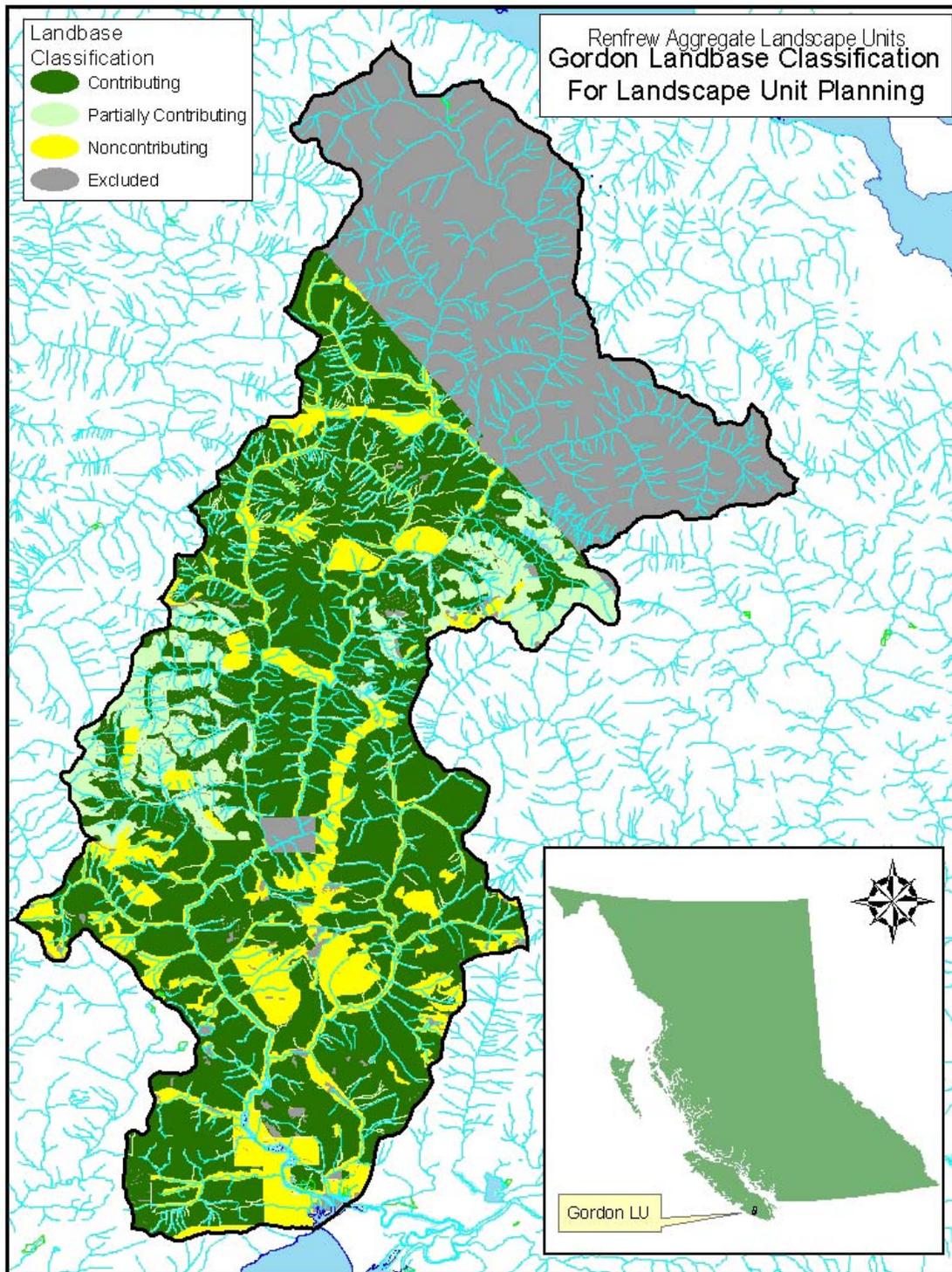


Figure 9: Landbase Classification of the Gordon Landscape Unit. note: Private land in the northern portion of the LU was excluded from OGMA planning.

Land Status

Land status within the Gordon LU is summarized in Table 7. The Crown forested land base within the Planning Area of the Gordon LU is provided in Table 8.

Table 7: Land Status of the Gordon Landscape Unit (including the private land north of the E and N line).

Code	Ownership Class	Total Area (ha)	% of Total LU
40	Private	8,163	26.56
51	National Park	185	0.60
52	Indian Reserve	28	0.09
62	TSA or PSYU	5,111	16.63
69	Crown Misc. Reserve	7	0.02
70	Crown Active Timber License in a TSA or TFL	403	1.31
72	Crown/Private Schedule A & B Lands	16,843	54.79
	Total	30,738	100.00

Table 8: Land Status using Crown Forest Land Base Classification by Biogeoclimatic Subzone Within the Planning Area of the Gordon Landscape Unit prior to OGMA Delineation (excluding the private land north of the E and N line).

BEC Variant	Total Area (ha)	Crown Forested Land Base (ha) ²⁶	C	P	N	X ²⁷
CWHmm1	5,312	4,342	2,986	830	526	969
CWHmm2	3,473	662	295	330	36	2,811
CWHvh1	134	87	0	0	87	47
CWHvm1	10,319	9,962	6,285	1,342	2,335	357
CWHvm2	5,504	5,409	3,571	821	1,018	95
CWHxm2	4,864	557	280	40	237	4,308
MHmm1	1,092	769	361	124	285	322
MHmm1p	4	4	2	0	2	0
Total	21,916	16,787	10,498	2,326	3,963	5,129

Wildlife and Biodiversity

Wildlife resources of primary management concern in the Gordon LU include Marbled Murrelet, Queen Charlotte Goshawk, fish, ten species at risk that are considered Identified

²⁶ The Crown forested land base is comprised of Contributing (C), Partially Contributing (P), and Non-Contributing (N) forests. C and P forests make up the Timber Harvesting Land Base (THLB). N forest land does not contribute to the Allowable Annual Cut (AAC).

²⁷ Excluded land base (X) is area excluded from contributing to old forest and wildlife tree targets, such as non-Crown, non-forest, and non-productive forest.

Wildlife²⁸ and 24 species that are listed as 'Regionally Important'²⁹. Excluding marine mammals, there are 26 Red-listed wildlife species and 44 Blue-listed wildlife species on the provincial tracking list for the South Island Forest District. Habitat requirements for other species of wildlife are generally managed within habitat areas provided for primary species or through access management provisions.

The Crown forested land base has been classified according to its suitability as nesting habitat for Marbled Murrelets. Where moderate to very high quality habitat has been captured in OGMAs, it will provide key features important for nesting and also provide habitat for other wildlife species.

2.5 San Juan

Biophysical

The San Juan LU is located on the western side of Vancouver Island south of Cowichan Lake and north and east of the Bay of San Juan (see Figure 10). The landscape unit covers a total area of approximately 67,176 ha (including the land north of the E and N line) and includes the San Juan River drainage.

The Planning Area within the San Juan LU (excludes the land north of the E and N line) totals 37,090 ha. Of the total Planning Area, 23,308 ha (63%) are within the Crown forested land base, and 16,839 ha (72% of the CFLB) of Crown forest are within the Timber Harvesting Land Base (THLB³⁰). The remaining 13,782 ha (37%) are non-forested or non-Crown (rock, alpine tundra, water, First Nations reserve, private land etc.) and form the Excluded (X) landbase, excluded from OGMA contributions and calculations. Figure 11 summarizes the landbase classification for the San Juan LU.

Physical Geography, Climate and Ecology

The San Juan Landscape Unit contains three ecoregions: Georgia Basin, Western Vancouver Island, and Eastern Vancouver Island. Three eco-sections are present: the Leeward Island Mountains, the Windward Island Mountains, and the Juan de Fuca Strait. Precipitation is abundant through the year but is markedly reduced in summer (Demarchi 1996).

There are seven biogeoclimatic (BEC) subzone variants present within the San Juan LU, which fall within three natural disturbance types (NDTs) (see Figure 10 for location). The Coastal Western Hemlock Zone – submontane very wet maritime variant (CWH vm1), montane very wet maritime variant (CWH vm2), the very wet hyper-maritime variant (CWHvh1) and Mountain Hemlock Zone – windward moist maritime variant (MH mm1) fall within NDT 1. The submontane moist maritime CWH variant (CWHmm1), the montane moist maritime biogeoclimatic variant (CWHmm2), and the western very dry maritime Coastal Western Hemlock variant (CWHxm2) are classified as NDT 2. A small amount of the parkland phase of the MHmm1 (MHmm1p; NDT5) is also present.

²⁸ The *Identified Wildlife Management Strategy (2004)* includes a list of 10 wildlife species /subspecies and 1 plant species that are considered to be at risk within the South Island Forest District. These species require special management of critical habitat to maintain or restore populations or distributions. Critical habitat is protected within Wildlife Habitat Areas. See the *Identified Wildlife Management Strategy Version 2004* for more information.

²⁹ 'Regionally Important' species are not considered at risk provincially but are affected by forest or range practices and require specific habitat management prescriptions in order to maintain regional populations (MOE 1997).

³⁰ THLB prior to OGMA delineation is defined as P+C (see Appendix 7)

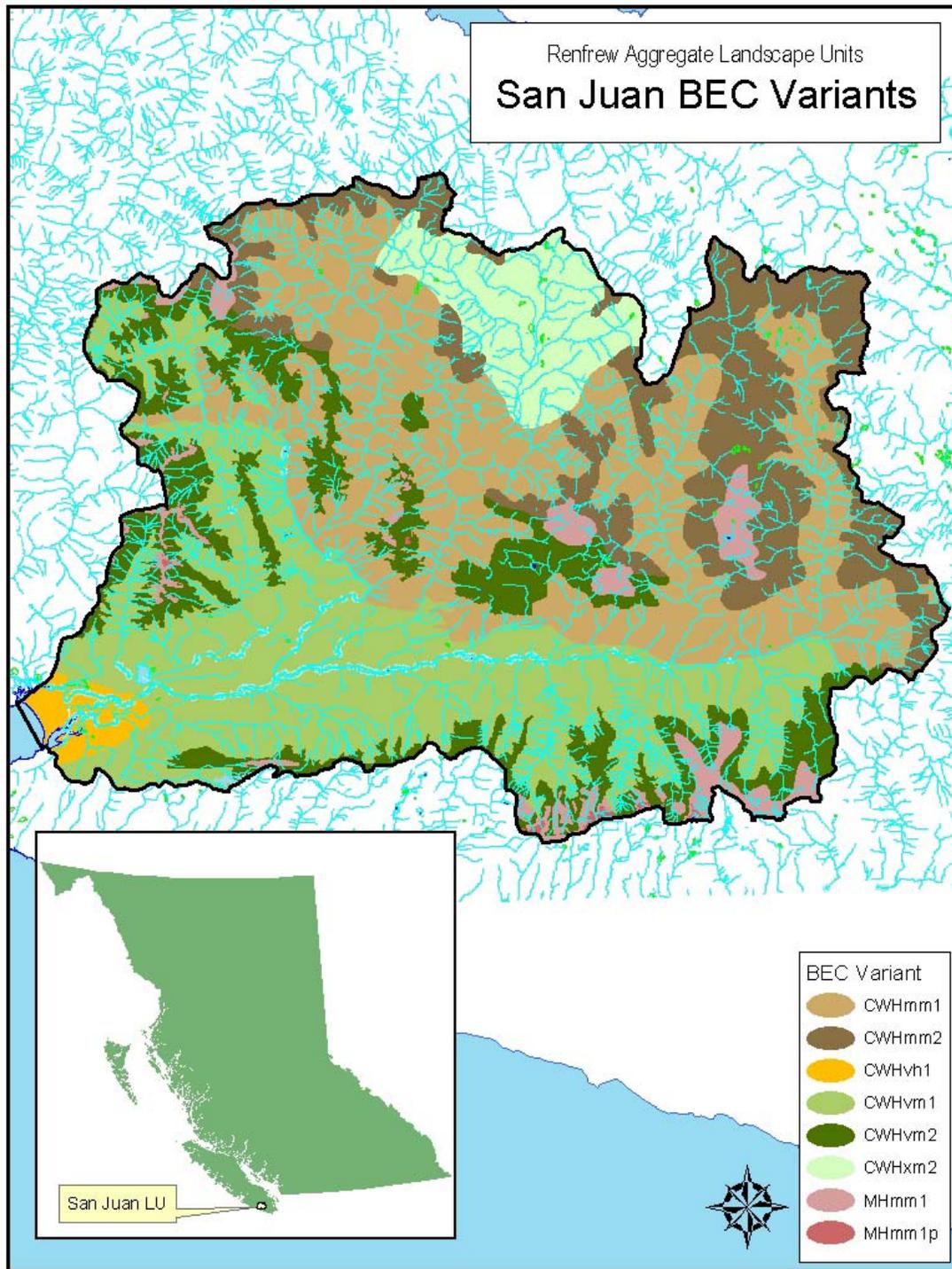


Figure 10: British Columbia with the San Juan Landscape Unit and its Biogeoclimatic Classification.

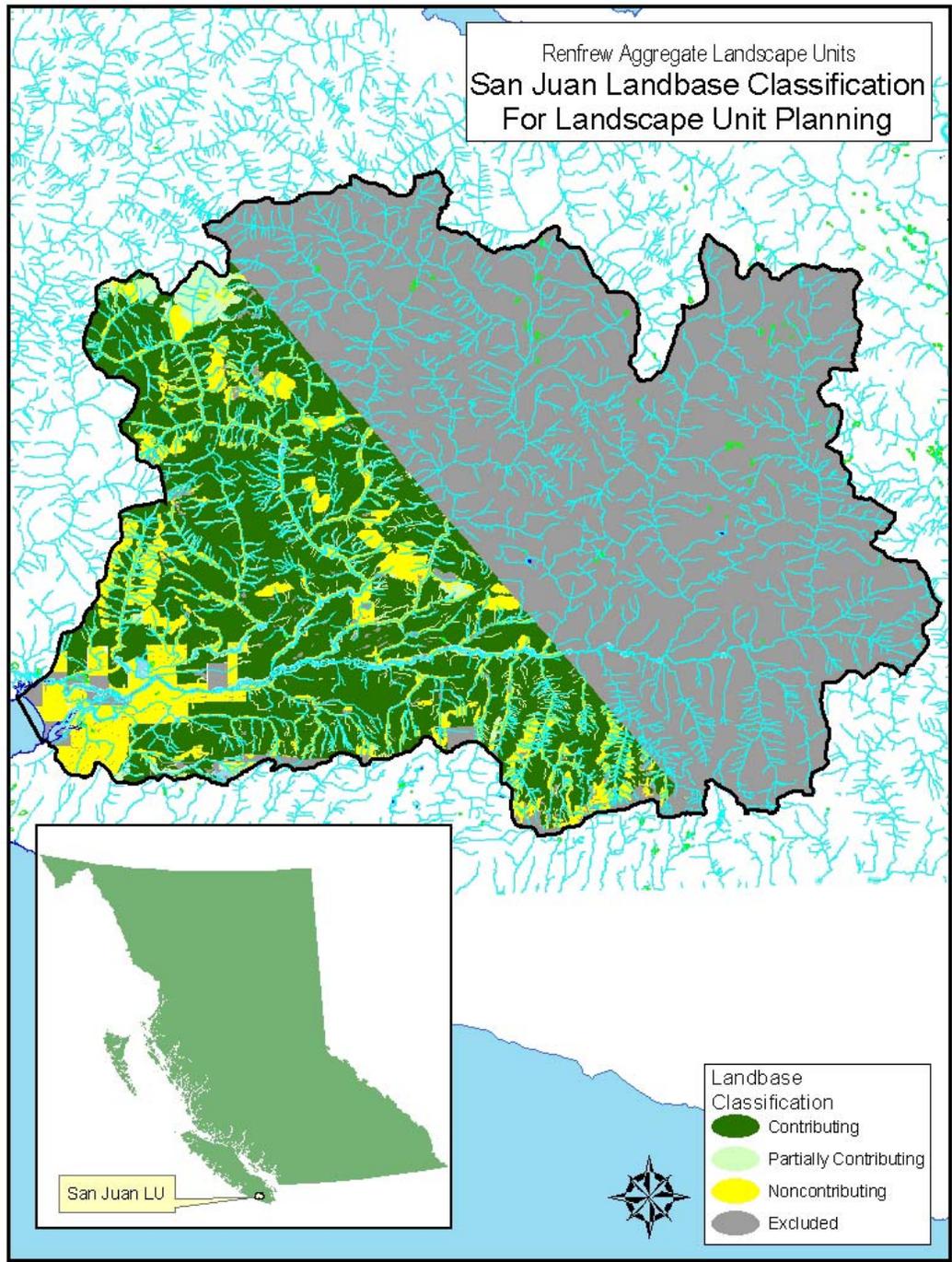


Figure 11: Landbase Classification of the San Juan LU. Note: Private land in the northeastern portion of the LU was excluded from OGMA planning.

Land Status

Land status within the San Juan LU is summarized in Table 9. The Crown forested land base within the Planning Area is provided in Table 10.

Table 9: Land Status of the San Juan Landscape Unit (including the land north of the E and N line).

Code	Ownership Class	Total Area (ha)	% of Total LU
40	Private	30,095	44.80
51	National Park	166	0.25
52	Indian Reserve	134	0.20
60	Crown Ecological Reserve	89	0.13
62	TSA or PSYU	1,481	2.20
63	Provincial Park	63	0.09
69	Crown Misc. Reserve	80	0.12
72	Crown/Private Schedule A & B Lands	35,069	52.21
	Total	67,176	100.00

Table 10: Land Status using Crown Forest Land Base Classification by Biogeoclimatic Subzone Within the Planning Area of the San Juan Landscape Unit prior to OGMA Delineation (excludes the land north of the E and N line).

BEC Variant	Total Area (ha)	Crown Forested Land Base (ha) ³¹	C	P	N	X ³²
CWHmm1	19,941	4,149	2,902	347	901	15,792
CWHmm2	9,975	338	202	132	4	9,637
CWHvh1	1,039	721	0	0	721	318
CWHvm1	19,487	15,638	10,311	1,261	4,065	3,849
CWHvm2	9,257	6,012	4,085	530	1,397	3,245
CWHxm2	4,401	0	0	0	0	4,401
MHmm1	2,795	908	451	193	264	1,887
MHmm1p	110	29	8	0	21	80
Total	37,090	23,308	14,855	1,984	6,468	13,782

Wildlife and Biodiversity

Wildlife resources of primary management concern in the Nitinat LU include Marbled Murrelet, Queen Charlotte Goshawk, fish, ten species at risk that are considered Identified

³¹ The Crown forested land base is comprised of Contributing (C), Partially Contributing (P), and Non-Contributing (N) forests. C and P forests make up the Timber Harvesting Land Base (THLB). N forest land does not contribute to the Allowable Annual Cut (AAC).

³² Excluded land base (X) is area excluded from contributing to old forest and wildlife tree targets, such as non-Crown, non-forest, and non-productive forest.

Wildlife³³ and 24 species that are listed as 'Regionally Important'³⁴. Excluding marine mammals, there are 26 Red-listed wildlife species and 44 Blue-listed wildlife species on the provincial tracking list for the South Island Forest District (see Appendix 3). Habitat requirements for other species of wildlife are generally managed within habitat areas provided for primary species or through access management provisions (e.g. Marbled Murrelets).

The Crown forested land base has been classified according to its suitability as nesting habitat for Marbled Murrelets. Where moderate to very high quality habitat has been captured in OGMAs, it will provide key features important for nesting and provide habitat for other wildlife species.

The San Juan River Estuary Ecological Reserve protects a representative sample of the lower alluvial forest communities on the San Juan River flood plain. The San Juan Ridge Ecological Reserve was established to protect a rare and disjunct population of the white glacier lily, subalpine mountain hemlock vegetation and subalpine wetlands.

3.0 Key Resource Tenure Holders

The general premise applied during the planning process was to identify key resource(s) tenure holdings. This assessment included identification of tenures that are administered by agencies such as the Ministry of Forests and Range (MOFR), Ministry of Energy, Mines and Petroleum Resources (MEMPR) and the Ministry of Agriculture and Lands (MAL). In the case with tenure holders, other than those administered by the MOFR, the management intent generally is to avoid placement of OGMAs within existing tenures. As for tenures administered by the MOFR, the management intent is to avoid placement of OGMAs over cutblocks and roads that have received approval status; and to minimize OGMA placement in areas that were identified as future harvest opportunities by licensees.

3.1 Nitinat

Forest Tenure Holders

The forest licensees in the Nitinat LU include Cascadia Forest Products Ltd., operating in TFL44 in the central and southern portions of the LU, Teal Forest Products Ltd., operating in TFL46 and BC Timber Sales operates in an area east of Nitinat Lake.

The OGMAs selected do not have impacts upon any known approved category "A" cutbacks or roads as approved under a FDP. Furthermore, licensee forest development planning staff and Integrated Land Management Bureau staffs were consulted to ensure that impact on future planned development is minimized.

³³ The *Identified Wildlife Management Strategy (2004)* includes a list of 10 wildlife species /subspecies and 1 plant species that are considered to be at risk within the South Island Forest District. These species require special management of critical habitat to maintain or restore populations or distributions. Critical habitat is protected within Wildlife Habitat Areas. See the *Identified Wildlife Management Strategy Version 2004* for more information.

³⁴ 'Regionally Important' species are not considered at risk provincially but are affected by forest or range practices and require specific habitat management prescriptions in order to maintain regional populations (MOE 1997).

Mining Tenure Holders

There are a number of mineral claims held within Nitinat Landscape Unit³⁵, all north and east of Nitinat Lake. The establishment of an OGMA will not have an impact on the status of existing mineral and gas permits or tenures. Exploration and development activities are permitted in OGMAs. The preference is to proceed with exploration and development in a way that is sensitive to the old growth values of the OGMA; however, if exploration and development proceeds to the point of significantly affecting old growth values, then the OGMA will be moved.

3.2 Caycuse

Forest Tenure Holders

Teal Forest Products' TFL 46 makes up most of the Caycuse LU. The remainder is TFL 44, operated by Cascadia Forest Products Ltd. The OGMAs selected do not have impacts upon any known approved category "A" cutbacks or roads as approved under a FDP. Furthermore, licensee forest development planning staff and Integrated Land Management Bureau staffs were consulted to ensure that impact on future planned development is minimized.

Mining Tenure Holders

Mineral claims in the Caycuse LU are concentrated in the south-western portion of the LU. There are no active mines at present.

The establishment of an OGMA will not have an impact on the status of existing mineral and gas permits or tenures. Exploration and development activities are permitted in OGMAs. The preference is to proceed with exploration and development in a way that is sensitive to the old growth values of the OGMA; however, if exploration and development proceeds to the point of significantly affecting old growth values, then the OGMA will be moved.

3.3 Walbran

Forest Tenure Holders

Much of the Walbran LU is Provincial and National park. The remainder is composed of TFL 46 (Teal Forest Products) and TFL 44 (Cascadia Forest Products Ltd.). The OGMAs selected do not have impacts upon any known approved category "A" cutbacks or roads as approved under a FDP. Furthermore, licensee forest development planning staff and Integrated Land Management Bureau staffs were consulted to ensure that impact on future planned development is minimized.

Mining Tenure Holders

There are a number of mineral claims just outside of Carmanah-Walbran Provincial Park's eastern boundary. There are no active mines at present.

³⁵ from MINFILE. See <http://www.em.gov.bc.ca/mining/Geolsurv/MapPlace/default.htm>

The establishment of an OGMA will not have an impact on the status of existing mineral and gas permits or tenures. Exploration and development activities are permitted in OGMAs. The preference is to proceed with exploration and development in a way that is sensitive to the old growth values of the OGMA; however, if exploration and development proceeds to the point of significantly affecting old growth values, then the OGMA will be moved.

3.4 Gordon

Forest Tenure Holders

Most of the Gordon LU is made up of TFL46 (Teal Forest Products). BC Timber Sales (BCTS) operates in an area along the western border of the LU, and CLCF (Cowichan Lake Community Forest) operates along its eastern border. The OGMAs selected do not have impacts upon any known approved category “A” cutbacks or roads as approved under a FDP. Furthermore, licensee forest development planning staff and Integrated Land Management Bureau staffs were consulted to ensure that impact on future planned development is minimized.

Mining Tenure Holders

There are numerous mineral claims in the southern half of the Gordon LU. A quarry is in operation in the LU and produces marble for countertops.

The establishment of an OGMA will not have an impact on the status of existing mineral and gas permits or tenures. Exploration and development activities are permitted in OGMAs. The preference is to proceed with exploration and development in a way that is sensitive to the old growth values of the OGMA; however, if exploration and development proceeds to the point of significantly affecting old growth values, then the OGMA will be moved.

3.5 San Juan

Forest Tenure Holders

TFL44 (Cascadia Forest Products Ltd.) makes up almost half of the LU. CLCF operates in a small area along the northwest boundary of the LU, and BCTS has some blocks along the LUs southern boundary. The OGMAs selected do not have impacts upon any known approved category “A” cutbacks or roads as approved under a FDP. Furthermore, licensee forest development planning staff and Integrated Land Management Bureau staff were consulted to ensure that impact on future planned development is minimized.

Mining Tenure Holders

There are numerous mineral claims in the San Juan LU, most along the San Juan River. No active mines are present other than a small quarry that operates along the San Juan.

The establishment of an OGMA will not have an impact on the status of existing mineral and gas permits or tenures. Exploration and development activities are permitted in OGMAs. The preference is to proceed with exploration and development in a way that is sensitive to the old growth values of the OGMA; however, if exploration and development proceeds to the point of significantly affecting old growth values, then the OGMA will be moved.

4.0 Significant Resource Values

4.1 Nitinat

Fish

A hatchery is present on the Nitinat River and releases chinook, chum, coho and steelhead (Fisheries and Oceans Canada 2004). Cutthroat trout, Dolly Varden, rainbow trout, kokanee, sculpins, sticklebacks, flounder and pink salmon are present within the lakes, streams and rivers of the Nitinat LU. Riparian reserve zones and riparian management zones established (as per the Forest Practices Code) and management practices implemented under the Forest and Range Practices Act adjacent to these fish streams will help maintain fish and wildlife habitat.

Minerals

The Nitinat LU is rated moderate to moderately high for metallic mineral potential, moderately high for industrial mineral potential, and moderate for geothermal potential³⁶. See Section 3.2 for mineral tenure holders within Nitinat LU.

Recreation

There is a variety of recreation opportunities within the Nitinat LU. High recreation values are associated with Francis Lake, Nitinat and Doobah/Sprise Lakes, and Nitinat-Cowichan corridor. Windsurfing, fishing and swimming are popular on Nitinat Lake. Camping and fishing opportunities are provided at Nitinat Lake Provincial Park. Fishing opportunities are also available at Hitchie Creek Provincial Park. The Nitinat Lake Ecological Reserve is located on the east side of Nitinat Lake. The reserve was created to protect Douglas-fir trees near the limit of their western distribution on Vancouver Island, but is open to hiking, wildlife watching and photography. Three Recreation Areas (Nitinat Lake, Flora Lake and Knob Point) managed by the Ministry of Tourism, Sports and the Arts (MOTSA) are present in the Nitinat LU. There are opportunities for back-country tourism and facility-based tourism.

Timber

There are approximately 27,972 ha of THLB in the Planning Area within the Nitinat LU. Commercially valuable tree species in the Nitinat LU are Douglas-fir (*Pseudotsuga menziesii*), western redcedar (*Thuja plicata*), yellow-cedar (*Chamaecyparis nootkatensis*), western hemlock (*Tsuga heterophylla*), mountain hemlock (*Tsuga mertensiana*), amabilis fir (*Abies amabilis*), subalpine fir (*Abies lasiocarpa*), and deciduous species such as red alder (*Alnus rubra*). The age composition of forests in the CFLB of the Nitinat LU is shown in Figure 11.

³⁶ from MINFILE. See <http://www.em.gov.bc.ca/mining/Geolsurv/MapPlace/default.htm>

Nitinat LU age classes in the CFLB

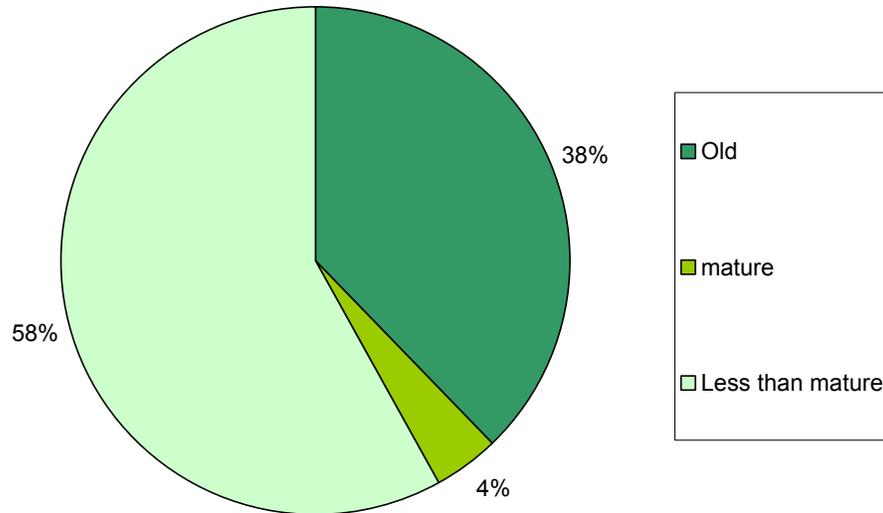


Figure 11. Age distribution of forests within the Nitinat LU.

Forest management activities occur throughout all phases of forest development. Operational work includes pre-harvest planning, harvesting and stand regeneration. Post harvest activities include planting, brushing, juvenile spacing, pruning and thinning.

Private Land

There are 15,071 ha of land coded as '40' (private land) within the Nitinat LU.

Water

There is one Community Watershed (#930.013, Malachan Creek) within the Nitinat Landscape Unit. There are four active water licences, held on the Nitinat River, Hazard Creek, Campus Creek, and Wilson Creek³⁷ (Provincial Water License Coverage; November 2004).

4.2 Caycuse

Fish

Brown, rainbow and cutthroat trout, chinook, chum, and coho salmon, coast range sculpin (formerly Aleutian sculpin), kokanee, prickly sculpin, steelhead, and threespine stickleback are present in the lakes and streams of the Caycuse LU (Fish Wizard 2004). Riparian reserve zones and riparian management zones established (as per the Forest Practices

³⁷ see http://www.elp.gov.bc.ca:8000/pls/wtrwhse/water_licences.input for further details

Code) and management practices implemented under the Forest and Range Practices Act adjacent to these fish streams will help maintain fish and wildlife habitat.

Minerals

The Caycuse LU has a very high potential for metallic minerals and a moderate potential for industrial minerals and geothermal resources.

Recreation

The lower Caycuse River has high recreational values. There are no MOTSA Recreation Areas present in the Caycuse LU.

Timber

There are approximately 15,757 ha in the THLB in the Planning Area within in the Caycuse LU. Forests are highly productive. Commercially valuable tree species in the Caycuse LU are Douglas-fir, western redcedar, yellow-cedar, western hemlock, mountain hemlock, amabilis fir, subalpine fir, and deciduous species such as red alder. The age composition of forests in the CFLB of the Caycuse LU is shown in Figure 12.

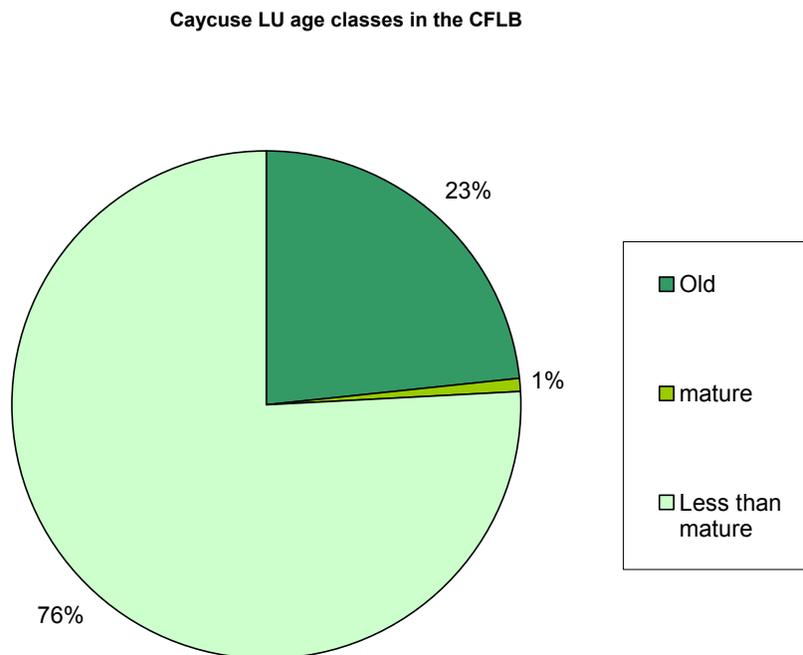


Figure 12. Age distribution of forests within the Caycuse LU.

Forest management activities occur throughout all phases of forest development. Operational work includes pre-harvest planning, harvesting and stand regeneration. Post harvest activities include planting, brushing, juvenile spacing, pruning and thinning.

Private Land

There are 628 ha of land coded as '40' (private land) within the Caycuse LU.

Water

A portion of the Malachan Creek Community Watershed lies within the Caycuse Landscape Unit. There is one active water licence, also on Malachan Creek³⁸ (Provincial Water License Coverage; November 2004).

4.3 Walbran

Fish

Chinook, coho and chum salmon, Dolly Varden, steelhead, rainbow trout, sea-run cutthroat and sculpins are found in Carmanah Creek and Walbran Creek, protected within Carmanah-Walbran Provincial Park. Riparian reserve zones and riparian management zones established (as per the Forest Practices Code) and management practices implemented under the Forest and Range Practices Act adjacent to other fish streams in the LU will help maintain fish and wildlife habitat.

Minerals

The Walbran LU has a high to very high potential for metallic minerals, a moderate to very high potential for industrial minerals and a moderate potential for geothermal resources.

Recreation

There is a variety of back-country recreation opportunities within the Walbran LU, but few developed recreational facilities. Back-country camping, hiking, hunting and fishing opportunities are provided at Carmanah-Walbran Provincial Park. Pacific Rim National Park Reserve runs along the southern coast of the LU and also offers camping, hiking and wildlife watching opportunities. No MOTSA Recreation Areas are present in the Walbran LU.

Timber

There are approximately 8,634 ha within the THLB in the Planning Area within the Walbran LU. Forests are highly productive. Commercially valuable tree species in the Walbran LU are Douglas-fir, western redcedar, yellow-cedar, western hemlock, mountain hemlock, amabilis fir, subalpine fir, and deciduous species such as red alder. The age composition of forests in the CFLB of the Walbran LU is shown in Figure 13.

³⁸ see http://www.elp.gov.bc.ca:8000/pls/wtrwhse/water_licences.input for further details

Walbran LU age classes in the CFLB

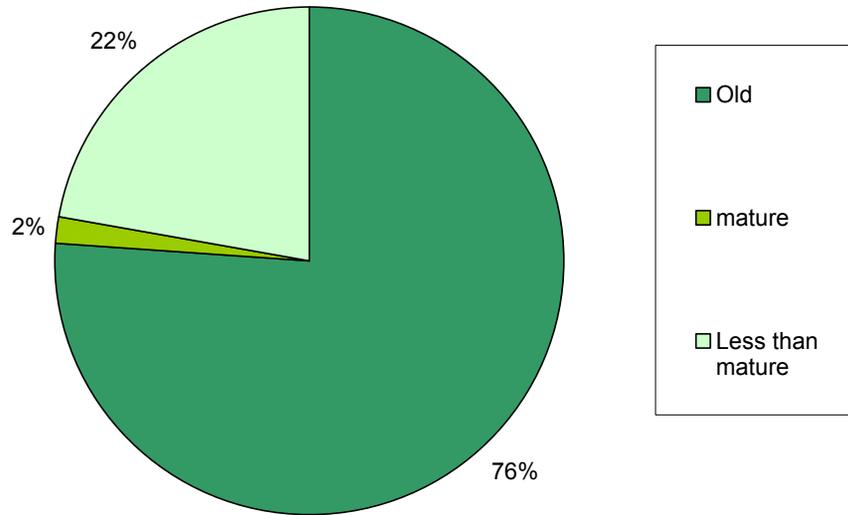


Figure 13. Age distribution of forests within the Walbran LU.

Forest management activities occur throughout all phases of forest development. Operational work includes pre-harvest planning, harvesting and stand regeneration. Post harvest activities include planting, brushing, juvenile spacing, pruning and thinning.

Private Land

There is no land coded as '40' (private land) within the Walbran LU.

Water

There are currently no Community Watersheds or water licenses within the Walbran Landscape Unit (Provincial Water License Coverage; November 2004).

4.4 Gordon

Fish

Chinook, chum and coho salmon, cutthroat and rainbow trout, and steelhead are also present within the lakes, streams and rivers of the Gordon LU (Fish Wizard 2004). Riparian reserve zones and riparian management zones established (as per the Forest Practices Code) and management practices implemented under the Forest and Range Practices Act adjacent to these fish streams will help maintain fish and wildlife habitat.

Minerals

The Gordon LU has a high to very high potential for metallic minerals, a moderate to very high potential for industrial minerals and a moderate potential for geothermal resources.

Recreation

There are few developed recreation opportunities within the Gordon LU. Hunting and fishing likely take place at low densities of use. There are no MOTSA Recreation Areas present in the Gordon LU.

Timber

The THLB within the Planning Area in the Gordon LU is approximately 12,824 ha in size. Forests are highly productive. Commercially valuable tree species in the Gordon LU are Douglas-fir, western redcedar, yellow-cedar, western hemlock, mountain hemlock, amabilis fir, subalpine fir, and deciduous species such as red alder. The age composition of forests in the CFLB of the Gordon LU is shown in Figure 14.

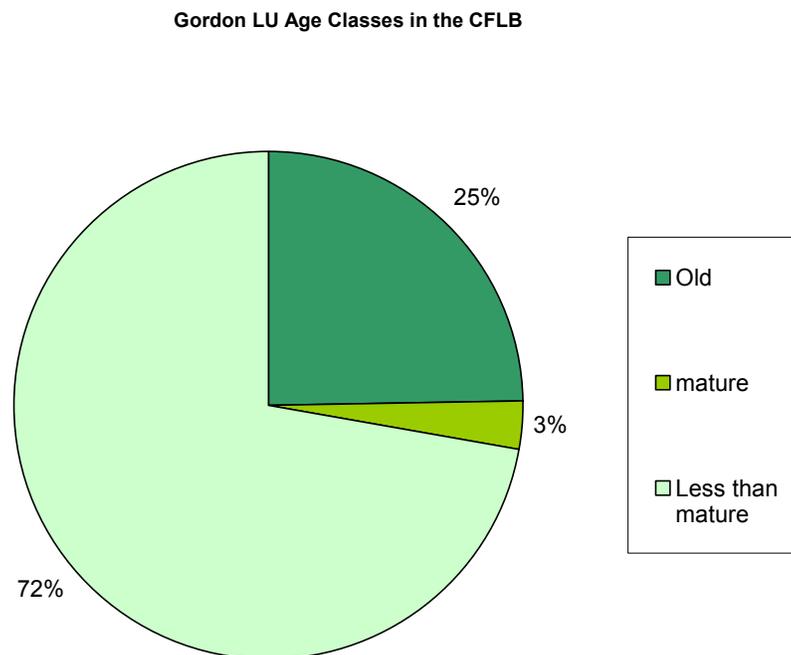


Figure 14. Age distribution of forests within the Gordon LU.

Forest management activities occur throughout all phases of forest development. Operational work includes pre-harvest planning, harvesting and stand regeneration. Post harvest activities include planting, brushing, juvenile spacing, pruning and thinning.

Private Land

There are 8,163 ha of land coded '40' (private land) within the Gordon LU.

Water

There are no Community Watersheds within the Gordon Landscape Unit. There are 2 water licenses, one on the Gordon River and one on Hawk Creek (Provincial Water License Coverage; November 2004).

4.5 San Juan

Fish

Brook, rainbow and cutthroat trout, chinook, chum, coho, pink and sockeye salmon, and steelhead are also present within the lakes, streams and rivers of the San Juan LU (Fish Wizard 2004). Riparian reserve zones and riparian management zones established (as per the Forest Practices Code) and management practices implemented under the Forest and Range Practices Act adjacent to these fish streams will help maintain fish and wildlife habitat.

Minerals

The San Juan LU has a high to very high potential for metallic minerals, a moderate to very high potential for industrial minerals and a moderate potential for geothermal resources.

Recreation

There is a variety of recreation opportunities within the San Juan LU. Camping and fishing opportunities are provided at Nitinat Lake Provincial Park. Fishing opportunities are also provided at Hitchie Creek Provincial Park. Low impact recreational activity, such as hiking, wildlife watching and photography, is permitted in the two ecological reserves in the LU. Three MOTSA Recreation Areas are present in the San Juan LU: San Juan Bridge, Fairy Lake and Lizard Lake. The San Juan River and trail have high recreation values, with high use in proximity to urban areas.

Timber

There are approximately 16,839 ha within THLB in the Planning Area in the San Juan LU. Forests are highly productive. Commercially valuable tree species in the San Juan LU are Douglas-fir, western redcedar, yellow-cedar, western hemlock, mountain hemlock, amabilis fir, subalpine fir, and deciduous species such as red alder. The age composition of forests in the CFLB of the San Juan LU is shown in Figure 15.

San Juan LU Age Classes in CFLB

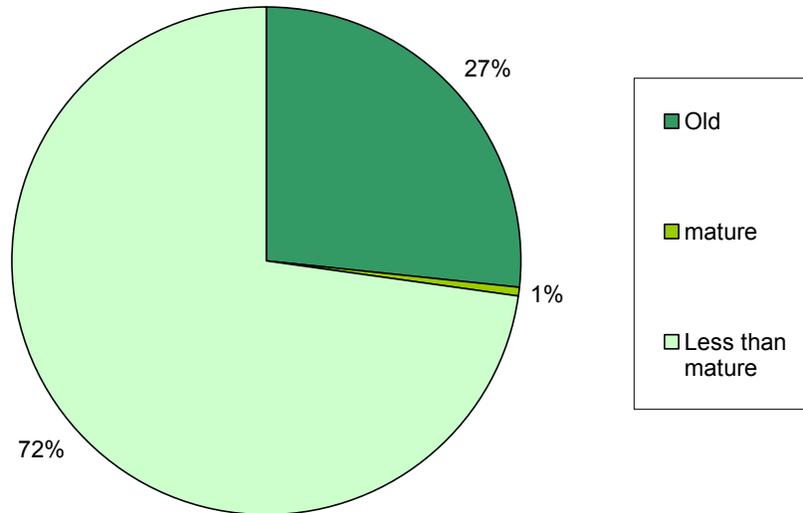


Figure 15. Age distribution of forests within the San Juan LU.

Forest management activities occur throughout all phases of forest development. Operational work includes pre-harvest planning, harvesting and stand regeneration. Post harvest activities include planting, brushing, juvenile spacing, pruning and thinning.

Private Land

There are 30,095 ha of land coded as '40' (private land) within the San Juan LU.

Water

There are no Community Watersheds within the San Juan Landscape Unit. There are five water licenses; two on the San Juan River and the other three on Calvin Creek, Four Mile Creek and Lens Creek (Provincial Water License Coverage; November 2004).

5.0 Existing Higher Level Plans

Higher Level Plan (HLP) objectives are a provision that enables specific forest resource management objectives that provide legally binding direction to operational planning. Hierarchically, landscape unit objectives must be consistent with resource management zone objectives.

In the case of Vancouver Island, the Vancouver Island Summary Land Use Plan (VISLUP) was endorsed by Cabinet in February 2000, and the Vancouver Island Land Use Plan (VILUP) Order, establishing Resource Management Zones and objectives for Vancouver Island, came into effect December 1, 2000.

The Higher Level Plan order for Vancouver Island makes some components of the VILUP legal objectives. The VILUP Higher Level Plan Order contains all the legal objectives for the plan.

5.1 Special Management Zone 21 in HLP order (legal objectives)

SMZ 21 runs along the east boundary of Walbran Park. The VILUP Higher Level Plan Order provides direction regarding SMZ 21. The Higher Level Plan Order for SMZ 21 reads as follows:

1. Sustain forest ecosystem structure and function in SMZs, by:
 - (a) creating or maintaining stand structures and forest attributes associated with mature¹ and old² forests, subject to the following:
 - i. the target for mature seral forest should range between one quarter to one third of the forested area of each SMZ³; and
 - ii. in SMZs where the area of mature forest is currently less than the mature target range referred to in (i) above, the target amount of mature forest must be in place within 50 years;
 - (b) retaining, within cutblocks⁴, structural forest attributes and elements with important biodiversity functions⁵; and
 - (c) applying a variety of silvicultural systems, patch sizes and patch shapes across the zone, subject to a maximum cutblock size of 5 ha if clearcut, clearcut with reserves or seed tree silvicultural systems are applied, and 40 ha if shelterwood, selection or retention silvicultural systems are applied⁶
2. Despite subsection 1(c) above, cutblocks larger than 5 or 40 ha, as the case may be, may be approved if harvesting is being carried out to recover timber that was damaged by fire, insects, wind or other similar events and wherever possible, the cutblock incorporates structural characteristics of natural disturbances.

Notes to above Order

1 The mature seral forest is defined as generally 80 to 120 years old or older, depending on species and site conditions. The structure of mature seral forests generally includes canopies that vary vertically or horizontally, or both. The age and structure of the mature seral stage will vary significantly by forest type and from one biogeoclimatic zone to another.

2 The old seral forest is defined as generally greater than 250 years old, containing live and dead (downed and standing) trees of various sizes, including large diameter trees, and of various tree species, including broad-leaved trees. The structure of old seral forest varies significantly by forest type and from one biogeoclimatic zone to another.

3 Mature seral targets will be established through landscape unit planning. See transition provisions under III.

4 Within cutblocks: generally means non-contiguous with cutblock boundaries.

5 This includes, but is not limited to snags, wildlife trees, downed logs.

6 Maximum cutblock sizes refer to net area to be reforested.

7 BC Reg. 107/98 O.C. 426/98 - Effective: June 15, 1998.

5.2 General Management Zones 45 and 46 (not legal objectives)

The remainder of the planning area is covered under General Management Zones 45 (Nitinat) and 46 (Gordon-Caycuse-San Juan).

RMZ 45 is categorized as a **General Management Zone**, with particular opportunity and suitability for enhanced silviculture and increased growth and yield; wildlife values require heightened management attention; significant recreation, tourism and scenic values, as well as known cultural heritage values. Strategies for general biodiversity management are 'old seral retention areas, if required within the contributing portion of the zone, should try and capture old seral forest with important wildlife habitat attributes'. Timber objectives for RMZ 45 are classified as 'General Timber Resource Management', with opportunities for Enhanced Timber Harvesting in second growth forests.

RMZ 46 covers the Gordon, Caycuse and San Juan LUs, as well as the parts of the Walbran LU that are not covered by SMZ 21 or park. RMZ 46 is categorized as a **General Management Zone**, with significant timber values combined with high fish, wildlife and biodiversity values, as well as recreation values. Timber objectives for RMZ 46 are classified as 'General Timber Resource Management', with opportunities for Enhanced Timber Harvesting in second growth forests.

6.0 First Nations

There are a number of First Nations groups whose traditional territories overlap the total area encompassed by the five landscape units according to BC Ministry of Forests Traditional Territory Mapping (March 2004)³⁹. Four overlap the area in which OGMA planning was carried out. These are the Ditidaht, Cowichan Tribes, Pacheedaht, and Cowichan Lake First Nations. There are 15 reserves in the Nitinat LU, one in the Walbran LU, one in the Gordon LU and three in the San Juan LU. There are known spiritual values in the Mount Rosander area in the Nitinat LU.

First Nations groups were invited to the LU planning meetings. Harry Williams, a representative for the Cowichan Tribes, attended and provided information on characteristics of monumental red cedar sites important to First Nations. Those criteria were used in the OGMA selection process. Consultation with the First Nations will continue to identify and locate important spiritual and cultural areas. All information will be confidential and retained by the First Nations.

The Planning Area contains important cultural or archaeological sites. There are 136 archaeological sites currently registered within the plan area. Those sites are protected under the Heritage Conservation Act. Thirty-two of these sites are captured in OGMAs and 101 are captured in forest constrained for other values (Non-contributing landbase). Archaeology sites are often detected during site level planning and incorporated into retention or wildlife tree patches.

³⁹ Ministry of Forests Traditional Territory Maps are not intended to create, recognize, limit, or deny any aboriginal right, including title, that First Nations may have or impose any obligations on the Province of British Columbia, the Ministry of Forests or alter the legal status, or resources within the Province or existing legal authority of BC.

It is important to note that this plan will be subject to the outcomes of treaty negotiations.

7.0 OGMA Methodology

7.1 OGMA Targets

Table 11 in Section 8 of this document provides the forested area targets for OGMA designation by variant.

N and THLB are defined as follows:

- **Non-contributing landbase (N):** This is the forested landbase that does not contribute to the AAC, but that does contribute to seral stage and old-growth targets. It includes parks, riparian reserves, inoperable forest, environmentally sensitive areas (ESAs) and any other area 100% removed, or area that is partially removed from the THLB, as defined by current practice for each area. The non-contributing landbase must be used to the fullest extent possible to meet seral stage, old growth and wildlife tree objectives and targets, prior to using the timber harvesting landbase.
- **Timber harvesting landbase (THLB):** This is the forested landbase that contributes to the AAC, as defined in the Timber Supply Review, for a Timber Supply Area (TSA) or Tree Farm License (TFL). While all of the THLB is subject to management requirements such as green-up, some portions are subject to management requirements that are more restrictive, and thus allow less timber to be harvested over time. For example, the management prescription for a retention visual quality area often significantly limits the amount of timber that may be harvested. This may result in the maintenance of significant areas of older forest that can contribute to meeting old-growth requirements. In another area, the minimum harvest age may exceed old-growth age, which will also result in the THLB remaining in an older state. It is important to map these types of areas so that they are considered when it is necessary to delineate OGMA in the THLB.

7.2 OGMA Placement

The data required to select and refine the OGMA was compiled from a number of different sources, including ILMB, forest licensees with chart areas in the landscape unit, Ministry of Environment, and other interest groups. The selection of OGMA involves a combination of input data, including a landbase classification coverage, forest cover and ecosystem information (including Terrestrial Ecosystem Mapping (TEM) done for TFLs 44 and 46), a structural stage layer, wildlife habitat, and other environmental resource values (see Appendix 7). Together, the data provides information that helps identify and prioritize candidate areas for OGMA selection.

Updates to the BEC zones were done at 1: 20,000 scale. The two TFL TEM data sets were edge-matched with each other. The 1:250,000 BEC zones were used for areas for which there was no TEM mapping.

The landbase classification for biodiversity planning was used in the prioritization of areas for OGMA selection. The codes are consistent with those outlined in the LUPG (1999). The non-contributing landbase is given a higher selection priority for OGMA than either the partially contributing or the contributing landbase.

Structural stage attributes from the Terrestrial Ecosystem Mapping (TEM) available from TFL 44 and age class within TFL 46 were used to identify the mature and old stands within the TFLs. The TEM data for the entire study area was merged and the dominant structural stage attribute was created from the three deciles in each ecosystem unit. Forest cover attributes such as age class were used for the non-TEM-mapped portions of the LU and can also be used to refine selections between polygons with mature structural stage values (structural stage 6), where there is a wider range of age classes. The definition of old or mature forest varies between BEC Zones. All variants within the MH zone defined mature forest as anything older than 120 years and less than 250 years. Variants within the CWH zone defined mature forest as anything greater than 80 years and less than 250 years. This was accounted for when classifying areas into mature and old. For areas of the parks where no typing is available (e.g. Walbran drainage and a portion of the Pacific Rim National Park), the provincial Broad Ecosystem Inventory (BEI) mapping was used to determine the seral stages. Where non-forested areas were identified, the structural stage was adjusted accordingly.

The TEM data was also used to identify rare ecosystems and important wildlife habitat. Non-timber resources such as wildlife habitat, rare ecosystems, monumental cedar sites important to First Nations and archaeological sites were also used to optimize OGMA selections. Polygons with values in one or more of these categories were assigned a value of "1" for each category applicable, and all of the values were then summed into a final cumulative environmental resource value. This final cumulative resource value attribute helps identify polygons with multiple resources. Therefore, these polygons would likely be better candidates for OGMA selection. For example, areas that provide important biological value to mature or old forest representation and under-represented ecosystem types were included in OGMA. Some old growth stands existing within Ungulate Winter Range habitat were delineated as OGMA. This ensures biodiversity representation is not concentrated in a particular stand type.

Marbled Murrelet Habitat

Marbled Murrelets are of management concern in the planning area and capturing murrelet habitat in OGMA was a high priority. Marbled Murrelet Wildlife Habitat Areas (WHAs) were given first priority over other values for OGMA selection. Where feasible, other forested stands that provide high-quality murrelet habitat were captured as OGMA in order to include old growth representation with specific wildlife habitat. Murrelet habitat was ranked for selection in OGMA as follows: 1. established WHA, 2. proposed WHA, 3. other Marbled Murrelet habitat.

Potential Marbled Murrelet habitat was identified from the mapping and was field-truthed and ranked by a qualified habitat surveyor. Scoring was based on the frequency and abundance of key habitat features, such as tall trees, small canopy gaps, and presence of moss covered limbs. Aerial confirmation focused on areas rated class 3 (moderate) or better and areas selected as candidates for WHA designation within the TFL and TSA lands. The final class 1-3 aerial confirmed coverage was used in the OGMA selection process as a resource value. Equal weight was given to each habitat class. By assessing each stand by its economic and biological value, stands categorized as having suitable nesting habitat and low harvest chance were captured in OGMA. The

desired Marbled Murrelet patch size was based on the IWMS which recommends a mix of (approx. 1/3 by area) each size category 15-49 ha, 50-200 ha, and > 200 ha.

Holes left in proposed Marbled Murrelet WHAs resulted where variant targets could be met elsewhere. It was agreed that filling holes in the WHA should be a priority and that variant targets could be swapped to achieve that objective. The total amount of OGMA selected remained the same in each LU but the variant contributions deviated from the LUPG targets in some cases.

All 13 Marbled Murrelet WHAs were almost completely captured in OGMA. Forty-seven percent of Marbled Murrelet habitat (Classes 1-3) outside of WHAs was captured in OGMA. More than 50% of the FEN area in TFL46 and 44 were captured in OGMA. The remaining unselected, productive, unconstrained forest land in FENs will return to the THLB.

Northern Goshawk WHA

The boundaries of a Wildlife Habitat Area for Northern Goshawk were provided by ILMB and included as an OGMA selection priority.

Archaeological / heritage Sites

Archaeological / heritage site data from ILMB were also used as a cumulative resource value. Any TEM polygon that overlapped with these sites was given an additional resource value. No site specifics or details were given, just spatial locations.

Rare Site Series and Rare Ecosystems

Rare site series were calculated based on the merged TEM projects for TFLs 44 and 46. A rare site series, as defined by the Biodiversity Guidebook (1995), is one that makes up less than 2% of the LU (excluding saltwater). The area extent of each ecosystem mapped in the TFLs was calculated by multiplying the area of the polygon by the proportion (decile) mapped of each ecosystem in the polygon. The area of all deciles was summed to obtain the area of each ecosystem in the LU. A list of ecosystems making up <2% of the LU was made, and anthropogenic, non forested and non vegetated sites removed to prepare a final list of rare forested sites. Low productivity stands were selected only in proportion to their occurrence on the (CNP) landbase but not excluded from selection. Rare site series were only included as an OGMA criterion for polygons for which the rare site series made up at least 50% of the total area.

Site series that are associated with CDC-listed rare natural plant community were also identified in the TEM (see Appendix 2). However, the fact that a site series is associated with a rare natural plant community does not mean that the rare plant community is actually present wherever the site series is mapped. Therefore, those site series were only given a resource value if they were identified as a rare site series as well. Greater than 45% of the ha identified as containing a rare site series were captured in the OGMA.

Special Management Zone (SMZ 21)

The Vancouver Island Land Use Plan (VILUP) directs that "to the extent that old seral forest retention will be required within the contributing land base portions of the landscape units, such retention should be highly concentrated within the SMZ portion of the landscape units." SMZ areas were identified to prioritise selections that occur on the

timber harvesting landbase (THLB). The 25% old plus mature target was achieved within SMZ 21

Ungulate Winter Range (UWR)

The VILUP lists UWR as being an important wildlife value for the Nitinat RMZ 45 and the Gordon-Caycuse-San Juan RMZ 46. The new UWR areas incorporated as OGMA selection criteria have been designated by MOE. Additional elk habitat is captured through the incorporation of FENs (see below) into OGMA.

FENs

FENs (Forest Ecosystem Networks) were originally established to provide connectivity across the landscape. For the purpose of OGMA selection, FENs are considered non-contributing (NC) regardless of their original classification and do not count as an impact to the THLB. FENs not selected for OGMA placement during the landscape unit planning process revert to their original contribution class. The FEN coverage provided a good base for OGMA selection and resulted in a well-linked network of wide corridors. A high proportion of the FEN areas (>60%) were selected since they were all classed as non-contributing for purposes of OGMA selection.

Monumental Cedars

Very large or monumental red cedar trees hold important cultural values to First Nations. Harry Williams (Cowichan Band) provided criteria to identify sites likely to have monumental cedars for inclusion as a resource value. Many of the sites overlap with the CDC's rare plant associations. There are also some old growth cedar sites near Walbran Park that were retained at the request of the Pacheedat Band.

Other Factors

In addition to including areas with specific habitat requirements, other factors, such as patch size, distribution and connectivity were considered during OGMA delineation. Opportunities to recruit larger patches to provide for forest interior conditions were favoured over smaller patches. Specific efforts were made to ensure OGMA were distributed throughout the LU and not concentrated in a particular drainage or mapsheet.

Each LU contains varying amounts of mature forested habitat provided by existing processes from which to build on for ecosystem management. In addition, Wildlife Habitat Areas that are established in the future may also improve upon ecosystem integrity. Other features, such as riparian reserve zones, will assist in maintaining connectivity between forested habitats.

An important part of OGMA planning is to ensure that these separate processes complemented each other to the highest degree possible. For example, OGMA were placed within or adjacent to areas that were already highly constrained from harvesting to increase patch size. These larger patches provide forest interior habitat as well as greater opportunity to improve connectivity between adjacent patches.

7.3 Mitigation of Timber Supply Impacts

During delineation of OGMA, an attempt was made to mitigate the short- and long-term impacts on timber. Since representation targets must be met at the variant level, the non-contributing (NC) landbase could not always satisfy old forest requirements. OGMA

were delineated first in the non-contributing forested landbase and most (73-99%; Table 11) of the final OGMA in each LU are located in the Non-contributing (N) landbase. Where N was inadequate, portions of the timber harvesting landbase were assessed and included as OGMA. Licensees reviewed the coverages and adjusted placement to reduce impacts to operational plans including planned harvest and access routes.

OGMA were chosen in the oldest available age class first; however, old forest stands that were approved for harvesting on Forest Development Plans (FDP) were excluded from candidate OGMA following direction outlined in the Landscape Unit Planning Guide. Once OGMA are established the total available THLB will increase due to the FENs ceasing to have legal status upon establishment of the OGMA.

7.4 Boundary Mapping

OGMA boundaries use natural features wherever possible, to ensure they can be located on the ground. OGMA also include complete forest stands (forest cover polygons) wherever possible to reduce operational uncertainty and increase ease of OGMA mapping.

OGMA boundaries are not legally surveyed. Potential trespass across OGMA boundaries will be enforced to a reasonable standard of measurement. A licensee's proposed harvest area can only be expected to be in or outside of an OGMA as it is shown on the map. If a licensee submits a plan showing proposed development outside the mapped OGMA boundary that would be taken as correct. However, the licensee is responsible for ensuring due diligence in locating their cutblock boundaries to the accuracy shown on the map. OGMA will be mapped at 1:20 000 scale to minimize possible errors.

7.5 Amendment Policy

A Integrated Land Management Bureau Coast Region policy has been developed and approved to give direction to proponents (forest tenure holders) when applying for amendments to OGMA legal objectives. Amendment procedures will cover such things as minor or major amendments for resource development (e.g. roads, bridges, boundary issues, rock quarries & gravel pits) or relocation of OGMA. The policy also discusses acceptable management activities and review procedures and forms an integral part of this LU plan.

7.6 Rare and Endangered Species and Ecosystems

The provincial government through the Conservation Data Centre (CDC) provides a listing of species and plant communities considered under threat from human activity or natural events. These are categorized as Vulnerable (Special Concern), Extirpated, Endangered, or Threatened. CDC plant communities are based on the Ministry of Forests Vegetation classification (plant associations). The data used in the ecosystem classification describes climax plant associations and subsequently the late seral stages (old growth) are the focal point of the listing. When a plant community is listed, one of the ranking factors is the known or expected number of occurrence with good to excellent viability. Viability is related to ecological integrity of communities and is determined by the size, condition, and landscape context of each species or community occurrence. The importance of these three factors to a specific occurrence of a community is based on the type of ecosystem, specifically how it occurs within the landscape.

The following describes the categories included in the red and blue lists and the purpose of those listings.

Red List

Includes any indigenous species, subspecies or plant community that is Extirpated, Endangered, or Threatened in British Columbia. Extirpated elements no longer exist in the wild in British Columbia, but do occur elsewhere. Endangered elements are facing imminent extirpation or extinction. Threatened elements are likely to become endangered if limiting factors are not reversed.

Blue List

Includes any indigenous species, subspecies or community considered to be Vulnerable (Special Concern) in British Columbia. Vulnerable elements are of special concern because of characteristics that make them particularly sensitive to human activities or natural events. Blue-listed elements are at risk, but are not Extirpated, Endangered or Threatened.

The Red and Blue lists serve two purposes:

- To provide a list of species for consideration for more formal designation as Endangered or Threatened, either provincially under the British Columbia Wildlife Act, or nationally by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC).
- Help inform setting conservation priorities for species/communities considered at risk in British Columbia.

Appendix 2 describes the Red- and Blue-listed ecosystems captured in the OGMA selections. MOE direction required that Marbled Murrelet habitat be first priority in delineating OGMAs. The needs of other red or blue-listed wildlife species were considered for inclusion in the planning process but were dropped as per MOE direction.

Provincially listed wildlife species that may occur in the planning area and suggestions for conservation are highlighted below:

- **Band-tailed Pigeon**—Nests should be protected as found.
- **Coastal Cutthroat Trout**—protected by riparian buffers and riparian retention patches.
- **VI Ermine** (*anguinae* subspecies)—stand level protection of root boles of large stumps (>50 cm dbh) in retention patches and harvested matrix.
- **Great Blue Heron**—if nesting colonies or nests located use IWMS 2004 provisions.
- **Keene's Long-eared Myotis**—protect hibernacula and roosts as required in IWMS 2004.
- **Marbled Murrelet**—Wildlife Habitat Areas.
- **Northern Pygmy Owl**—if nest located, it will be protected by IWMS 2004 provisions.
- **Roosevelt Elk**—Ungulate Winter Ranges.
- **Vancouver Island Wolverine**—a wide ranging species, habitat and forage species needs partially addressed by OGMA management and retention patches.
- **Red-legged Frog**—protecting buffers around breeding ponds as per provisions of IWMS 2004.
- **Vancouver Island Water Shrew**—addressed through riparian protection, and if located, protected by provisions of IWMS 2004
- **Northern Goshawk**— there is one WHA present in the Gordon LU.

8.0 OGMA Analysis

The Nitinat, Walbran, Caycuse, Gordon and San Juan LUs are Intermediate Biodiversity Emphasis units. This Intermediate designation along with the BEC variant determines the percentage of the Crown forested land base that must be designated as OGMA. Table 11 outlines the total amount of OGMA in each LU required in each variant and from which Crown forest category it was taken (i.e. Non Contributing-N; Timber Harvesting Land Base). The old growth target figures in Table 11 are derived from Appendix 2 in the Landscape Unit Planning Guide. A brief descriptor of value capture is shown for each OGMA within Appendix 1.

Table 11 OGMA drafted vs targets by BEC variant

Landscape Unit	BEC variant	OGMA ha	Target
Caycuse	CWHmm1	425	433
	CWHmm2	93	85
	CWHvm1	1204	1217
	CWHvm2	461	472
	CWHxm2	102	94
	MHmm1	34	15
Gordon	CWHmm1	373	381
	CWHmm2	74	59
	CWHvh1	39	11
	CWHvm1	1262	1258
	CWHvm2	678	680
	CWHxm2	51	49
Nitinat	MHmm1	159	144
	CWHmm1	12	17
	CWHmm2	17	8
	CWHvh1	768	683
	CWHvm1	5003	4107
	CWHvm2	959	685
San Juan	MHmm1	94	59
	CWHmm1	405	363
	CWHvh1	176	96
	CWHvm1	2045	1981
	CWHvm2	925	758
Walbran	MHmm1	159	169
	CWHvh1	358	274
	CWHvm1	2902	2903
	CWHvm2	754	625
	MHmm1	136	130

9.0 Wildlife Tree Retention

In addition to the establishment of OGMA's at the landscape level, this plan also proposes to maintain stand structure through the retention of wildlife tree patches (WTP). Wildlife tree retention (WTR) is managed at the stand level and is used to maintain structural diversity within managed stands by retaining wildlife trees adjacent to or within cutblocks. Retention objectives are determined by the formula established in the landscape unit planning Guidebook. The levels of retention are set by BEC subzone. WTR considers the amount (percentage) of the current THLB available for harvest, and the percentage of the THLB harvested without wildlife tree retention.

Wildlife tree objectives will require periodic adjustment to reflect changes in the percentage of the subzone harvested without WTR. For every 10% decline in the area harvested without WTR, the WTR requirement drops by 1%. As the percentage of harvest area without WTR declines to 0% for the LU, the WTR requirement will reach the long-term level.

10.0 Landscape Unit Objectives

The goal of these objectives is to sustain biological diversity at the landscape level; permissible activities are described to streamline administrative procedures and address operational Summary of Public Comments and Responses concerns.

First Nations traditional use of forest resources, treaty negotiations or settlements will not be limited by the following objectives.

Legal Objectives: Legal objectives will be established under the Land Use Objectives Regulation of the Land Act. This plan provides the background information for the Biodiversity objectives for the Nitinat, Caycuse, Walbran, Gordon and San Juan Landscape Units.

Objective 1 – Old Growth Management Areas

Objective 2 – Wildlife Tree Retention

For an example of the complete text of the Legal objectives refer to the draft Legal objectives in appendix 8.

11.0 References

BC Ministry of Forests. 1999. Vancouver Forest Region Landscape Unit Planning Strategy.

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Appendices

- Appendix 1 OGMA Polygon Details
- Appendix 2 Red and Blue Listed Ecosystems Captured by OGMA
- Appendix 3 Red and Blue-listed Species List
- Appendix 4 First Nations
- Appendix 5 Summary of Public Comments and Responses
- Appendix 6 List of Acronyms
- Appendix 7 Sources of Data
- Appendix 8 Draft legal objectives
- Appendix 9 Wildlife Tree Retention
- Appendix 10 Target and Impact summaries

