

Bute West Landscape Unit

Sustainable Resource Management Plan



Ministry of Forests, Lands and
Natural Resource Operations

South Coast Region

2012

APPROVED

July 10, 2012

Acknowledgements

The Ministry of Forests, Lands and Natural Resource Operations recognises the following participants and contributors, without which the completion of this Sustainable Resource Management Plan would not have been possible:

International Forest Products Ltd: Bob Craven, RPF; Mike Landers, RPF; Ian Emery, RFT; Michelle Mico, RPBio; Wayne Wall, RPBio; Laszlo Kardos, RPF, PEng; Melinda White

Smart Forest Planning Consulting: Brian Smart, RPF, RPBio

Pollock Forest Management Ltd.: Tania Pollock, RPF

Province of British Columbia: Greg George, RPBio; Chuck Anderson, RPF; Peter Verschoor, RPF; Frank DeGagne, RPF; Lew Greentree; Blake Fougere, RPF

Table of Contents

1.0	Introduction.....	1
2.0	Bute West Landscape Unit Description.....	2
2.1	Biophysical.....	2
2.2	Summary of Land Status.....	4
3.0	Key Resource Tenure Holders.....	5
3.1	Forest Tenure Holders.....	5
3.2	Mineral Tenure Holders.....	5
4.0	Significant Resource Values.....	5
4.1	Wildlife, Fish and Biodiversity.....	5
4.2	Timber Resources.....	6
4.3	Private Land.....	7
4.4	Water.....	7
4.5	Recreation.....	7
5.0	Existing Strategic Level Plans.....	7
6.0	First Nations.....	7
7.0	OGMA Methodology.....	8
7.1	Existing Planning Processes.....	8
7.2	Assessment and Review.....	8
7.3	Boundary Mapping.....	10
7.4	Amendment Policy.....	11
7.5	Mitigation of Timber Supply Impacts.....	11
9.0	Landscape Unit Plan Objectives.....	12

List of Tables

Table 1.	Land Status of the Bute West Landscape Unit.....	4
Table 2.	Land Status using Crown Forested Land Base Classification within the Bute West Landscape Unit prior to OGMA Delineation.....	4
Table 3.	Old Growth Management Area (OGMA) Distribution.....	12

List of Appendices

Appendix I	OGMA Summary and Rationale – Bute West LU.....	13
Appendix II	List of Acronyms.....	23
Appendix III	First Nations Consultation and Public Review Summary.....	24

1.0 Introduction

This report provides background information used during the preparation of the Landscape Unit Plan for the Bute West 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 them¹’*. British Columbia is the most biologically diverse province in Canada.

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. Implementation of this initiative is intended to help maintain certain biodiversity values. Managing for biodiversity through retention of old growth forests is considered 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 and ecosystems across their historic ranges.

In accordance with the direction of government, the Sunshine Coast Forest District has established draft Biodiversity Emphasis Options (BEO) for the 26 Landscape Units in its district. Through the ranking process, the Bute West LU was rated as “Intermediate” BEO, which requires that priority biodiversity provisions, including the delineation of Old Growth Management Areas be undertaken immediately.

First Nations were consulted and public review was sought during the 60-day public review and comment period (Appendix 3).

Supporting documentation regarding government policy, planning processes and biodiversity concepts are provided in the *Biodiversity Guidebook*, the *Landscape Unit Planning Guide²*, the *Vancouver Forest Region Landscape Unit Planning Strategy³*, *Sustainable Resource Management Planning: A Landscape-level Strategy for Resource*

¹ from BC Ministry of Forests and BC Environment. 1995. Biodiversity Guidebook.

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.

*Development*⁴ as well as any other strategic plan(s) that may be developed post publication of this document.

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

2.0 Bute West Landscape Unit Description

2.1 Biophysical

The Bute West LU is situated on the western side of Bute Inlet. The Landscape Unit covers a total area of 68,932 ha and includes the Bear and Paradise River watersheds. Other named watersheds within the LU include Mellersh Creek, Moh Creek, and several other small named and unnamed streams.

Of the total area, 19,249 ha (28%) are within the Crown forested land base, and 49,683 ha (72%) are non-forested or non-Crown (rock, alpine tundra, water, private land etc.) and have been excluded from any OGMA contributions and calculations.

The Bute West Landscape Unit lies within the Pacific Ranges Ecoregion, Central Pacific Ranges ecoregion⁵. Its climate is maritime, with warm, dry summers and wet, mild winters. Average annual precipitation ranges from 800 – 1000 mm with the majority of precipitation occurring in the fall and winter, which at higher elevations creates a snow pack that feeds the landscape unit stream network.

There are eight Biogeoclimatic Ecosystem Classification (BEC) subzones or variants, which fall within three natural disturbance types (NDTs)⁶. Coastal Western Hemlock zone – submontane very wet maritime variant (CWH vm1) and montane very wet maritime variant (CWH vm2) as well as Mountain Hemlock zone – windward moist maritime variant (MH mm1) and leeward moist maritime variant (MH mm2) fall within NDT 1. Three Coastal Western Hemlock zones – dry maritime subzone (CWH dm), southern dry subarctic maritime variant (CWHds1), and southern moist subarctic maritime variant

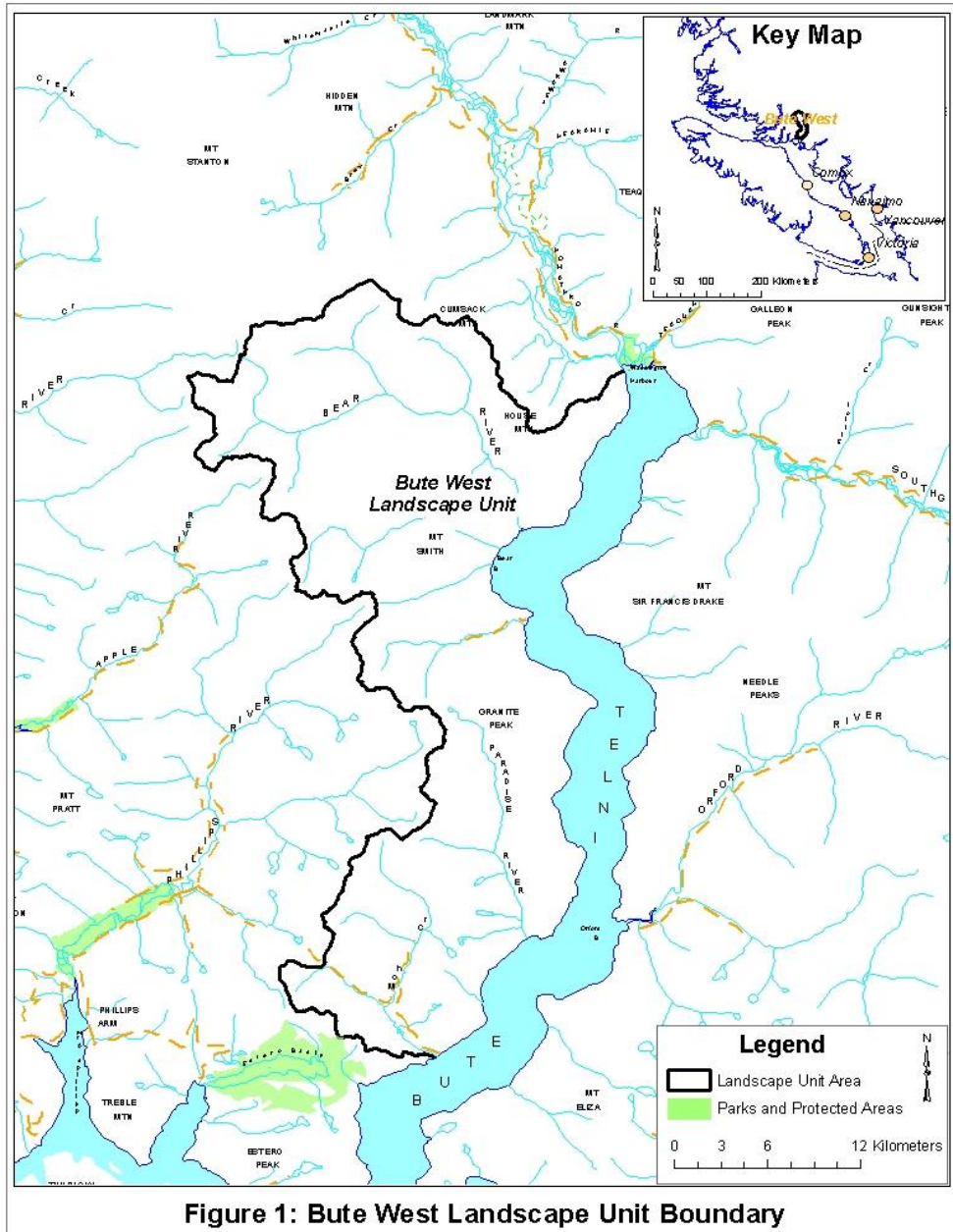
⁴ BC Ministry of Agriculture and Lands. 2002. Sustainable Resource Management Planning: A Landscape-level Strategy for Resource Development

⁵ Demarchi, D. 1996. An introduction to the ecoregions of British Columbia. Wildlife Branch, Ministry of Environment, Victoria, British Columbia. Ministry of Agriculture and Lands. Update March 2004. British Columbia; Ecoregion Ecosystem Classification Units, Ver. 2.01

⁶ NDT1 encompasses those ecosystems with rare stand-initiating events. NDT2 includes ecosystems with infrequent stand initiating events. NDT5 is Alpine Tundra or other parkland ecosystems that are not considered forested. For a more complete description of NDTs see the *Biodiversity Guidebook* (1995).

(CWHms1) lie within NDT 2. Bute West also has substantial high elevation non-forested areas in NDT5 (Alpine Tundra).

In the lower elevation variants, within NDT1 and 2, the Bute West LU has sustained substantial levels of disturbance. Forested stands on lower elevation productive sites (typically on slopes with low to moderate gradient) have been disturbed by forest fires and past timber harvesting. The relatively low levels of old seral forest remaining within these BEC variants reflect this disturbance history.



2.2 Summary of Land Status

Land status within the Bute West LU is summarised in Table 1. A description of the Crown forested land base and Old Growth Management Area requirements is provided in Table 2.

Table 1. Land Status of the Bute West Landscape Unit

Ownership Code	Ownership Class	Crown Forest Land Base	Excluded Land Base	Total Area (Ha)	Total of LU %
40-N	Private		92.6	92.6	0.1
52-N	Indian Reserve		3.8	3.8	0.0
61-N	Crown UREP	12.0	3.2	15.2	0.0
62-C	TSA or PSYU	19217.5	49328.0	68545.5	99.4
67-N	Provincial Park or Reserve		0.1	0.1	0.0
70-C	Timber License	1.8	64.9	66.7	0.1
72-B	Crown Sch B lands	17.2	190.7	207.9	0.3
		19248.5	49683.3	68931.8	100.0

Table 2. Land Status using Crown Forested Land Base Classification within the Bute West Landscape Unit prior to OGMA Delineation.

BEC	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	0.5		89.0	23780.5	89.6	23870.1	0	0.0
CWHdm	1391.6	795.8	1987.7	749.5	4175.1	4924.7	0.09	375.8
CWHds1	216.3	299.6	1119.6	675.5	1635.5	2311.0	0.09	147.2
CWHms1	282.7	325.0	2589.0	4608.7	3196.7	7805.4	0.09	287.7
CWHvm1	1465.1	717.6	1562.9	1161.0	3745.6	4906.6	0.13	486.9
CWHvm2	797.7	731.7	2903.8	4679.5	4433.2	9112.6	0.13	576.3
MHm1	80.4	126.5	888.8	6417.4	1095.7	7513.1	0.19	208.2
MHm2			858.1	7417.4	858.1	8275.5	0.19	163.0
	4234.4	2996.1	11999.0	49489.6	19229.5	68719.1		2245.1

Please refer to attached map for location of OGMA's.

3.0 Key Resource Tenure Holders

The process to select OGMA's included the identification of tenures that are administered by the Ministry of Forests, Lands & Natural Resource Operations (MFLNRO). The selection of OGMA's generally avoided placement within existing tenures where permanent forest disturbance could occur (e.g. clean energy projects). Placement of OGMA's over cutblocks and roads that have received approval status, but were not yet harvested, was avoided; as well OGMA's avoided existing blocks. See Planning Methodology for more detail on OGMA placement guidelines.

3.1 Forest Tenure Holders

Within the plan area there are only two volume-based tenures. Tenure is comprised primarily of Forest Licence A19220 held by International Forest Products Ltd. (Interfor). Northwest Hardwoods, a division of Weyerhaeuser Company Ltd, holds the licence for deciduous stands.

The OGMA's selected do not impact any known approved category "A" cutblocks or roads as approved under a Forest Stewardship Plan (FSP). Furthermore, Interfor and other government agency resource staff were consulted to ensure that the intent of this plan was conveyed and impacts on future planned development was minimized.

3.2 Mineral Tenure Holders

Due to the remoteness of Bute Inlet there are only a few mineral tenures within the Bute West LU, most of these are located in Moh Creek. Since the establishment of an OGMA will not have an impact on the status of existing mineral and gas permits or tenures, there was no real attempt to avoid placing OGMA's over mineral tenures. Exploration and development activities are permitted in OGMA's. 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 impacting old growth values, then the OGMA will be moved.

4.0 Significant Resource Values

4.1 Wildlife, Fish and Biodiversity

Wildlife resources of primary management concern in the Bute West LU include: grizzly bear, marbled murrelet, mountain goat, black-tailed deer, Queen Charlotte goshawk, fish species and some amphibians. Some of these species are recognized nationally as 'species at risk' under Canada's *Species At Risk Act* (e.g. Queen Charlotte Goshawk, marbled murrelet); and some are managed in British Columbia under the *Identified*

Wildlife Management Strategy (e.g. grizzly bears & marbled murrelets for which Wildlife Habitat Areas [WHA] may be established). Knowledge of various species habitats varies widely among the wildlife listed. For the many other species that occur in this landscape unit and are poorly understood, habitat requirements are generally managed within habitat provisions provided for primary species (e.g. black bears are expected to use habitats managed for grizzly bears) or through other regulations (e.g. riparian dependent birds and wildlife within riparian management areas).

Where OGMA's overlap with forest stands that are ranked as very high, high or moderate suitability for marbled murrelet habitat, they will not only provide key features important for murrelet nesting but also will provide habitat for other old forest dependent species not actively managed for.

For mountain goat and black-tailed deer, conservation of their critical winter range habitat is provided through establishment as Ungulate Winter Range (UWR) under FRPA. Winter range habitat for mountain goat has been identified, mapped and legally established. Winter habitat for black-tailed deer has not yet been adequately mapped, and its establishment is likely a few years away.

Bear River and its major tributaries support resident Dolly Varden char; and the lower river reportedly supports steelhead (FISS data). Resident rainbow trout populations also reside within the first 650m of Paradise River. Moh Creek supports resident Dolly Varden char and rainbow trout. As mentioned above, riparian reserve zones established and riparian management zone practices implemented under the *Forest and Range Practices Act* adjacent to these fish streams will help maintain fish and wildlife habitat.

4.2 Timber Resources

Commercially valuable tree species in the Bute West 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*), sitka spruce (*Picea sitchensis*), subalpine fir (*Abies lasiocarpa*), and deciduous species, such as bigleaf maple (*Acer macrophyllum*) and red alder (*Alnus rubra*). Timing of timber harvesting of these species is often tied to market conditions.

Forest management activities occur throughout all phases of forest development. Operational work includes pre-harvest planning, cutblock layout, road engineering and construction, harvesting and stand regeneration. Post harvest activities include planting, brushing, juvenile spacing, pruning, thinning and road deactivation or maintenance.

4.3 Private Land

There are five parcels of private land (total 92.6 ha) representing less than one percent of the total area of the landscape unit. A further 4 ha of Indian Reserve also exists. OGMAs were not located within private or reserve lands.

4.4 Water

There are no Community Watersheds within the Bute West Landscape Unit. There are three active water licences.

4.5 Recreation

Bute West is relatively remote and is only accessible by boat or aircraft. Due to its remoteness, the Bute West LU has limited backcountry recreation activity; although activities would include rock-climbing, mountaineering, angling, and hunting. Kayaking, sailing and wildlife viewing occur along Bute Inlet. A commercial lodge is located at the mouth of Bear River, it offers several outdoor experiences. The Bute West LU has no Provincial parks or protected areas.

4.6 Mineral Resource Values

Subsurface resources (minerals, coal, oil, gas and geothermal) and aggregate resources are valuable to the province, but deposits are difficult to characterize due to their hidden nature. Ongoing or future exploration by tenure holders within the few Bute West mineral tenures is the most likely way to understand the value of subsurface resources in this area.

5.0 Existing Strategic Level Plans

There are no existing strategic level plans for the Sunshine Coast Forest District.

6.0 First Nations

The Bute West LU is located within the asserted traditional territory of the Campbell River, Cape Mudge, Homalco, and Kwiakah First Nations. A four-hectare reserve is located near the mouth of the Bear River. Consultation with the First Nation and Treaty Society, in respect of their aboriginal interests related to this Landscape Unit plan, occurred initially in 2005, then again in 2009 and 2011. No comments were received. In general, since Landscape Unit planning is a conservation oriented initiative it is not expected to affect First Nations aboriginal rights or title, nor affect their traditional and

cultural activities (e.g. First Nations traditional and cultural activities are exempt from the Order).

7.0 OGMA Methodology

7.1 Existing Planning Processes

Landscape Units contain varying amounts of mature or old forested habitat that are provided by existing processes (e.g. UWR, WHA or inoperable areas), which build on ecosystem management at the landscape scale. OGMA's further contribute to this principle. Other practices, such as the establishment of stand level riparian reserve zones and wildlife tree patches, will improve connectivity at the stand scale but add support to initiatives aimed at the landscape scale. Providing dispersal opportunities and minimizing fragmentation is one objective.

An important part of the OGMA planning exercise was to ensure that these separate processes complemented each other. For example, OGMA's placed within or adjacent to areas that are highly constrained from harvesting will increase patch size. These larger patches allow greater opportunity to improve connectivity between adjacent patches. As well, larger patches (when appropriately designed) will provide forest interior habitat conditions important to many species and ecosystem processes.

The intent is to maintain a series of old forest habitat patches across probable movement corridors to allow wildlife dispersal and gene flow. Some species are particularly susceptible to mortality in winter and connecting or aggregating OGMA's may help facilitate movement to more suitable habitats; other species are much less mobile and rely on other dispersal mechanisms. Shorter distances between appropriate habitats helps facilitate the required genetic transfer. Stand level biodiversity measures together with landscape level OGMA's is a precautionary approach to manage for biodiversity and ecological values.

7.2 Assessment and Review

OGMA's were selected based on a review of several criteria and features. Individual forest stand attributes (e.g. age, stocking, site index, species composition, height class) was one of the factors since it was helpful in maximizing OGMA value from a biodiversity standpoint while minimizing timber supply impact. An approach guided strictly by age class or Allowable Annual Cut (AAC) contributions could result in the inclusion of stands of marginal biodiversity value and significant timber supply impact. To this end, effort was also extended to use forests from the non-contributing land base first for meeting OGMA objectives; and even when areas from the timber harvesting land base were required they were combined with non-contributing forests as much as possible. Air photo review and high resolution satellite imagery were also used to help

verify OGMA biodiversity value. Interfor carried out field verification on many of the polygons. In virtually all cases, open stands with low stocking/volume, small trees, or poor productivity were not considered for OGMA candidates since they were not representative of an average stand. Specific rationale for the selection of most OGMAs is shown in Appendix III.

Mountain goat, grizzly bear and marbled murrelet are of particular management concern in the Bute West LU. For each of these species, habitat inventory was sufficiently complete to allow consideration for including portions in OGMA when biologically appropriate. Where feasible, forested stands within and adjacent to these high value wildlife habitats was captured as OGMA to include old growth representation with a specific wildlife habitat requirement. This also reduced timber supply impact.

An ideal OGMA candidate, for example, was an area that provided important biological value to grizzly bear or mountain goat, contained representative mature or old forest habitat, and was also an under-represented ecosystem type. In keeping with the objective of spatially distributing OGMA across the landscape, and given that not all wildlife habitats contain contiguous old forest (e.g. some UWR is open and rocky or contains smaller trees), not all wildlife habitats with old growth stands have been included as OGMA. This ensures biodiversity representation is not concentrated in a particular stand type or area.

To allow capture of key marbled murrelet habitat features within OGMAs (that were not already in WHAs), forested areas of the Bute West LU that were previously ranked by a qualified surveyor for murrelet nesting value were evaluated. Habitat class ranking was based on the frequency and abundance of key habitat features, such as tall trees, small canopy gaps, patch size and presence of large moss covered limbs. When the opportunity presented itself, the stands categorized as having suitable nesting habitat and low harvest chance were captured in OGMAs.

In addition to including areas with specific forest stand attributes and wildlife habitat requirements, other factors, such as patch size, forest interior habitat, spatial distribution and connectivity were considered during OGMA delineation. Due to the fragmented nature of the Bute West landscape at both lower and higher elevations, opportunities to recruit larger patches to provide for forest interior conditions were fairly limited, yet efforts were made to achieve this objective. Measuring the amount of OGMA that will provide forest interior habitat is confounded by the eventual fate of adjacent forest. In some cases, forest stands adjacent to OGMAs may never be disturbed and the OGMA (no matter what size) will maintain forest interior habitat; however in other cases adjacent forest will be harvested creating an edge and forest interior habitat will only be provided in large OGMAs.

Specific to connectivity, two factors were considered. First, low to high elevation connections were viewed as important (e.g. riparian valley bottom to upslope), albeit

with limited opportunities due to disturbance history. To improve the likelihood of success with this measure, some riparian OGMA were increased in width and others were linked to upslope constrained areas by inclusion of younger stands. Narrow and small, isolated riparian strips were not considered acceptable candidates for OGMA due to their limited value at the landscape scale.

Second, linkages between watersheds in the landscape unit were maintained to the extent possible by maintaining OGMA distribution across the LU and not concentrating them in a particular drainage or map sheet. While in some cases, higher elevation forested areas are less disturbed and inaccessible or non-merchantable (and hence maintained by default) they can only sometimes provide connectivity between watersheds for dispersal and gene flow. Open alpine or ice-fields can form barriers for less mobile species. As such, purposeful placement of OGMA is important for connectivity opportunities between watersheds. As with riparian to upslope connectivity, the opportunity to achieve this objective was limited.

Where an OGMA candidate had suitable attributes extending into an adjacent BEC unit, most of the time the OGMA was designed to include forest from both areas. This approach significantly increased the biological value of the plan by increasing OGMA patch size, connectivity and distribution over the Landscape Unit.

In the lower elevation biogeoclimatic subzones/variants, such as CWHdm, CWHds1 and CWHvm1, past natural and human disturbances created a complex mosaic of age classes and mixed-age stands. Some stands included as OGMA are of mixed age if the old growth component is significant; and some OGMA are younger aged where insufficient old growth existed. In situations where 'recruitment' OGMA were necessary, attempts were made to add to other patches to increase size.

7.3 Boundary Mapping

OGMA boundaries used natural features wherever possible to ensure they could be located on the ground, and utilized forest stand boundaries wherever possible to reduce operational uncertainty and improve ease of OGMA mapping. In a few cases, roads or cutblock boundaries were used, both of which are easy to locate in the field.

OGMA were initially digitized and mapped using a 1:20,000 scale TRIM base. Satellite images, aerial photography and reconnaissance flights (summer 2003) were chiefly used to designate OGMA. During early OGMA identification, structural attributes of the stand, rather than forest cover information, were primarily used to determine appropriateness. To mitigate the issues of utilizing a number of mapping techniques, final OGMA were mapped with the aid of recent high resolution satellite images.

7.4 Amendment Policy

A MFLNRO South Coast Region policy provides 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 the relocation of OGMAs. The policy also discusses acceptable management activities and review procedures, and forms an integral part of this LU 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.

7.5 Mitigation of Timber Supply Impacts

During delineation of OGMAs for priority biodiversity provisions, an attempt was made to mitigate the short and long-term impacts on timber supply. Wherever feasible, OGMAs were located to minimize impacts on current or future harvesting opportunities while simultaneously ensuring suitable old growth representation was achieved. Agreement with Interfor was reached for OGMA location.

OGMAs were delineated first in the non-contributing forest land base. Specifically, where compatible with biodiversity objectives, management zones, riparian reserve zones, lower productivity sites, areas of difficult access, marginal economics and stands with specific wildlife habitat values were assessed for OGMA suitability.

Since representation must be at the subzone/variant level, the non-contributing land base (or other constrained areas) could not always satisfy old forest requirements. Where this occurred, encroachment into the THLB was discussed and rationalized with the biologist and logging engineers to ensure the most current operational and biological information was utilized. Generally, more THLB was required for OGMAs in lower elevation subzone/variants due to a longer disturbance history resulting in a significant portion of younger stands across the landscape.

During the LU planning process, careful consideration was made to ensure that access to timber beyond an OGMA was not cut off by its delineation. Future access corridors, where known, were left out of OGMAs; and OGMA boundaries were delineated to simplify adjacent management.

Although OGMAs were primarily delineated within the oldest available age class, old forest stands that were approved or proposed for harvesting on FSPs were excluded

from candidate OGMA following direction outlined in the *Landscape Unit Planning Guide*.

8.0 OGMA Analysis

The Bute West LU was ranked as an Intermediate Biodiversity Emphasis Option through the biodiversity value ranking process completed earlier. This Intermediate designation along with the BEC subzone/variant determines the minimum percentage of the Crown forested land base that will be designated as OGMA. Table 3 outlines the total amount of OGMA required and established in each subzone/variant and from which Crown forest category it is derived (i.e. Non Contributing-N; Timber Harvesting Land Base). The old growth target figures in Table 3 are derived from Appendix 2 in the *Landscape Unit Planning Guide*. A rationale for OGMA designation for the Bute West LU is provided within Appendix I.

Table 3. Old Growth Management Area (OGMA) Distribution

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	375.8	394.7	56.8	224.2	19.3	76.3	9.4	37.2	14.4	57.0	19.0
CWHds1	0.09	147.2	162.1	63.3	102.7	12.8	20.7	0.1	0.2	23.8	38.6	14.9
CWHms1	0.09	287.7	321.7	76.7	246.7	11.1	35.8	2.4	7.7	9.8	31.5	34.0
CWHvm1	0.13	486.9	500.4	39.4	197.1	13.0	65.0	31.4	157.3	16.2	81.0	13.5
CWHvm2	0.13	576.3	585.9	68.2	399.4	3.7	21.9	5.0	29.1	23.1	135.5	9.6
MHm1	0.19	208.2	219.1	51.8	113.5	1.3	2.9	0.4	0.9	46.5	101.9	10.9
MHm2	0.19	163.0	173.3	73.3	127.1	0.0		0.0		26.7	46.2	10.3
		2245.1	2357.3	59.9	1410.7	9.4	222.6	9.9	232.2	20.9	491.7	112.1

9.0 Landscape Unit Plan Objectives

Landscape unit objectives are to be legally established within the framework of FRPA and the *Land Act*. Other operational plans must be consistent with these objectives.

Appendix 1: OGMA Summary and Rationale – Bute West LU

OGMA #	Total Area (ha)	BEC	Area (ha) ⁷	Comments
5	20.6	CWHms1	12.4	Ungulate Winter Range, Old Forest Representation
5		MHmm2	8.2	Old Forest Representation, Ungulate Winter Range, Old Forest Representation
6	20.4	CWHds1	20.4	Ungulate Winter Range, Old Forest Representation
18	26.3	CWHds1	26.3	Recruitment , Ungulate Winter Range, Mature
22	6.5	CWHms1	6.5	Exemption for road, Old Forest Representation, Approved Wildlife Habitat Area
27	21.5	MHmm2	21.5	Old Forest Representation
30	8.6	CWHms1	5.4	Old Forest Representation
30		MHmm2	3.3	Old Forest Representation
32	3.6	CWHms1	0.1	
		MHmm2	3.5	Old Forest Representation
43	1.6	MHmm2	1.6	Old Forest Representation
44	14.9	CWHms1	13.6	Approved Wildlife Habitat Area, Old Forest Representation
44		MHmm2	1.2	Old Forest Representation
48	6.0	MHmm2	6.0	Approved Wildlife Habitat Area, Old Forest Representation
49	3.0	MHmm2	3.0	Old Forest Representation
51	4.1	CWHms1	4.1	Old Forest Representation
53	2.9	MHmm2	2.9	Old Forest Representation
56	3.8	CWHms1	3.8	Old Forest Representation
57	2.4	CWHms1	2.4	Approved Wildlife Habitat Area, Old Forest Representation
58	28.5	CWHms1	28.5	Approved Wildlife Habitat Area, Old Forest Representation
59	1.4	CWHms1	1.4	Approved Wildlife Habitat Area, Old Forest Representation
60	11.4	CWHms1	11.4	Ungulate Winter Range, Old Forest Representation
72	10.7	CWHms1	9.6	Ungulate Winter Range, Old Forest Representation
72		MHmm2	1.1	Ungulate Winter Range, Old Forest Representation

OGMA #	Total Area (ha)	BEC	Area (ha) ⁷	Comments
76	3.0	CWHds1	3.0	Ungulate Winter Range, Old Forest Representation
77	15.7	CWHms1	15.7	Ungulate Winter Range, Old Forest Representation
79	12.9	CWHds1	11.1	Mature, Old Forest Representation
79		CWHms1	1.7	Ungulate Winter Range, Old Forest Representation
80	26.4	CWHds1	26.4	Recruitment, Old Forest Representation, Draft Deer Winter Range
84	3.4	CWHms1	0.7	Old Forest Representation
84		MHmm2	2.8	Old Forest Representation
86	1.9	MHmm2	1.9	Old Forest Representation, Approved Wildlife Habitat Area
87	2.5	MHmm2	2.5	Old Forest Representation
90	30.3	CWHds1	17.4	Recruitment, Old Forest Representation, Ungulate Winter Range
90		CWHms1	12.9	Ungulate Winter Range, Old Forest Representation
91	18.2	CWHms1	7.5	Approved Wildlife Habitat Area, Old Forest Representation
91		MHmm2	10.7	Approved Wildlife Habitat Area, Old Forest Representation
92	1.8	MHmm2	1.8	Old Forest Representation
95	37.8	CWHms1	9.5	Old Forest Representation, Approved Wildlife Habitat Area
95		MHmm2	28.3	Old Forest Representation, Approved Wildlife Habitat Area
97	12.0	MHmm2	12.0	Old Forest Representation
99	4.1	CWHms1	2.6	Approved Wildlife Habitat Area, Old Forest Representation
99		MHmm2	1.5	Approved Wildlife Habitat Area, Old Forest Representation
100	34.1	CWHds1	21.9	Ungulate Winter Range
100		CWHms1	12.2	Ungulate Winter Range, Recruitment
101	15.4	CWHms1	6.8	Approved Wildlife Habitat Area, Old Forest Representation
101		MHmm2	8.6	Old Forest Representation
102	9.7	CWHms1	2.6	Old Forest Representation
102		MHmm2	7.2	Old Forest Representation
103	8.3	CWHms1	3.1	Old Forest Representation, Approved Wildlife Habitat Area
103		MHmm2	5.2	Old Forest Representation
104	5.0	MHmm2	5.0	Approved Wildlife Habitat Area, Old Forest Representation
107	15.8	CWHdm	15.8	Recruitment, Old Forest Representation
108	9.4	CWHvm2	8.6	Old Forest Representation

OGMA #	Total Area (ha)	BEC	Area (ha) ⁷	Comments
108		MHmm2	0.8	Old Forest Representation
109	4.8	CWHvm2	4.4	Old Forest Representation
109		MHmm2	0.5	Old Forest Representation
110	6.8	CWHvm1	6.8	Old Forest Representation, Recruitment
111	13.1	CWHvm1	10.5	Old Forest Representation
111		CWHvm2	2.6	Old Forest Representation
113	8.7	CWHvm2	8.3	Old Forest Representation, Ungulate Winter Range, Recruitment
113		MHmm1	0.5	Ungulate Winter Range, Old Forest Representation
114	12.1	CWHdm	11.7	Recruitment
114		CWHvm1	0.4	Recruitment
115	14.7	CWHdm	11.6	Old Forest Representation, Ungulate Winter Range, Recruitment
115		CWHvm1	3.2	Ungulate Winter Range, Old Forest Representation
116	6.9	CWHvm1	4.1	Old Forest Representation
116		CWHvm2	2.8	Old Forest Representation
117	51.7	CWHdm	51.7	Recruitment, Mature
121	9.0	CWHvm1	2.6	Ungulate Winter Range, Old Forest Representation
121		CWHvm2	6.5	Old Forest Representation
123	18.1	CWHvm2	18.1	Ungulate Winter Range, Old Forest Representation
124	32.5	CWHdm	0.1	Ungulate Winter Range, Mature
124		CWHvm1	24.2	Mature, Old Forest Representation, Ungulate Winter Range
124		CWHvm2	8.1	Ungulate Winter Range, Mature
125	12.6	CWHdm	12.6	Ungulate Winter Range, Recruitment
127	63.8	CWHvm2	63.8	Approved Wildlife Habitat Area, Old Forest Representation
130	9.8	CWHvm1	0.7	Recruitment, Ungulate Winter Range, Old Forest Representation
130		CWHvm2	8.7	Ungulate Winter Range, Old Forest Representation
130		MHmm1	0.3	Ungulate Winter Range, Old Forest Representation
131	9.2	CWHvm2	1.8	Old Forest Representation
131		MHmm1	7.4	Old Forest Representation
132	7.3	CWHvm1	5.6	Ungulate Winter Range, Mature
132		CWHvm2	1.7	Ungulate Winter Range, Mature

OGMA #	Total Area (ha)	BEC	Area (ha)⁷	Comments
133	11.1	CWHvm1	1.3	Ungulate Winter Range, Old Forest Representation
133		CWHvm2	9.6	Ungulate Winter Range, Old Forest Representation
133		MHmm1	0.2	Ungulate Winter Range, Old Forest Representation
138	17.3	CWHvm2	4.7	Old Forest Representation
138		MHmm1	12.7	Old Forest Representation
142	38.3	CWHvm1	22.1	Recruitment, Old Forest Representation
142		CWHvm2	16.2	Recruitment
144	150.2	CWHvm1	139.9	Recruitment, Mature, Old Forest Representation, Ungulate Winter Range
144		CWHvm2	10.3	Ungulate Winter Range, Old Forest Representation
145	4.6	CWHdm	4.6	Recruitment
146	6.6	CWHdm	1.4	Recruitment
146		CWHvm1	5.1	Recruitment
148	5.3	CWHvm1	0.8	Ungulate Winter Range, Old Forest Representation
148		CWHvm2	4.5	Ungulate Winter Range, Old Forest Representation
150	2.9	CWHvm1	2.9	Recruitment
158	14.7	CWHvm1	3.2	Mature
158		CWHvm2	7.4	Mature
158		MHmm1	4.2	Old Forest Representation
159	7.3	CWHdm	7.3	Recruitment, Mature, Old Forest Representation
160	15.5	CWHvm1	0.6	
		CWHvm2	14.8	Mature, Old Forest Representation
163	6.3	CWHdm	6.3	Recruitment, Mature
164	10.7	MHmm1	10.7	Recruitment
165	16.9	CWHvm2	6.2	Old Forest Representation
165		MHmm1	10.7	Old Forest Representation
166	3.3	CWHvm2	1.3	Old Forest Representation
166		MHmm1	2.1	Old Forest Representation
167	12.9	CWHvm1	12.9	Old Forest Representation
168	13.0	CWHvm2	13.0	Mature, Old Forest Representation
169	15.5	CWHdm	11.5	Exemption for road

OGMA #	Total Area (ha)	BEC	Area (ha) ⁷	Comments
169		CWHvm1	4.0	Mature
170	19.9	CWHdm	19.9	Recruitment, Mature
171	3.2	CWHvm1	3.2	Old Forest Representation
172	5.1	CWHvm1	5.1	Mature
173	2.4	CWHdm	2.4	Recruitment, Mature
174	13.3	CWHvm1	13.3	Recruitment, Old Forest Representation
175	59.6	CWHdm	53.4	Recruitment, Mature, Old Forest Representation, Draft Deer Winter Range
175		CWHvm1	6.3	Recruitment, Mature, Old Forest Representation
176	5.7	CWHvm2	2.9	Old Forest Representation
176		MHmm1	2.8	Old Forest Representation
178	3.2	CWHvm1	3.2	Mature, Old Forest Representation
180	11.7	CWHvm2	7.3	Recruitment, Old Forest Representation
180		MHmm1	4.5	Old Forest Representation
182	2.7	CWHdm	2.7	Recruitment
183	9.4	CWHvm1	9.4	Recruitment, Mature, Old Forest Representation
184	4.7	MHmm1	4.7	Old Forest Representation
185	5.9	CWHvm1	0.1	Old Forest Representation
185		CWHvm2	5.3	Old Forest Representation
185		MHmm1	0.5	Old Forest Representation
187	1.0	MHmm1	1.0	Old Forest Representation
188	1.5	MHmm1	1.5	Old Forest Representation
189	10.5	CWHvm2	5.5	Old Forest Representation
189		MHmm1	4.9	Old Forest Representation
190	4.9	CWHvm1	4.9	Recruitment, Mature, Old Forest Representation
191	3.7	CWHvm2	0.5	Old Forest Representation
191		MHmm1	3.1	Old Forest Representation
192	2.9	CWHvm2	0.4	Old Forest Representation
192		MHmm1	2.5	Old Forest Representation
193	10.9	CWHvm2	6.5	Old Forest Representation
193		MHmm1	4.4	Old Forest Representation

OGMA #	Total Area (ha)	BEC	Area (ha) ⁷	Comments
194	67.8	CWHvm2	43.0	Old Forest Representation
194		MHmm1	24.5	Old Forest Representation
194		MHmm2	0.3	Old Forest Representation
197	1.1	CWHvm2	0.2	Old Forest Representation
197		MHmm1	1.0	Old Forest Representation
198	6.8	CWHvm1	6.8	Mature, Old Forest Representation , Recruitment
200	15.4	CWHdm	12.4	Recruitment
200		CWHvm1	3.0	Recruitment, Old Forest Representation, Draft Deer Winter Range
201	2.6	CWHvm1	0.1	Old Forest Representation
201		CWHvm2	2.5	Old Forest Representation
202	5.2	CWHvm1	5.2	Recruitment, Mature
203	14.1	CWHvm2	8.1	Old Forest Representation
203		MHmm1	5.3	Old Forest Representation
203		MHmm2	0.7	Old Forest Representation
204	6.0	CWHvm1	2.8	Recruitment, Old Forest Representation
204		CWHvm2	3.2	Old Forest Representation
205	2.5	CWHvm2	2.5	Old Forest Representation
206	2.6	CWHvm1	2.6	Recruitment
207	4.1	CWHvm2	0.5	Old Forest Representation
207		MHmm1	3.6	Old Forest Representation
208	19.9	CWHvm2	19.9	Mature, Old Forest Representation
209	3.7	CWHvm1	3.7	Recruitment, Old Forest Representation
210	3.3	CWHvm1	3.3	Old Forest Representation
213	10.5	CWHvm2	6.4	Old Forest Representation
213		MHmm1	4.0	Old Forest Representation
213		MHmm2	0.1	Old Forest Representation
214	30.4	CWHdm	30.0	Recruitment, Mature, Old Forest Representation
214		CWHvm1	0.4	Old Forest Representation
215	4.0	CWHvm2	2.9	Old Forest Representation
215		MHmm1	1.1	Recruitment, Old Forest Representation

OGMA #	Total Area (ha)	BEC	Area (ha) ⁷	Comments
217	6.7	CWHdm	6.7	Draft Deer Winter Range
222	15.2	CWHdm	13.1	Draft Deer Winter Range, Recruitment, Old Forest Representation
222		CWHvm1	2.1	Old Forest Representation
224	2.7	CWHvm1	1.6	Recruitment
224		CWHvm1	1.1	Old Forest Representation
227	22.4	CWHvm2	20.3	Recruitment, Old Forest Representation
227		MHm1	2.1	Old Forest Representation
232	21.1	CWHvm1	16.5	Old Forest Representation, Recruitment
232		CWHvm2	4.6	Old Forest Representation
235	6.3	CWHvm1	3.2	Recruitment
235		CWHvm2	3.1	Recruitment
238	4.3	CWHvm2	4.3	Old Forest Representation, Recruitment
239	6.3	CWHvm1	4.9	Old Forest Representation
239		CWHvm2	1.4	Old Forest Representation
240	4.4	CWHvm1	1.0	Recruitment
240		CWHvm2	3.4	Recruitment
241	3.3	CWHdm	3.3	Recruitment
242	39.4	CWHvm1	16.6	Old Forest Representation
242		CWHvm2	16.0	Old Forest Representation
242		MHm1	6.8	Old Forest Representation
243	4.2	CWHdm	4.2	Recruitment
244	60.7	CWHvm1	39.5	Recruitment, Old Forest Representation
244		CWHvm2	21.2	Recruitment, Old Forest Representation
245	4.0	CWHvm1	2.5	Recruitment, Old Forest Representation
245		CWHvm2	1.4	Recruitment, Old Forest Representation
248	3.0	CWHvm2	3.0	Old Forest Representation
251	26.5	CWHdm	1.1	Old Forest Representation
251		CWHvm1	24.3	Old Forest Representation
251		CWHvm2	1.1	Old Forest Representation
256	13.2	CWHdm	5.1	Recruitment, Old Forest Representation

OGMA #	Total Area (ha)	BEC	Area (ha) ⁷	Comments
256		CWHvm1	8.1	Recruitment, Old Forest Representation
258	3.5	CWHdm	3.5	Old Forest Representation
260	2.0	CWHdm	2.0	Old Forest Representation, Recruitment
261	6.5	CWHvm2	3.9	Old Forest Representation
261		MHmm1	2.5	Old Forest Representation
263	15.4	CWHvm2	7.7	Old Forest Representation
263		MHmm1	7.7	Old Forest Representation
264	32.5	CWHvm2	10.5	Recruitment
264		MHmm1	22.1	Old Forest Representation
265	38.5	CWHvm1	11.6	Old Forest Representation, Recruitment
265		CWHvm2	26.9	Old Forest Representation, Recruitment
265		MHmm1	0.1	Old Forest Representation
266	4.9	CWHvm2	0.1	Old Forest Representation
266		MHmm1	4.8	Old Forest Representation
270	5.3	CWHvm2	1.1	Old Forest Representation
270		MHmm1	4.2	Old Forest Representation
271	26.1	CWHvm2	4.6	Old Forest Representation
271		MHmm1	21.0	Old Forest Representation
271		MHmm2	0.5	Old Forest Representation
272	11.4	CWHdm	11.4	Old Forest Representation, Recruitment
274	19.3	CWHvm2	5.9	Old Forest Representation, Recruitment
274		MHmm1	13.4	Old Forest Representation, Recruitment
276	42.1	CWHdm	40.1	Old Forest Representation, Recruitment
276		CWHvm1	2.0	Old Forest Representation
277	25.8	CWHvm1	0.2	Recruitment, Old Forest Representation
277		CWHvm2	16.9	Recruitment
277		MHmm1	8.7	Old Forest Representation
279	21.2	CWHdm	21.2	Mature, Recruitment
280	5.6	CWHdm	5.6	Mature, Recruitment
281	7.6	CWHms1	1.4	

OGMA #	Total Area (ha)	BEC	Area (ha)⁷	Comments
281		MHmm2	6.1	Approved Wildlife Habitat Area, Old Forest Representation
283	3.8	CWHdm	3.8	Recruitment
284	16.4	CWHms1	16.4	Ungulate Winter Range, Old Forest Representation, Approved Wildlife Habitat Area
285	14.2	CWHms1	0.1	Approved Wildlife Habitat Area, Old Forest Representation
285		MHmm2	14.2	Old Forest Representation
286	6.2	CWHms1	6.2	Approved Wildlife Habitat Area, Old Forest Representation
288	27.1	CWHms1	25.8	Ungulate Winter Range, Old Forest Representation, Approved Wildlife Habitat Area
288		MHmm2	1.4	Ungulate Winter Range, Old Forest Representation
289	38.2	CWHms1	38.2	Approved Wildlife Habitat Area, Old Forest Representation
290	17.5	CWHms1	16.6	Draft Ungulate Winter Range, Old Forest Representation
290		MHmm2	1.0	Old Forest Representation
291	15.9	CWHms1	15.8	Ungulate Winter Range, Old Forest Representation
291		MHmm2	0.1	Ungulate Winter Range, Old Forest Representation
292	2.8	CWHms1	2.8	Exemption for road, Approved Wildlife Habitat Area, Old Forest Representation
295	21.4	CWHds1	18.0	Ungulate Winter Range, Old Forest Representation
295		CWHms1	3.4	Ungulate Winter Range, Old Forest Representation
296	14.3	CWHds1	5.9	Ungulate Winter Range, Old Forest Representation, Draft Deer Winter Range
296		CWHms1	8.4	Ungulate Winter Range, Old Forest Representation, Draft Deer Winter Range
299	24.0	CWHds1	11.7	Ungulate Winter Range, Old Forest Representation, Draft Deer Winter Range
299		CWHms1	12.4	Ungulate Winter Range, Old Forest Representation
300	31.9	CWHdm	5.5	Ungulate Winter Range, Recruitment
300		CWHvm1	14.1	Ungulate Winter Range, Recruitment
300		CWHvm2	12.3	Ungulate Winter Range, Recruitment
301	7.5	MHmm2	7.5	Approved Wildlife Habitat Area, Old Forest Representation
302	11.4	CWHvm2	3.8	Ungulate Winter Range, Old Forest Representation
302		MHmm1	7.6	Ungulate Winter Range, Old Forest Representation
997	20.5	CWHdm	12.5	Ungulate Winter Range, Recruitment
997		CWHvm1	8.0	Ungulate Winter Range, Recruitment
998	4.6	CWHdm	0.5	Ungulate Winter Range, Recruitment
998		CWHvm1	4.0	Ungulate Winter Range, Recruitment

OGMA #	Total Area (ha)	BEC	Area (ha)⁷	Comments
999	60.5	CWHvm1	1.6	Ungulate Winter Range, Old Forest Representation
999		CWHvm2	58.9	Ungulate Winter Range, Old Forest Representation
1001	26.2	CWHvm1	14.5	Ungulate Winter Range, Old Forest Representation
1001		CWHvm2	11.7	Ungulate Winter Range, Old Forest Representation

Appendix 2: List of Acronyms

AAC	Allowable Annual Cut
BEC	Biogeoclimatic Ecosystem Classification
BEO	Biodiversity Emphasis Option
FPC	Forest Practices Code of British Columbia Act
FRPA	Forest and Range Practices Act
ILMB	Integrated Land Management Bureau
LU	Landscape Unit
LUPG	Landscape Unit Planning Guide
MFLNRO	Ministry of Forests, Lands and Natural Resource Operations
MOE	Ministry of Environment
MFR	Ministry of Forests and Range
NDT	Natural Disturbance Type
OGMA	Old Growth Management Area
THLB	Timber Harvesting Land Base
UWR	Ungulate Winter Range
WHA	Wildlife Habitat Area
WTR	Wildlife Tree Retention

Appendix 3: First Nations Consultation and Public Review Summary

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

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

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