

Brittain Landscape Unit

Sustainable Resource Management Plan



Ministry of Forests, Lands and
Natural Resource Operations

South Coast Area

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Sustainable Resource Management Plan

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1. Introduction

This Sustainable Resource Management Plan provides background information used during the preparation of the Landscape Unit Plan for the Brittain Landscape Unit (LU) and associated proposed legal objectives. A description of the planning unit, discussion on significant resource values, and an Old Growth Management Area (OGMA) summary and rationale are provided. See Appendix 1 for the OGMA summary and Appendix 2 for a list of acronyms used.

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. In British Columbia, 124 species or subspecies of known vertebrates and 309 vascular plants are listed for legal designation as threatened or endangered². The continuing loss of biological diversity will have a major impact on the health and functions of ecosystems and the quality of life in the province (Resources Inventory Committee, 1998).

LU Planning through Section 93.4 of the *Land Act* for the purposes of the *Forest and Range Practices Act* (FRPA) allows legal establishment of objectives to address and sustain landscape level biodiversity values. Managing for biodiversity through retention of old growth forests is important not only 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 Sunshine Coast Forest District completed LU boundaries and assigned Biodiversity Emphasis Options (BEO) in accordance with the direction provided by government. There are 26 LUs in this district. Through a ranking process the Brittain LU was rated as an intermediate BEO. Current government direction requires that priority biodiversity provisions, primarily the delineation of Old Growth Management Areas be undertaken immediately.

Substantial work was completed in 2004-2005 by the Ministry of Agriculture and Lands (MAL), Bill Lasuta and Associates Ltd., and Mosaic Forest Management Ltd. with input provided by BC Timber Sales (BCTS) and Ministry of Environment (MOE) as well as from forest licensees. Funding was provided through the Forest Investment Account (FIA).

Comment from First Nations, the public and other agencies will be sought during the 60 day public review and comment period. A summary of comments from the 60 day public review and comment period will be included in Appendix III upon completion.

¹ Definition of Biodiversity is from page 2 of the Forest Practices Code *Biodiversity Guidebook* (September 1995)

² B.C. Conservation Data Centre. 2010. BC Species and Ecosystem Explorer. B.C. Ministry. of Environment Victoria, B.C. Available: <http://www.env.gov.bc.ca/atrisk/toolintro.html>

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, *Sustainable Resource Management Planning: A Landscape-level Strategy for Resource Development*⁴.

The distribution of OGMA's will be reviewed periodically to ensure their objectives and ecological suitability are maintained through time. Wildlife management practices and operational procedures will improve as more information and technology is acquired.

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

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

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

2. Landscape Unit Description

2.2 Biophysical Description

The Brittain LU covers a total area of approximately 44,241 ha, encompassing watersheds that flow into the west side of Jervis Inlet and Queens Reach. The largest watershed is the Brittain River, which flows south into Jervis Inlet. Of the total LU area, 20,257 ha (46%) is within the Crown forest land base. The remaining 23,984 (54%) is non-forested (rock, alpine tundra, water) or non-Crown and has been excluded from any OGMA contributions and calculations.

The Brittain LU lies within the Southern Pacific Ranges Ecosection. Its climate is best described by elevation gradient. At low elevations summers are warm and dry, while winters are mild and moist. Mid elevations are characterized by cool and relatively dry summers and cool moist winters with moderate snowfall. Higher elevations have long moist, cold winters with high snowfall and short, cool, moist summers.

The LU is comprised of the following five BEC subzones/variants: Coastal Western Hemlock, dry maritime (CWHdm); Coastal Western Hemlock, submontane very wet maritime (CWHvm1), Coastal Western Hemlock, montane very wet maritime (CWHvm2), Mountain Hemlock, windward moist maritime (MHmm1), and Alpine Tundra (ATp). These five BEC subzones/variants represent three different Natural Disturbance Types (NDT), with CWHvm1, CWHvm2, and MHmm1 in NDT1 (rare stand initiating events), CWHdm in NDT 2 (infrequent stand-initiating events), and ATp in NDT 5 (alpine tundra and subalpine parkland).

The valley bottoms and lower elevations (CWHdm and CWHvm1) have sustained substantial levels of harvesting over the years. The relatively low levels of old seral forest remaining within the lower elevation BEC units reflect this disturbance history. Otherwise, sufficient old growth representation targets in the other BEC variants can be met predominantly from the non-contributing (NC) land base.

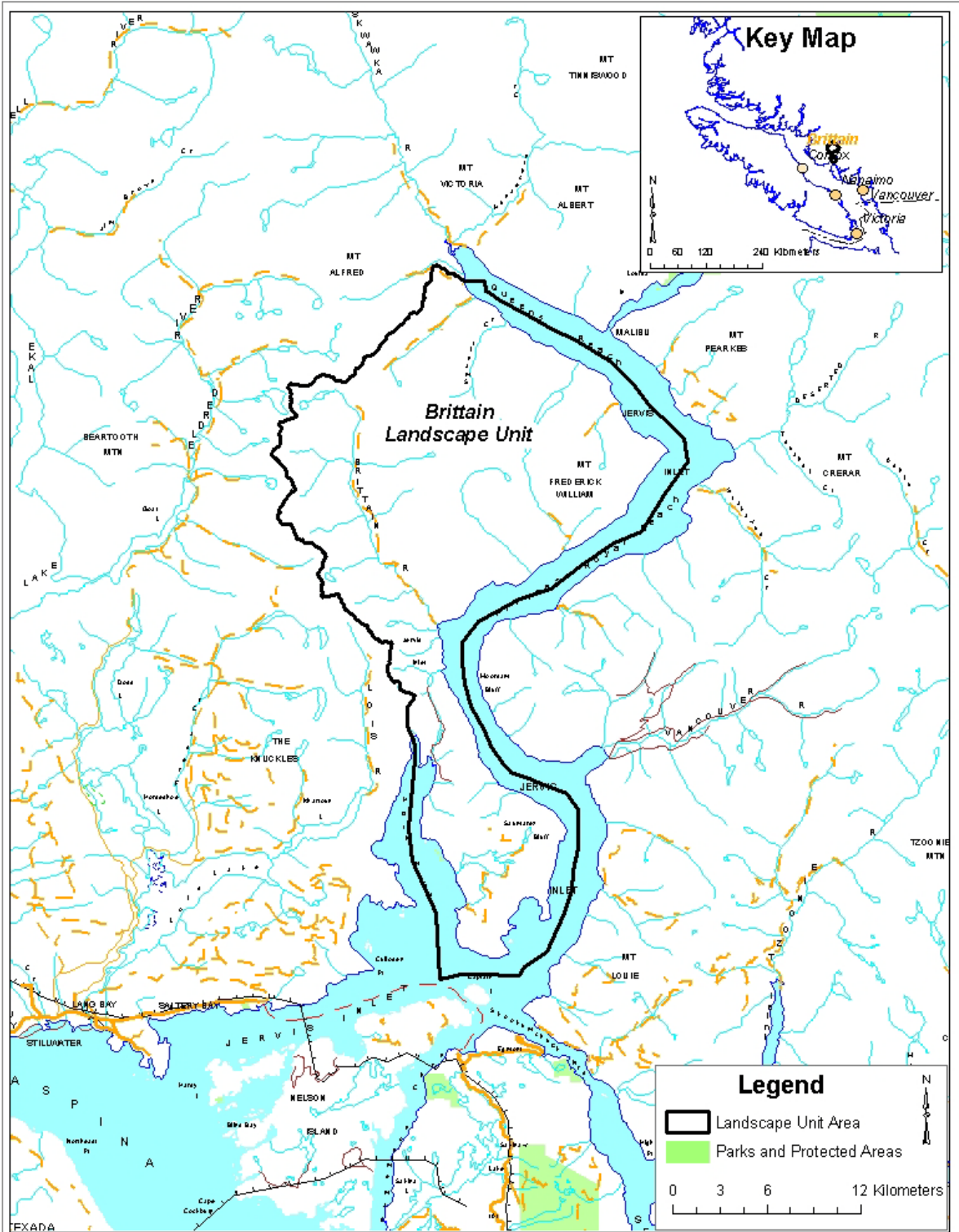


Figure 1: Brittain Landscape Unit Boundary

2.3 Summary of Land Status

Land status within the Brittain LU is summarized in Table 1 by ownership class. There are various ownership classes that are excluded from the Crown Forest Land Base and therefore excluded from the OGMA selection process. This includes 169 ha of private land and 5.5 ha of Indian Reserve.

Table 1. Land status of the Brittain Landscape Unit

Landscape Unit	Ownership Code	Ownership Class	Crown Forest Land Base	Excluded Land Base	Total Area (Ha)	Total of LU %
Brittain	40-N	Private		169.1	169.1	0.4
	50-N	Federal Reserve	1.3	4.4	5.7	0.0
	52-N	Indian Reserve		5.5	5.5	0.0
	61-N	Crown UREP		0.0	0.0	0.0
	62-C	TSA or PSYU	20,161.7	17,742.3	37,904.0	85.7
	63-N	Provincial Park	6.5	1.5	8.0	0.0
	69-C	Misc Reserve		63.9	63.9	0.1
	69-N	Misc Reserve	16.9	4.1	21.0	0.0
	70-C	Timber License	39.0	1.0	40.0	0.1
	72-B	Crown Schedule B lands	31.1	5,993.1	6,024.2	13.6
Brittain Total			20,256.5	23,985.1	44,241.6	100.0

Table 2 provides a breakdown of the landbase based on biogeoclimatic ecosystem (BEC) variants. Old seral representation targets are determined and applied based on the Crown forest area in each BEC variant. Landbase classification information is used in landscape unit planning to minimize impacts to the timber supply; however, operationally the harvestable area and the Timber Harvesting Land Base (THLB) are not consistent because inventories and assumptions used to identify the THLB area are not always an accurate representation of what timber will be harvested.

Table 2. Crown forested land base and OGMA target within the Brittain LU

BEC Label ⁵	Crown Forested Land Base			Excluded Land Base (ha)	Crown Forested Land Base (ha) (C + P + N)	Total Area (ha)	OGMA Target % (minimum)	
	C	P	N	X			%	Ha
CMAunp	0.4	3.3	181.2	5583.7	184.9	5768.6	0	0.0
CWHdm	2405.2	2150.9	2441.9	4736.3	6997.9	11734.2	0.09	629.8
CWHvm1	1936.1	402.3	968.2	481.0	3306.6	3787.7	0.13	429.9
CWHvm2	1280.1	1216.1	4212.1	5301.9	6708.3	12010.2	0.13	872.1
MHmm1	115.0	173.0	2750.1	7882.1	3038.1	10920.2	0.19	577.2
MHmm2			20.7	0.1	20.7	20.7	0.19	3.9
	5736.8	3945.5	10574.2	23985.1	20256.5	44241.6		2512.9

Old seral representation targets listed above have been met through delineation of OGMA's throughout the Brittain LU. Refer to the attached Brittain LU map for the location of OGMA's.

Table 3. Representation of OGMA's in Non-contributing, Partial-contributing, Contributing and Excluded

BEC label	OGMA Target %		Established OGMA (ha)	OGMA in Non-Contributing (N)		OGMA in Partial Contributing (P)		OGMA in Contributing (C)		OGMA in Excluded (X)		Difference (Established - Target)
	%	Ha		%	ha	%	ha	%	ha	%	ha	
CWHdm	0.09	629.8	649.1	29.3	190.1	41.0	266.3	10.7	69.3	19.0	123.5	19.3
CWHvm1	0.13	429.9	435.1	49.4	214.8	20.7	90.2	25.1	109.4	4.8	20.7	5.3
CWHvm2	0.13	872.1	892.5	77.9	695.4	9.1	81.0	9.2	82.0	3.8	34.2	20.4
MHmm1	0.19	577.2	588.5	93.2	548.2	2.3	13.7	0.7	4.2	3.8	22.3	11.2
MHmm2	0.19	3.9	20.7	99.7	20.7	0.0	0.0	0.0	0.0	0.3	0.1	16.8
		2512.9	2585.9	64.6	1669.3	17.4	451.1	10.2	264.9	7.8	200.7	73.0

⁵ CWHdm: Coastal Western Hemlock, dry maritime, subzone.
 CWHvm1: Coastal Western Hemlock, submontane very wet maritime variant.
 CWHvm2: Coastal Western Hemlock, montane very wet maritime variant.
 MHmm1: Mountain Hemlock, windward moist maritime variant

3. Key Resource Tenure Holders

The process to select OGMAs included the identification of tenures that are administered by the Ministry of Forests, Lands and Natural Resource Operations, and the Ministry of Energy and Mines. The selection of OGMAs generally avoided placement within existing tenures where permanent forest disturbance could occur (mineral claims, power projects).

3.1 Forest Tenure Holders

The Brittain LU is within the Sunshine Coast Timber Supply Area (TSA). International Forest Products Ltd and BC Timber Sales operate in the landscape unit. The OGMAs were selected to minimize impacts on area identified for future harvesting opportunities.

3.2 Mineral Tenure Holders

At the time of writing, there were nine mineral tenures; two on the North end of Jervis Inlet by McCannel Lake, one on Brittain River, four between Skwim Lake and Diadem Lake, and two in Baker Bay on Hotham Sound. The selection of OGMAs followed the intent of avoiding placement over existing tenure holders, where possible.

4. Significant Resource Values

4.1 Fish, Wildlife and Biodiversity:

Wildlife resources of significant management concern in the Brittain landscape unit include: marbled murrelet, mountain goat, grizzly bear, black-tail deer, and northern goshawk. Many other species occur including various birds, raptors, small mammals, and amphibians but their habitat requirements are generally managed within provisions provided for primary species and through general resource management. According to the BC Conservation Data Centre, thirty one wildlife species of concern are known or suspected to be present in the Brittain LU. These include RED-listed, BLUE-listed and regionally important species⁶. Habitat conserved for mountain goat and marbled murrelet would also benefit other species.

⁶ B.C. Conservation Data Centre. 2010. BC Species and Ecosystems Explorer. B.C. Ministry of Environ. Victoria, B.C. Available: <http://a100.gov.bc.ca/pub/eswp/>

Potential marbled murrelet nesting habitat was mapped within the Brittain landscape unit consistent with the Standard Methods for Identifying Marbled Murrelet Habitat in British Columbia Using Air Photo Interpretation and Low-level Aerial Survey⁷. A series of Wildlife Habitat Areas were established by the Ministry of Environment within the Brittain landscape unit to provide for the long-term survival of the species through habitat protection. Stands suitable for marbled murrelet nesting habitat typically have attributes that also make them suitable for selection as OGMA's, and as such areas established as WHA's have also been selected as OGMAs.

The Brittain landscape unit is also an important area for black-tailed deer (*Odocoileus hemionus columbianus*) and mountain goats. Suitable winter range habitat for mountain goats has been identified and legally established by the MoE. Unfortunately, deer winter range although mapped (374 ha; Reynolds 2003) has not yet been confirmed or legally established and was not a significant factor in choosing OGMAs. Conversely, mountain goat winter ranges containing stands suitable as old forest representation were given high priority for OGMA selection and could often help meet biodiversity targets.

The Brittain River and its major tributaries support resident salmonid populations (trout and char). Riparian reserve zones established (in accordance with FRPA) adjacent to these fish streams will manage for the effectiveness and functioning of the riparian habitat and values associated with these areas within the landscape unit. Where suitable, OGMAs have been delineated in or adjacent to riparian areas; however, it should be noted that narrow or isolated riparian strips were not considered valuable contributors to landscape level biodiversity.

The intent of defining OGMAs is not to address the individual needs of all these species, but rather to provide a strong foundation for landscape level biodiversity management. In the Brittain LU, the species of specific concern when identifying OGMAs included: marbled murrelet, mountain goat and grizzly bear.

4.2 Provincial Parks and Protected Areas

There is only one small provincial park in the Brittain Landscape Unit: Harmony Islands Marine Provincial Park (31 ha). The marine park is situated on the east side of Hotham Sound, north of Granville Bay and consists of the marine foreshore (26 ha) and southernmost island (5 ha). The park offers safe anchorage, swimming, snorkelling, kayaking and marine fishing. There are no trails, nor camping sites or other improvements available. The park is categorized as 'natural environment'.

⁷ Burger, A.E. 2003. Standard methods for identifying and ranking nesting habitat of Marbled Murrelets in British Columbia using air photo interpretation and low-level aerial surveys. Ministry of Water, Land and Air Protection Biodiversity Branch, Victoria B.C.

4.3 Water Quality

There are no established community watershed areas within the Brittain Landscape Unit. Water bodies provide aquatic ecosystem habitat and wetland/upland habitat diversity that supports a high level of biological diversity. Aquatic ecosystems are often protected and managed for through legislated requirements for various resources, including selection for maintaining biodiversity through OGMAs in lake riparian areas.

4.4 Forest Resources

There is a history of timber harvesting within the Brittain landscape unit, and harvesting opportunities still exist and are complemented as second growth timber harvesting becomes more prevalent. The presence of a substantial timber harvesting land base establishes the importance of timber resource values. Continued access to commercially valuable timber, including future second growth, is a significant concern to forest licensees.

Tree species in the Brittain landscape unit include Douglas-fir (*Pseudotsuga menziesii*), western redcedar (*Thuja plicata*), western hemlock (*Tsuga heterophylla*), amabilis fir (*Abies amabilis*), subalpine fir (*Abies lasiocarpa*), yellow-cedar (*Chamaecyparis nootkatensis*), mountain hemlock (*Tsuga mertensiana*), and deciduous species [such as bigleaf maple (*Acer macrophyllum*) and red alder (*Alnus rubra*)].

Commercially valuable tree species in the Brittain LU are most easily described by elevation. Low elevation forests are dominated by Douglas-fir, Western Hemlock, Western red cedar and Amabilis fir. Western and Mountain Hemlock, Sub-alpine fir, and Yellow cedar are the most common species at mid to high elevations.

Approximately 50% of the productive forest in the Brittain LU is early seral or early mature forest (<80 years). Mature forests (81-250 years) occupy about 29%, and old forests (>250 years) occupy approximately 21% of the productive forest in the LU.

4.5 Mineral Resources

Subsurface resources (minerals, coal, oil, gas and geothermal) and aggregate resources are valuable to the province, but are difficult to characterise due to their hidden nature. Ministry of Energy and Mines (MEM) has rated the industrial and metallic mineral potential of this LU ranging from moderate to high in the southern portion and moderate in the northern portion. These rankings are based on a qualitative analysis which takes into account the values of known resources, past exploration and production as well as the number of known mineral occurrences and a subjective probability estimate of value by industry experts.

It is understood that the establishment of OGMA's will not have an impact on the status or operations of existing aggregate, mineral and gas permits or tenures. Exploration and development activities are permitted in OGMA's but the preference is to proceed with exploration and development in a way that is sensitive to the old growth values of the OGMA. If this is not possible, then a replacement OGMA will be required.

4.6 Clean Energy Projects

Apart from the Malibu Hydro System that currently provides electricity to the Malibu Camp from McCannel Lake, a number of waterpower and transmission line applications remain in various stages of development. These include:

Lands File #	Location
2409933	West Jervis Inlet to Kleindale
2409316	Slane Creek
2409330	Smanit Creek
2409526	Tributary to Eldred River
2409549	Osgood Creek, Jervis Inlet area
2409969	Toba Inlet from Toba River to Malaspina Substation

OGMA placement avoided established or confirmed waterpower sites, however, there was no attempt to move OGMA's from development corridors that were not confirmed. If waterpower projects or transmission lines affect OGMA's in future, the OGMA will be relocated.

4.7 Recreation

The main watersheds in the Brittain LU are easily accessible by boat from various population centres on the Sunshine Coast. However, the extensive forest road network within the LU is not connected to public highways. This, therefore, virtually limits the amount of vehicular use of the road system to industrial users; or those who bring All Terrain Vehicles (ATV) with them via boat.

Recreational hunting in the Brittain LU is an annual activity enjoyed by many outdoor enthusiasts; most hunters would target black bears or deer and many would use ATVs on forest roads to increase mobility. Winter recreational activity is very limited due to the remoteness of the Landscape Unit to motorized access. Stream angling opportunities are also limited since stream resident fish are considered quite small. Trail hiking, berry and mushroom picking and wildlife viewing/sight-seeing also occur on a limited basis.

Two important recreation attributes are: the scenic Harmony Falls and Freil Lake. Harmony Falls is located about 1.6 km south of the marine park, and cascade down 440 m into Hotham Sound. The falls originate from the outlet stream of Freil Lake, which is the largest lake in the landscape unit.

There are no Forest Service Recreation Sites in the Brittain LU, and no development plans for the immediate future. Overall, recreation use in the Brittain LU would be rated as low mostly because of its remote location and limited public access.

5. First Nations

The Brittain LU is located within the traditional territory of the *shíshálh* (Sechelt) Nation. The *shíshálh* Nation is the only First Nation with legal claim to traditional territories within the Brittain LU.

Portions of the LU have previously been identified as important traditional hunting and gathering areas for the *shíshálh* Nation as well as important historical cultural heritage sites.

Between 1997 and 1999, an Archaeological Overview Assessment model was developed by Millennia Research on behalf of the MFR to indicate where archaeological sites are most likely located. This was done to minimize potential impacts by forestry operations on culturally important areas.

It is not the province's intention to limit the ability of any parties at the treaty negotiation table to discuss issues of interest in these areas, nor to take administrative or operational action that has the potential to infringe the existing Aboriginal or treaty rights of the First Nations in these areas. These OGMA's do not affect First Nations Aboriginal rights and title, nor do they affect traditional and cultural activities.

6. Biodiversity Management Goals and Strategies

6.1 General Biodiversity Management Goals

Biodiversity management goals and strategies describe, in specific terms, the outcomes that legal LU Objectives are to achieve. They also describe the rationale for selection of OGMA's, some of the ecological features that OGMA's are to include, and some decisions made to balance management of all values present in the LU. While LU Objectives are legally binding, management goals and strategies are not. Goals and strategies must remain flexible to incorporate future direction and new methods in order to ensure continued compliance with the corresponding LU Objectives.

The biodiversity ranking process identified important biodiversity values within the Brittain LU that must be managed for. The delineation of OGMA's cannot be undertaken without

recognition of these significant values because OGMA delineation is the most effective provision for managing landscape level biodiversity. The previous section described the resource values considered in the LU planning process.

The development of biodiversity management goals and strategies is important not only for conservation of biodiversity, but also to allow development of strategies to mitigate short and long-term LU planning impacts on timber supply. For example, OGMA delineation was not guided strictly by age class or THLB contributions, as this approach could result in including stands of marginal biodiversity value and significant timber supply impact within OGMA. As a result, old forest stands that were proposed or approved for harvesting were avoided as OGMA candidates. Wherever possible, individual forested polygons were assessed according to their specific attributes during the OGMA delineation process.

As per the LUPG, OGMA were established first in areas within the NC land base, according to the last Timber Supply Review (TSR). Some contributing land base was included within OGMA, either because there were no other suitable areas available or due to constraints (i.e. riparian, wildlife, terrain). In general, more heavily constrained areas were chosen to minimize impacts. Any potential impacts to the THLB are expected to be offset by areas of NC land base that were specifically avoided during OGMA delineation, to maintain potential for future harvesting opportunities and mitigate timber supply impacts.

To pursue representation of old growth stands in each BEC subzone or variant, efforts were made to delineate OGMA that included a diversity of stand types, by species composition and geographic/topographic locations. OGMA were aggregated where possible, both within and across BEC subzones or variants, to pursue connectivity and to create larger patch sizes with forest interior habitat characteristics. Efforts were made to ensure OGMA were distributed spatially throughout the LU and not concentrated in a particular drainage. This is consistent with the “coarse filter” approach of biodiversity management whereby representative old growth stands are protected to maintain ecosystem processes and specific wildlife habitat requirements that may be poorly understood. In addition, ensuring OGMA placement is distributed throughout the LU helps ensure that any operational impacts are shared by all licensees operating in the area.

Attempts were made to maximize OGMA overlap with high value wildlife habitats such as marbled murrelet nesting habitat, mountain goat UWR, forested grizzly bear habitat, riparian areas and other unique or biologically valuable areas (i.e. wetlands and slide-tracks). Narrow or isolated riparian fringes were not included in OGMA, as such areas are more appropriate for stand level management and do not meet the “coarse filter” approach outlined in the Biodiversity Guidebook.

A detailed satellite imagery review was performed to confirm forest cover attributes and suitability of a given stand for OGMA. In addition, many OGMA were reviewed via helicopter survey work (in 2005) to verify the presence of desirable old forest attributes.

In general, OGMA were selected on the basis of providing for representation, and some with emphasis in creating an opportunity for marbled murrelet nesting habitat recruitment. Generally, OGMA were selected based on a review of stand attributes in an effort to maximize

their value from a biodiversity standpoint while minimizing timber supply impact. A rationale for the selection of each OGMA is shown in Appendix I. Opportunities to recruit larger patches to provide for forest interior habitat conditions or future marbled murrelet habitat were favoured over smaller patches.

In the Brittain LU area, there was sufficient old forest (250+ years) in most BEC subzones and variants to meet OGMA targets other than the CWHvm1 BEC variant.

6.2 OGMA Boundary Mapping

OGMA boundaries were delineated using a combination of forest cover, satellite images and TRIM-based mapping. OGMA boundaries were mapped to natural features (i.e. streams, slides, etc.) as well as edges of forest stands wherever possible to ensure they could be located on the ground. OGMAs were also delineated to include complete forest stands wherever possible to reduce operational uncertainty and increase ease of OGMA mapping.

7. Mitigation of Timber Supply Impacts

The Brittain LU plan has been developed to maximize the effectiveness of the FRPA biodiversity management provisions while minimizing impacts on the Sunshine Coast District TSA timber supply.

As mentioned previously there is one forest licensee and BC Timber Sales with operations in the Brittain LU. OGMAs were delineated based upon landscape level biodiversity management goals and strategies, and is intended to minimize impacts to timber supply as a whole across the entire district.

Specific measures adopted to minimise impacts of Brittain LU planning to timber supply include the following:

- All OGMAs were delineated within the NC land base areas that were mostly agreed to or recommended by licensees.
- OGMA selection tried to ensure that NC stands associated with Environmentally Sensitive Areas, some lower productivity sites, areas of difficult access and marginal economic value were included within OGMAs, but only when compatible with landscape level biodiversity objectives.
- Suitable old growth stands within marbled murrelet WHAs and mountain goat UWR habitats were included in OGMAs whenever feasible to reduce overall timber supply impacts and maximize overlap between constrained areas.
- During the LU planning process, consideration was made to ensure timber access was not precluded by OGMA delineation. Known access corridors were generally left out of OGMAs and OGMA boundaries were delineated to simplify adjacent management.

- Approved Forest Development Plans for the forest licensees within the Brittain LU were used during OGMA delineation to avoid proposed or approved developments. Direct consultation with forest licensees also occurred.
- OGMA boundaries used natural features wherever possible to ensure they could be located on the ground. OGMAs were delineated to include complete stands of timber wherever possible to reduce operational uncertainty, increase the ease of OGMA mapping, and maximise the “coarse filter” effectiveness of OGMAs for long-term biodiversity protection.
- Wherever possible, OGMA placement avoided areas within the NC land base identified by licensees as potential future harvest opportunities (i.e. helicopter access). Establishing OGMAs in the NC may still have implication for future timber supply by reducing flexibility for helicopter operations.

7.1 OGMA Amendment Procedure

A MFLNRO Coast Region policy provides direction to forest tenure agreement holders when applying for amendments to OGMA legal objectives. Amendment procedures cover such things as minor or major amendments for resource development (e.g. roads, bridges, boundary issues, rock quarries and gravel pits), or relocation of OGMAs. The policy also discusses acceptable management activities and review procedures. The amendment policy forms an integral part of this plan.

In general, most OGMA boundaries are not ‘permanently fixed’, they can be moved over time so long as biodiversity objectives are maintained. Replacement OGMAs are required to be equivalent or better than the original. As stand succession proceeds, some currently unsuitable forests may become good OGMA candidates and as such periodic assessment or revision to the OGMAs may occur.

8. Landscape Unit Plan Objectives

Landscape unit objectives will be legally established as Land Use Objectives; therefore subsequent Operational Plans must be consistent with these objectives.

Appendix I: OGMA Summary and Rationale

OGMA Number	OGMA BEC	Area (ha)	Comments
2	CWHdm	4.9	Old forest representation, riparian adjacent to Smanit creek
2	CWHvm1	17.2	Old forest representation, riparian adjacent to Smanit creek
5	CWHdm	28.9	Old forest representation, adjacent to Jervis Inlet, Steep lower slope
6	CWHdm	18.2	Old forest representation, adjacent to Jervis Inlet, Steep lower slope
7	CWHvm2	17.3	Old forest representation
7	MHmm1	9.0	Old forest representation
8	CMAunp	4.7	Old forest representation, Wildlife Habitat Area, slide tracks adjacent
8	CWHvm2	23.2	Old forest representation, Wildlife Habitat Area, slide tracks adjacent
8	MHmm1	26.4	Old forest representation, Wildlife Habitat Area, slide tracks adjacent
12	CWHvm2	82.4	Old forest representation, Wildlife Habitat Area, adjacent to Slane Creek, interior forest conditions
12	MHmm1	0.1	Old forest representation, Wildlife Habitat Area, slide tracks adjacent , interior forest conditions
16	CMAunp	3.5	Old forest representation, Ungulate Winter Range, avalanche chutes adjacent, interior forest conditions
16	CWHvm1	10.4	Old forest representation, Ungulate Winter Range, avalanche chutes adjacent, interior forest conditions
16	CWHvm2	19.1	Old forest representation, Ungulate Winter Range, avalanche chutes adjacent, interior forest conditions
16	MHmm1	13.7	Old forest representation, Ungulate Winter Range, avalanche chutes adjacent, interior forest conditions
22	CWHdm	3.4	Old forest representation, Ocean edge near Foley Head
24	CMAunp	2.0	Old forest representation, upslope of large brush patch
24	CWHvm2	2.3	Old forest representation, upslope of large brush patch
24	MHmm1	12.4	Old forest representation, upslope of large brush patch
26	CMAunp	0.2	Old forest representation, Ungulate Winter Range, mid upper slope, partial GWR
26	CWHdm	5.6	Old forest representation, Ungulate Winter Range, mid upper slope, partial GWR
26	CWHvm2	27.4	Old forest representation, Ungulate Winter Range, mid upper slope, partial GWR
26	MHmm1	15.1	Old forest representation, Ungulate Winter Range, mid upper slope, partial GWR
28	CMAunp	1.4	Old forest representation, Ungulate Winter Range, large patch with interior forest conditions
28	CWHdm	38.7	Old forest representation, Ungulate Winter Range, large patch with interior forest conditions
28	CWHvm2	26.4	Old forest representation, Ungulate Winter Range, large patch with interior forest conditions
28	MHmm1	38.4	Old forest representation, Ungulate Winter Range, large patch with interior forest conditions
31	CWHvm2	6.5	Old forest representation, shoreline of McCannel Lake, upslope connectivity
31	MHmm1	8.1	Old forest representation, shoreline of McCannel Lake, upslope connectivity
32	CWHvm2	11.6	Old forest representation, shoreline of McCannel Lake, brush patch upslope
32	MHmm1	0.3	Old forest representation, shoreline of McCannel Lake, brush patch upslope
33	CWHdm	61.5	Old forest representation, recruitment, Jervis shoreline, Wildlife Habitat Area, young forest either side
33	CWHvm2	1.0	Old forest representation, recruitment, Jervis shoreline, Wildlife Habitat Area, young forest either side
35	CWHdm	30.3	Old forest representation, partial overlap with Ungulate Winter Range, partial overlap with Wildlife Habitat Area
35	CWHvm2	42.3	Old forest representation, partial overlap with Ungulate Winter Range, partial overlap with Wildlife Habitat Area
35	MHmm1	36.0	Old forest representation, partial overlap with Ungulate Winter Range, partial overlap with Wildlife Habitat Area
39	CMAunp	5.0	Old forest representation, high elevation, ESA
39	MHmm1	23.2	Old forest representation, high elevation, ESA
45	CWHvm2	11.0	Old forest representation, Ungulate Winter Range, brush patched adjacent, partial GWR
45	MHmm1	7.5	Old forest representation, Ungulate Winter Range, brush patched adjacent, partial GWR
47	CWHvm2	27.6	Old forest representation, Ungulate Winter Range, Wildlife Habitat Area, above old cutblock, GWR/WHA
47	MHmm1	28.7	Old forest representation, Ungulate Winter Range, Wildlife Habitat Area, above old cutblock, GWR/WHA
50	MHmm1	8.8	Old forest representation, avalanche tracks, forested, poss. Grizzly bear values

OGMA Number	OGMA BEC	Area (ha)	Comments
53	CWHvm1	6.8	Old forest representation, Ungulate Winter Range, Wildlife Habitat Area, avalanche tracks adjacent
53	CWHvm2	36.0	Old forest representation, Ungulate Winter Range, Wildlife Habitat Area, avalanche tracks adjacent
53	MHmm1	9.4	Old forest representation, Ungulate Winter Range, Wildlife Habitat Area, avalanche tracks adjacent
54	CWHvm2	2.7	Old forest representation, Wildlife Habitat Area, slide track
54	MHmm1	0.3	Old forest representation, Wildlife Habitat Area, slide track
55	CWHvm1	3.3	Old forest representation, Wildlife Habitat Area, avalanche tracks adjacent
55	CWHvm2	35.5	Old forest representation, Wildlife Habitat Area, avalanche tracks adjacent
55	MHmm1	3.1	Old forest representation, Wildlife Habitat Area, avalanche tracks adjacent
56	CWHvm1	9.7	Old forest representation, Wildlife Habitat Area
56	CWHvm2	39.0	Old forest representation, Wildlife Habitat Area
56	MHmm1	16.6	Old forest representation, Wildlife Habitat Area
58	CWHvm1	5.6	Old forest representation, Wildlife Habitat Area, Ungulate Winter Range, alder patch below
61	CWHvm1	36.2	Old forest representation, Ungulate Winter Range, large patch, interior forest conditions
61	CWHvm2	51.7	Old forest representation, Ungulate Winter Range, large patch, interior forest conditions
61	MHmm1	39.7	Old forest representation, Ungulate Winter Range, large patch, interior forest conditions
62	CWHvm1	34.8	Old forest representation, Ungulate Winter Range, avalanche tracks
62	CWHvm2	12.0	Old forest representation, Ungulate Winter Range, avalanche tracks
64	CWHvm2	3.7	Old forest representation, Ungulate Winter Range
64	MHmm1	16.2	Old forest representation, Ungulate Winter Range
69	CWHvm1	10.9	Old forest representation, Ungulate Winter Range, large patch, adjacent brush
69	CWHvm2	42.1	Old forest representation, Ungulate Winter Range, large patch, adjacent brush
69	MHmm1	10.6	Old forest representation, Ungulate Winter Range, large patch, adjacent brush
73	CWHvm1	20.9	Old forest representation, adjacent to draft Ungulate Winter Range, small riparian patch
74	CWHvm1	26.1	Old forest representation, Ungulate Winter Range, large patch, interior forest conditions
74	CWHvm2	32.3	Old forest representation, Ungulate Winter Range, large patch, interior forest conditions
76	CWHdm	11.8	Forested (TFL), Knoll of Foley Mountain
78	CWHvm2	13.7	Old forest representation, Ungulate Winter Range, above brush patch, gullied slope
78	MHmm1	22.1	Old forest representation, Ungulate Winter Range, above brush patch, gullied slope
80	CWHvm2	0.7	Old forest representation, Ungulate Winter Range, surrounded by brush
80	MHmm1	3.0	Old forest representation, Ungulate Winter Range, surrounded by brush
83	CWHvm1	33.9	Old forest representation, recruitment, portion of upland complex, ESA
83	CWHvm2	1.1	Old forest representation, recruitment, portion of upland complex, ESA
88	CWHvm1	4.7	Old forest representation, Wildlife Habitat Area, above 50 yr old burn
88	CWHvm2	133.9	Old forest representation, Wildlife Habitat Area, above 50 yr old burn
88	MHmm1	97.4	Old forest representation, Wildlife Habitat Area, above 50 yr old burn
90	CWHvm1	14.4	Old forest representation, Wildlife Habitat Area, Ungulate Winter Range, large patch, interior forest conditions
90	CWHvm2	56.6	Old forest representation, Wildlife Habitat Area, Ungulate Winter Range, large patch, interior forest conditions
90	MHmm1	41.5	Old forest representation, Wildlife Habitat Area, Ungulate Winter Range, large patch, interior forest conditions
92	CWHvm2	5.4	Old forest representation, Ungulate Winter Range, open stand, ESA
92	MHmm1	8.2	Old forest representation, Ungulate Winter Range, open stand, ESA
93	CWHdm	3.2	Old forest representation, partial overlap with Ungulate Winter Range, mid slope
93	CWHvm2	7.1	Old forest representation, partial overlap with Ungulate Winter Range, mid slope
96	CWHvm1	50.1	Recruitment, Ungulate Winter Range, gentle ground above rock
96	CWHvm2	2.8	Recruitment, Ungulate Winter Range, gentle ground above rock
97	MHmm1	4.1	Old forest representation, Ungulate Winter Range, shoreline Diadem Lake
98	MHmm1	16.0	Old forest representation, Ungulate Winter Range, shoreline Diadem Lake, avalanche chutes
100	MHmm1	5.8	Old forest representation, Ungulate Winter Range, shoreline Diadem Lake

OGMA Number	OGMA BEC	Area (ha)	Comments
104	CWHdm	25.6	Ungulate winter Range, South of Barren Lake, mature valley bottom (TFL)
105	CWHdm	18.7	Recruitment, shoreline Jervis Inlet, small gulley system, low elevation
106	CWHdm	4.5	Old forest representation, Ungulate Winter Range, adjacent to Jervis Inlet, remnant patch above burn
106	CWHvm2	2.1	Old forest representation, Ungulate Winter Range, adjacent to Jervis Inlet, remnant patch above burn
109	CWHdm	26.4	Old forest representation, Ungulate Winter Range, adjacent to Jervis Inlet, near ridge, remnant patch, ESA
109	CWHvm2	9.9	Old forest representation, Ungulate Winter Range, adjacent to Jervis Inlet, near ridge, remnant patch, ESA
112	CWHdm	5.3	Old forest representation, Ungulate Winter Range, steep gulley system
112	CWHvm2	11.7	Old forest representation, Ungulate Winter Range, steep gulley system
114	CWHdm	42.4	Recruitment, shoreline Jervis Inlet, large patch adjacent to cutblocks, within gulley systems, narrow
117	CWHdm	72.2	Old forest representation, adjacent to Jervis Inlet, large patch, interior forest conditions, some gullies
118	CWHdm	9.0	Old forest representation (TFL)
118	CWHvm2	9.2	Old forest representation (TFL)
119	CWHdm	33.4	
119	CWHvm2	3.5	
121	CWHdm	114.6	Mature forest, shoreline Jervis Inlet, large patch, interior forest conditions, partial ESA
122	CWHdm	6.3	Old forest representation, adjacent to Jervis Inlet, gulley system, large trees
122	CWHvm2	4.1	Old forest representation, adjacent to Jervis Inlet, gulley system, large trees
123	CWHdm	8.2	Forested (TFL)
125	CWHdm	13.3	Forested (TFL)
126	CWHdm	5.1	Complex, three small patches
128	CWHdm	2.7	Complex, three small patches
129	CWHdm	5.4	
135	CWHvm1	3.3	Recruitment, adjacent Smanit Creek, mid slope South aspect
136	CWHvm1	0.1	Old forest representation, Ungulate Winter Range
136	CWHvm2	12.6	Old forest representation, Ungulate Winter Range
136	MHmm1	2.9	Old forest representation, Ungulate Winter Range
138	CWHvm1	20.0	Old forest representation, recruitment, draft Ungulate Winter Range, adjacent Jervis Inlet, valley bottom
139	CMAunp	3.3	Old forest representation, Ungulate Winter Range
139	CWHvm2	2.3	Old forest representation, Ungulate Winter Range
139	MHmm1	12.6	Old forest representation, Ungulate Winter Range
140	CMAunp	0.5	Mid slope SE aspect
140	CWHdm	0.1	Mid slope SE aspect
140	CWHvm2	16.8	Mid slope SE aspect
140	MHmm1	16.2	Mid slope SE aspect
141	CWHdm	1.0	Recruitment, adjacent to Brittain River
141	CWHvm2	12.7	Recruitment, adjacent to Brittain River
141	MHmm1	8.4	Recruitment, adjacent to Brittain River
142	MHmm1	13.2	Old forest representation, adjacent to Brittain River, back end of small drainage
144	CWHvm1	10.2	Old forest representation, recruitment, Ungulate Winter Range, valley bottom
146	CWHvm1	20.5	Recruitment, riparian, adjacent to Brittain River, valley bottom
147	CWHvm1	32.4	Old forest representation, Ungulate Winter Range, mid slope
147	CWHvm2	0.2	Old forest representation, Ungulate Winter Range, mid slope
148	CWHvm1	15.5	Old forest representation, adjacent to draft Ungulate Winter Range, mid slope
148	CWHvm2	0.1	Old forest representation, adjacent to draft Ungulate Winter Range, mid slope
150	CWHvm1	5.6	Old forest representation

OGMA Number	OGMA BEC	Area (ha)	Comments
154	CWHvm1	6.9	Old forest representation
154	CWHvm2	0.2	Old forest representation
160	CWHvm2	4.4	Forested complex between slide tracks
160	MHm1	1.5	Forested complex between slide tracks
161	CWHvm2	3.2	Forested complex between slide tracks
161	MHm1	0.9	Forested complex between slide tracks
162	CWHvm2	7.0	Old forest representation
163	CWHvm2	12.5	Old forest representation
163	MHm1	11.3	Old forest representation
164	CWHvm1	5.1	Old forest representation, Wildlife Habitat Area
164	CWHvm2	4.2	Old forest representation, Wildlife Habitat Area
165	CWHvm1	2.7	Old forest representation, Jervis Inlet shoreline
166	CWHdm	39.9	Old forest representation, Ungulate Winter Range
166	CWHvm2	0.7	Old forest representation, Ungulate Winter Range
167	CWHvm1	4.7	Old forest representation, Ungulate Winter Range
168	CWHvm1	6.6	Draft Ungulate Winter Range, adjacent to Jervis Inlet
169	CWHvm1	16.4	Old forest representation, Ungulate Winter Range
169	CWHvm2	0.5	Old forest representation, Ungulate Winter Range
170	CWHdm	6.0	Old forest representation, Ungulate Winter Range
171	CWHdm	2.4	Recruitment, adjacent to Brittain River

Appendix II: Acronyms

AAC	Allowable Annual Cut
BEC	Biogeoclimatic Ecosystem Classification
BCTS	BC Timber Sales
BEO	Biodiversity Emphasis Option
ESA	Environmentally Sensitive Area
FIA	Forest Investment Account
FRPA	Forest and Range Practices Act
LU	Landscape Unit
LUPG	Landscape Unit Planning Guide
MAMU	Marbled Murrelet
MEM	Ministry of Energy & Mines
MOE	Ministry of Environment
MFR	Ministry of Forests and Range
MFLNRO	Ministry of Forests, Lands & Natural Resource Operations
NC	Non-contributing
NDT	Natural Disturbance Type
OGMA	Old Growth Management Area
THLB	Timber Harvesting Land Base
UWR	Ungulate Winter Range
WHA	Wildlife Habitat Area
WTP	Wildlife Tree Patch
WTR	Wildlife Tree Retention

Appendix III: Public Consultation Summary

A notification letter was sent to all First Nations with traditional territory within the Brittain Landscape Unit on October 9, 2009, to inform that the project was being initiated.

One response was received, by the Shishalh Nation, on February 16, 2011. The letter concludes with "the Shishalh Nation supports an OGMA establishment within the Sihilhem (Brittain River) landscape and its surrounding areas"...

Advertising was placed in the following publications: BC Gazette (July 7, 2011), Campbell River Mirror (July 8, 2011), Powell River Peak (July 6, 2011), Sunshine Coast Reporter (July 8, 2011).

The public and First Nations consultation period was set for July 15, 2011 to September 15, 2011.

No comments were received from First Nations on the proposed OGMAs and legal order during the concurrent 60 day public review and comment and First Nation consultation period.

No objections or comments requiring revisions to the plan were received from the public.

The following comments were received from the Sunshine Coast Regional District.

Date	Comment	Action
Aug 10, 2011	Plan does not mention three recreation attributes on Hotham Sound Peninsula	Update Sections 4.2 and 4.7 with recreation information
Aug 10, 2011	Provide rationale for the removal of OGMAs near Freil Lake	Original draft OGMAs were removed at the request of forest licensee. OGMA target was located nearby where licensee would not be affected.
Aug 10, 2011	Plan does not mention Malibu Camp power project on McCannel Creek	Update Section 4.6 with information about this power project