

Jervis Landscape Unit Plan
For Old Growth Management Areas



**Ministry of Forests, Lands and
Natural Resource Operations**

South Coast Region

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Executive Summary

The Jervis Landscape Unit (LU) is situated on the eastern and northern sides of Jervis Inlet which is located on the Southern Mainland Coast. The Landscape Unit covers a total of 62,355 hectares (ha), 54% of which is classified as forest. The LU includes the Coastal Western Hemlock (CWH) and Mountain Hemlock (MH) Biogeoclimatic Ecosystem Classification (BEC) zones and natural disturbance types 1 and 2 (NDT1 and NDT2)¹. The Jervis Landscape Unit has been assigned an Intermediate Biodiversity Emphasis option (BEO). Old seral forest representation targets are based on a percentage of productive forest by BEC unit. Old seral representation targets have been achieved through the spatial delineation of Old Growth Management Areas (OGMA) that are a combination of old forest and recruitment forest.

The old seral forest representation target for the CWH dm was 671 ha and 709 ha have been delineated in OGMA.

The old seral forest representation target for the CWH vm1 was 720 ha and 735 ha have been delineated in OGMA.

The old seral forest representation target for CWH vm2 was 1,752 ha and 1,808 ha have been delineated in OGMA.

The old seral forest representation target for the MH mm1 was 1,116 ha and 1,138 ha have been delineated in OGMA.

The old seral forest representation target for the MH mm2 was 20 ha and 113 ha have been delineated in OGMA.

The amount of old forest retained is based on a percentage of the amount of forested area existing in a specified BEC variant in the landscape unit.

To mitigate potential negative impacts on the future timber supply, areas with potential future harvest opportunity were identified. Ungulate Winter Ranges (UWR) for mountain goats were established for the Sunshine Coast Timber Supply Area in 2012. An effort was made to reduce the impact on the future timber supply by collocating OGMA with these UWR areas where suitable forest exists. Areas identified as Class 1, 2 or 3 marbled murrelet habitat, both in the THLB and in the non-contributing (NC) were also given high priority for inclusion as OGMA.

¹ 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)>

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1.0 Introduction

Landscape Unit Plans are to provide direction on biodiversity particular to old forest retention at both the landscape and stand levels. 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 them².

Planning for old growth management areas (OGMA) is recognized as a high priority for the province. Landscape Unit (LU) planning is an important component of the Forest Range Practices Act (FRPA) that provides the legal framework for legal establishment of objectives to address landscape and stand 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 also provides important benefits including the protection of water quality, soils, and ecosystem processes. Although not all elements of biodiversity can be, or should be managed on every hectare, a broad geographic distribution of old growth ecosystems is necessary to help sustain the genetic and functional diversity of native species across their historic ranges.

The Jervis LU has been assigned a Biodiversity Emphasis Option (BEO) rating of intermediate. This report describes the biodiversity conservation management strategy for the Jervis LU and associated OGMA objectives consistent with priority biodiversity as outlined in the Landscape Unit Planning Guide.

Reference material on government policy, planning processes and biodiversity concepts associated with Landscape Unit planning include:

Ministry of Sustainable Resource Management, Coast Region, Lower Mainland:
Landscape Unit Planning Standards, March 2004

1995 Biodiversity Guidebook

<http://www.for.gov.bc.ca/tasb/legsregs/fpc/fpcguide/biodiv/biotoc.htm>

1999 Landscape Unit Planning Guide

http://ilmbwww.gov.bc.ca/lup/srmp/background/lup_landscape.html

Sustainable Resource Management Planning Framework: A Landscape-level Strategy for Resource Development

<http://ilmbwww.gov.bc.ca/lup/srmp/doc/SRMPI-May1-Final-Web1.pdf>

1999 Vancouver Forest Region Landscape Unit Planning Strategy, Vancouver Forest Region Landscape Unit Planning Document, Nanaimo, BC

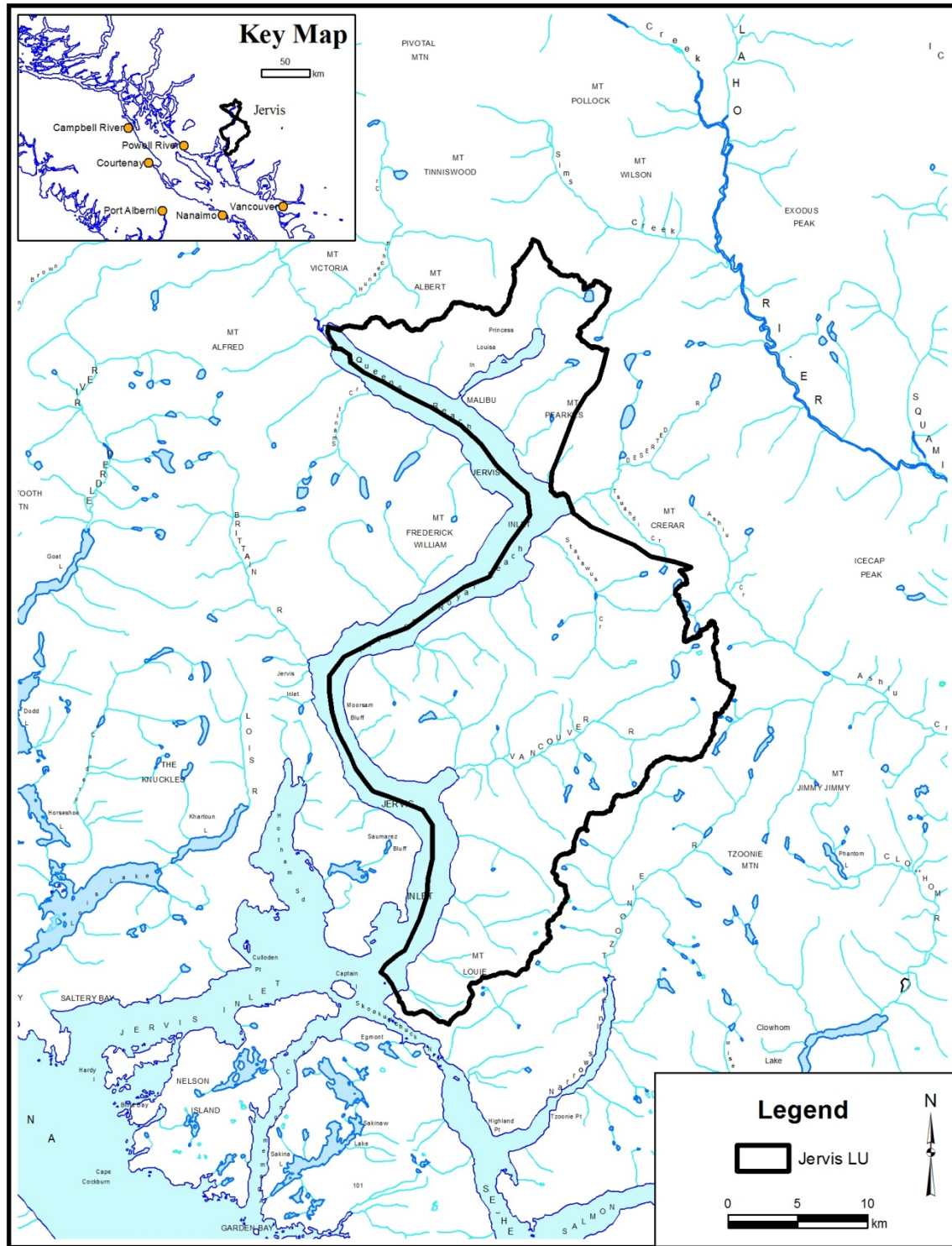
² from BC Ministry of Forests and BC Environment. 1995. Biodiversity Guidebook.

2.0 Jervis Landscape Unit Description

The Jervis LU is situated on the eastern and northern side of Jervis Inlet and includes Princess Louisa Inlet (Figure 1). The LU covers a total area of 62,297 ha and is characterized by rugged topography with steep mountainous terrain, deep river valleys and marine coastline. A large portion of the Landscape Unit is undisturbed due to its steep, rugged terrain while the lower elevations are characterized by early mature stands, created by fire and harvesting history.

Of the total area 33,771 ha (54%) are within the Crown Forested Land Base (CFLB) with 18,505 ha in the Timber Harvesting Land Base (THLB) and 15,266 in the Non-Contributing Land Base (NCLB). The remaining 28,526 ha (46%) of the LU are classified as non-forested or non-Crown (rock, alpine tundra, water, private land, etc.) and have been excluded from OGMA target calculations. There are some instances where portions of OGMA are within areas incorrectly classified as non-forested.

FIGURE 1. Location of the Jervis Landscape Unit



JERVIS LANDSCAPE UNIT

2.1 Biophysical

The Jervis Landscape Unit is within the Pacific Ranges ecoregion³. Predominantly, its climate is maritime, with warm, dry summers and wet, mild winters. The majority of precipitation occurs in the fall and winter, which at higher elevations creates a snow pack that feeds the Landscape Unit stream network.

There are four Biogeoclimatic (BEC) subzones or variants within the landscape unit, which fall within two natural disturbance types (NDTs)⁴. The Coastal Western Hemlock Zone – submontane very wet maritime variant (CWH vm1) and montane very wet maritime variant (CWH vm2) as well as the Mountain Hemlock Zone – windward moist maritime variant (MH mm1) fall within NDT 1. The Coastal Western Hemlock Mountain Hemlock zone – dry maritime subzone (CWH dm) lies in NDT 2

In the lower elevation variants, within NDT1 and 2, the Jervis Landscape Unit 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 age class 9 old seral forest remaining within these BEC variants reflects this disturbance history. A significant portion, 53%, of the forest within the Landscape Unit is comprised of stands that are less than 140 years old.

³ 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.

⁴ 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).

2.2 Summary of Land Status

Land status within the Jervis Landscape Unit is summarised in Table 1. There are 3,654 ha of private land and 114 ha of Indian Reserve within the Jervis Landscape Unit which has been excluded from the OGMA selection process.

TABLE 1. Land Status of the Jervis Landscape Unit

Code	Ownership Class	Total Area (ha)	Total of LU (%)	Crown Forested Land Base (ha)	Excluded Area (ha)
40N	Private	3,619	6	-	3,619
50N	Federal Reserve	21		-	21
52N	Indian Reserve	114		-	114
61N	Crown UREP	32		32	-
62C	TSA or PSYU	55,879	90	32,075	23,804
63N	Provincial Park	943	1	584	359
70N	Timber Licenses	1,689	3	1,075	614
Totals		62,297	100	33,776	28,531

note: differences in totals (≤ 1 ha) are due to rounding

Table 1 includes area that is not reported on in subsequent tables because it does not contribute to OGMA targets. This excluded land base primarily consists of non-Crown, non-forest, and non-productive forest.

TABLE 2. Land Status using Crown Forest Land Base Classification within the Jervis Landscape Unit

BEC Unit	Total Area (ha)	Crown Forested Land Base (ha)	Timber Harvesting Landbase (Ha)	Non-Contributing Landbase (Ha)	Excluded Land Base
AT p	14,643	1,431	254	1,177	13,326
CWH dm	10,223	7,494	4,866	2,628	2,771
CWH vm 1	5,840	5,537	4,515	1,022	306
CWH vm 2	18,512	13,492	7,373	6,119	5,070
MH mm 1	12,966	5,836	1,560	4,276	7,093
MH mm 1	113	106	0	106	7
TOTAL	62,297	33,771	18,505	15,266	28,526

note: differences in totals (≤ 1 ha) are due to rounding

Table 2 provides a summary based on biogeoclimatic ecosystem classification (BEC) variant. Old seral representation targets (which are the basis of OGMA's) described later in this report (Table 3) are applied by BEC variant to ensure the OGMA's are distributed across each BEC variant thereby ensuring adequate protection of each variant. Targets are determined and applied based on the crown forest area in each BEC variant.

Table 2 also describes land base classification used in Timber Supply Review 3. These classifications attempt to estimate the amount of forest area that is expected to contribute to timber supply – this is the area frequently referred to as the Timber Harvesting Land Base (THLB). THLB information is used in Landscape Unit planning and OGMA delineation to minimize impacts on timber supply. It is important to note, however, that operationally the harvestable area does not correlate one-to-one with the THLB. While

the THLB and the actual harvestable area would ideally be the same, the reality is that the inventories and assumptions used to identify the THLB area are not always accurate and/or correct at an operational scale. This problem is further compounded by the economics of timber harvesting which change often and can vary significantly from one year to the next. This makes the process of identifying Old Growth Management Areas that have the least impact on timber supply challenging. There is usually some harvesting of forest that did not contribute to timber supply forecast used in the last AAC determination. In the Jervis Landscape Unit approximately 29% of the harvest typically comes from land base outside the THLB. As a result it is possible that OGMA delineation can have an impact on timber supply greater than that anticipated based on a “THLB impact” assessment.

Alpine (AT p) is included in Table 2 to account for all area in the Landscape Unit. Old growth targets are not set for this ecotype as it is predominantly non-forest and does not make up part of the productive forest land base. However, it is possible that small forested areas may be captured in the alpine, and where analysis determines that they are suitable for biodiversity conservation may be selected as OGMAs.

3.0 Key Resource Tenure Holders

The planning process included the identification of other key resource(s) tenure holdings including those administered by agencies such as the Ministry of Forests Lands and Natural Resource Operations (FLNR), Ministry of Energy and Mines.

3.1 Forest Tenure Holders

The majority of the Crown forested land base in the Jervis Landscape Unit is subject to Forest Licenses held by International Forest Products Limited, A&A Trading Limited and Northwest Hardwoods.

The OGMAs described in this report were selected to minimize OGMA placement in areas identified as future harvest opportunities by major tenure holders operating within the Landscape Unit.

3.2 Mining Tenure Holders

There are six mineral tenures within the Jervis Landscape Unit. OGMA numbers 114, 115, 119, 126 and 140 overlap with Mineral 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 impacting old growth values, then a suitable replacement OGMA will be identified.

4.0 Significant Resource Values

4.1 Wildlife and Fisheries

The Identified Wildlife Management Strategy (2004) includes a list of 85 wildlife species and subspecies that are considered to be at risk. These species require special management of critical habitat to maintain or restore populations or distributions. The primary mechanisms for protecting this habitat are through the designation of Wildlife Habitat Areas (WHA) or Ungulate Winter Ranges (UWR) established under the Government Actions Regulation. Not all 85 of these species have a range that is within the geographic area covered in this plan. Wildlife resources of primary management concern in the Homfray Landscape Unit include marbled murrelet (*Brachyramphus marmoratus*), mountain goat (*Oreamnos americanus*) grizzly bear (*Ursus arctos*) and Northern Goshawk (*Accipiter gentilis laingi*).

Potential marbled murrelet nesting habitat was mapped within the Jervis Landscape Unit consistent with the *Standard Methods for Identifying Marbled Murrelet Habitat in British Columbia Using Air Photo Interpretation and Low-level Aerial Survey*⁵. Stands suitable for marbled murrelet nesting habitat have attributes that also make them suitable for selection as OGMA's. They are typically old growth stands or mature stands that have old growth attributes. Overlap with wildlife habitat such as marbled murrelet is a coarse filter consideration in OGMA delineations and where appropriate it has occurred.

The Jervis Landscape Unit is also an important area for mountain goats and Columbia black-tailed deer (*Odocoileus hemionus columbianus*). Winter range habitat for mountain goats was legally established as Ungulate Winter Range (UWR) in 2012. Established UWRs containing stands suitable for old forest representation were considered for selection as OGMAs to maximise conservation benefits while minimising overall impacts.

Various riparian systems in the Jervis Landscape Unit system support populations of resident cutthroat trout (*Oncorhynchus clarki clarki*), rainbow trout (*Oncorhynchus mykiss*), Dolly Varden char (*Salvelinus malma*) and both summer and winter steelhead (*Oncorhynchus mykiss*) trout runs. Anadromous salmon also spawn in the some of these rivers, including coho (*Oncorhynchus kisutch*), chinook (*Oncorhynchus tshawytscha*), pink (*Oncorhynchus gorbuscha*) and chum (*Oncorhynchus keta*) salmon. Current regulations applicable to riparian areas under the Forest Planning and Practices Regulation (FPPR) along with Forest Stewardship Plan (FSP) riparian results and strategies will manage for the effectiveness and function of the riparian values associated with these and other riparian areas within the Landscape Unit. OGMAs have been delineated in or adjacent to riparian areas where suitable forest stand structure exists.

⁵ 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.

4.2 Timber Resources

The THLB in the Jervis Landscape Unit is estimated at 18,568 ha. Removals from the productive forest land base include various netdowns including inoperable terrain, avalanche tracks, riparian reductions and WHAs. Despite the history of timber harvesting and fire disturbance, harvesting opportunities still exist and are complemented as second growth timber harvesting becomes more prevalent.

Tree species in the Jervis Landscape Unit include Douglas-fir (*Pseudotsuga menziesii*), western redcedar (*Thuja plicata*), western hemlock (*Tsuga heterophylla*), lodgepole pine (*Pinus contorta*), amabilis fir (*Abies amabilis*), subalpine fir (*Abies lasiocarpa*), sitka spruce (*Picea sitchensis*), yellow-cedar (*Chamaecyparis nootkatensis*), mountain hemlock (*Tsuga mertensiana*) and deciduous species [such as bigleaf maple (*Acer macrophyllum*) and red alder (*Alnus rubra*)].

4.3 Water Quality

The Helena Community Watershed (CWS) is the only designated CWS within the Jervis Landscape Unit. It is 579 hectares and is located near Princess Louisa Inlet. No OGMAs have been selected within the Helena community watershed.

4.4 Recreation

Recreation opportunities within the Jervis Landscape Unit are limited by the remote location; however it is a popular destination for boaters. Recreation opportunities include, but are not limited to rock-climbing, mountaineering, angling, hunting, kayaking, sailing and wildlife viewing.

4.5 Mineral Resource Values

Subsurface resources (minerals, coal, oil, gas and geothermal) and aggregate resources are valuable to the province, but are difficult to characterize. Exploration and development activities related to mineral and gas extraction are permitted in OGMAs and therefore establishment of OGMAs will not impact the status of these permits or tenures.

5.0 Existing Higher Level Plans

Landscape Unit Plan objectives must be consistent with direction in established higher level plans applicable to the plan area. There currently is no designated higher level plan for the Sunshine Coast Forest District that pertains to the Jervis Landscape Unit.

6.0 First Nations

The Jervis Landscape Unit is located within the traditional territory of the *Shíshálh* (*Sechelt*) Nation. The *Shíshálh* Nation has been consulted with regarding this Landscape Unit Plan and associated Order and OGMA.

Establishment of OGMA will not affect First Nations Aboriginal rights and title, or affect traditional cultural activities.

There are two Indian Reserves in the Landscape Unit; one at the mouth of the Vancouver River, and one at the mouth of the Deserted River.

7.0 OGMA Methodologies

7.1 Selection of OGMA

The Landscape Unit Planning Guide (LUPG), dated March 1999 provides direction for selecting suitable OGMA candidate stands which maximizes their value to biodiversity conservation. Ecological suitability, managing Identified Wildlife species, ungulate winter range and ecosystem representation are priority selection criteria. An important part of the OGMA selection process, is to ensure that separate planning processes complement each other.

In addition to including areas with specific habitat requirements, other factors, such as patch size, distribution and connectivity were considered during OGMA delineation. Due to the fragmented nature of the Jervis landscape, opportunities to recruit larger patches to provide for forest interior conditions were favoured over smaller patches. Efforts were made to ensure OGMA were distributed throughout the Landscape Unit.

Recruitment:

In order to provide long term temporal and spatial distribution of OGMA across the landscape recruitment areas were selected. In the lower elevation biogeoclimatic zones, such as CWH dm and CWH vm1, the past disturbance history required a recruitment strategy to be developed. The majority of the remaining old growth exists on the steep, dry slopes along the marine coastline.

In the low, flat valley bottom habitat types important to many wildlife species, less suitable patches of old growth remain compared to the higher variants. To mitigate this situation, a recruitment strategy was developed to incorporate this biologically valuable habitat into OGMA. The recruitment strategy enhances the diversity by incorporating younger stands that display old growth characteristics but also includes high value wildlife habitat.

Although connectivity is not a primary objective in biodiversity planning (see *Landscape Unit Planning Guide*), it was considered when delineating OGMA in the Jervis. Connectivity opportunities from lower to higher elevations may only exist in a few areas due to the contiguous lower elevation disturbance history. Also, the inaccessible and

higher elevation areas are largely old growth. With the inclusion of the younger aged stands in the constrained forest, such as within riparian reserve zones, the connectivity between lower and higher elevation OGMA's will be maintained and improve over time.

An analysis was completed to identify stands that were greater than 200 years old. Although not characterized as old growth by forest inventory criteria, these older stands, tend to have attributes that are consistent with old growth stands. These attributes may be exhibited as veterans (old growth trees that survived past disturbance events), secondary layers or as smaller subunits that are a mosaic of different age classes (B. Smart, 2008). Based on the high biodiversity value of these stands, they were considered to be of equal conservation value to old forest stands for the purposes of OGMA selection. Where OGMA's include stands greater than 200 years old, this information is provided as part of the rationale in Appendix 1.

Wildlife:

Certain wildlife species are particularly susceptible to mortality in winter and connecting or aggregating OGMA's may help facilitate movement. There are currently no WHA's established in the Jervis Landscape Unit.

UWRs for mountain goat were established for the Sunshine Coast in 2012. In order to reduce the impact on the future timber supply, stands suitable for selection as old forest representation within UWR areas were delineated as OGMA's.

Areas identified as Class 1, 2 or 3 marbled murrelet habitat, both in the THLB and in the non-contributing portion of the land base were also given high priority for inclusion as OGMA's.

Timber Supply Impacts:

To mitigate substantial effects on the future timber supply, timber that is viewed as operationally uneconomical for timber harvesting due to its high accessibility cost and low timber value located within the THLB was targeted for inclusion in OGMA's. OGMA's were selected, where ecologically suitable, to overlap with areas that are otherwise unavailable for timber harvesting such as within or adjacent to proposed ungulate winter range or high value marbled murrelet habitat. This resulted in larger patches which then allows for greater opportunity to maintain connectivity between adjacent patches and provide movement corridors to allow wildlife dispersal and minimize the impacts to the timber supply.

By incorporating on the ground knowledge, old growth targets were easily achieved in the CWH vm2, and MH mm1. Most of these OGMA's were delineated to be contiguous with OGMA's in the adjacent lower elevation CWH vm1 variant. These OGMA's in these BEC variants significantly increases the biological value of this plan by increasing OGMA patch size, connectivity and distribution over the Landscape Unit.

7.2 Boundary Mapping

Forest cover polygons were found to be too inaccurate to be used for Landscape Unit Planning purposes. Forest cover polygons, when overlaid with satellite images and TRIM data were seen to include large areas of non-forested land, and the forest polygon boundaries were not aligned properly. The misalignment was not due to a GIS projection or coordinate shift. Data associated with these forest cover polygons was, therefore, not spatially correct and will not represent the contents of the delineated OGMA polygons.

OGMA boundaries were delineated using satellite imagery, ortho imagery 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.

7.3 Assessment and Review

OGMAs were selected in the Jervis Landscape Unit based on a review of stand attributes in an effort to maximize their value from a biodiversity standpoint while minimizing timber supply impact. Spatial distribution throughout the Landscape Unit was also a selection criterion. Satellite images, aerial photography and input from field staff with a great deal of local knowledge were used to designate OGMAs to verify the presence of desirable old seral characteristics. Structural attributes of the stand were used to determine its sufficiency as OGMA rather than relying solely on forest cover information. Specific rationale for the selection of each OGMA is in Appendix 1.

7.4 Amendment Policy

A FLNR 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.

8.0 OGMA Mitigation of Timber Supply Impacts

During delineation of OGMA's it was a priority to avoid short and long-term impacts on timber supply. OGMA's were delineated first in the forest least likely to be harvested. Where this component of the forest did not satisfy the OGMA retention requirements, portions of the harvestable land base which includes THLB were assessed and included as OGMA's. Generally, more harvestable land base was required in the lower elevation variants due to greater disturbance history. In some circumstances younger stands were selected for inclusion in OGMA's over older stands where the conservation value was assessed and determined to be equal or greater than that of the older stands. This recruitment strategy was instrumental in mitigating the future impacts to the timber supply while meeting the biodiversity objectives in the Jervis Landscape Unit.

To mitigate loss or isolation of future timber supply access corridors were left out of OGMA's. Old forest stands that were approved for harvesting on Forest Development Plans (FDP) were excluded from candidate OGMA's following direction outlined in the *Landscape Unit Planning Guide*.

9.0 OGMA Analysis

The Jarvis Landscape Unit was ranked as an Intermediate biodiversity emphasis through the biodiversity value ranking process completed for the Sunshine Coast⁶. This Intermediate designation along with the BEC variant determines the percentage of the Crown forest land base that will be designated as OGMA.

A rationale for OGMA designation for the Jarvis Landscape Unit is provided in Appendix 1. The location of proposed OGMAs is identified in the maps that are a part of this plan.

Table 3 outlines the total amount of OGMA required in each variant and from which biogeoclimatic zone. The OGMAs delineated as part of the Jarvis Landscape Unit Plan meet the old growth targets consistent with those targets specified in the Landscape Unit Planning Guide. The table illustrates that only 1% of the OGMAs delineated in the plan are located in the THLB. Part of the reason for this apparent low impact is that Table 3 is derived from the most recent Timber Supply Review (TSR3) data which excluded the draft OGMAs from the THLB. The OGMAs delineated in this LUP are very similar to the draft OGMAs used in TSR3.

TABLE 3. Old Growth Management Areas: Targets and Established

BEC	Old Growth Target (%)	Old Growth Target (ha)	Established OGMA (ha)	OGMA in THLB		OGMA in NCLB & Excluded	
				(ha)	Of total OGMA %	(ha)	% of total OGMA
CWH dm	9	671	709	38	5	671	95
CWH vm 1	13	720	735	12	2	723	98
CWH vm 2	13	1,752	1,808	67	4	1,741	96
MH mm 1	19	1,116	1,138	10	1	1,128	99
MH mm 2	19	20	113	0	0	113	100
Total		4,278	4,503	127	3	4,376	97

Note: Differences in totals (1 ha) are due to rounding.

⁶ see the *Vancouver Forest Region Landscape Unit Planning Strategy*, 1999

APPENDIX 1. OGMA Summary and Rationale

OGMA Number	Total Area (ha)	Rationale
1	24.8	Old forest representation
2	194.3	Old forest representation, age class 8: 200+, class 2 and 3 marbled murrelet habitat, shoreline, draft UWR JE 21, proposed MAMU WHA, some recruitment that overlaps with suitable MAMU habitat
3	16.4	Age class 8: 200+, draft UWR JE 20
4	21.6	Old forest representation, draft UWR JE 20
5	6.9	Old forest representation
6	10.0	Old forest representation, age class 8, class 1 & 2 marbled murrelet habitat, proposed MAMU WHA, lakeshore
7	9.1	Age class 8: 200+, draft UWR JE 1, lakeshore
8	22.5	Old forest representation, age class 8: 200+, class 1 & 3 marbled murrelet habitat, proposed MAMU WHA, lakeshore
9	3.5	Age class 8: 200+, proposed MAMU WHA, class 1 marbled murrelet habitat, riparian
10	21.3	Age class 8:200+, class 2 marbled murrelet habitat , draft UWR JE 1
11	31.2	Age class 8:200+, class 2&3 marbled murrelet habitat, proposed MAMU WHA
12	54.6	Age class 8:200+, draft UWR JE 1
13	14.6	Old forest representation, class 3 marbled murrelet habitat
14	9.9	Age class 8, shoreline
15	5.6	Old forest representation
16	25.8	Old forest representation, recruitment (age class 4) that is suitable MAMU habitat, riparian, class 2& 3 marbled murrelet habitat, proposed MAMU WHA, draft UWR JE 16
17	34.6	Old forest representation, recruitment (age class 5), class 1 & 2 marbled murrelet habitat, riparian
18	13.4	Old forest representation, age class 8: 200+, class 3 marbled murrelet habitat, draft UWR JE 12
19	50.0	Old forest representation, age class 8: 200+, draft UWR JE 13
21	5.0	Old forest representation, class 2 marbled murrelet habitat
22	11.4	Age class 8: 200+, class 1, 2 & 3 marbled murrelet habitat, proposed MAMU WHA, riparian
24	129.9	Old forest representation, age class 8: 200+, draft UWR JE 31, close to shoreline, rocky open patches but it is representative of forest stands in this area
25	10.2	Recruitment (age class 6), class 3 marbled murrelet habitat, shoreline
26	13.1	Old forest representation
29	24.1	Old forest representation
30	12.3	Old forest representation, class 2 & 3 marbled murrelet habitat, proposed MAMU WHA, draft UWR JE 16
31	7.9	Old forest representation, class 3 marbled murrelet habitat, riparian
33	25.9	Old forest representation, age class 8:200+, class 3, marbled murrelet habitat, proposed MAMU WHA
34	3.1	Old forest representation, class 3 marbled murrelet habitat
36	40.2	Old forest representation, lakeshore
37	33.6	Old forest representation, class 3 marbled murrelet habitat, proposed MAMU WHA
38	209.2	Old forest representation, class 3 marbled murrelet habitat, proposed MAMU WHA, draft UWR JE 19
39	4.8	Old forest representation, class 3 marbled murrelet habitat
41	21.8	Old forest, rocky open patches but it is representative of forest stands in this area
42	11.6	Old forest representation, class 3 marbled murrelet habitat
43	82.0	Old forest representation, class 2 & 3 marbled murrelet habitat, riparian, draft UWR JE19
44	13.2	Age class 8: 200+
45	8.0	Old forest representation, class 3 marbled murrelet habitat

OGMA Number	Total Area (ha)	Rationale
46	12.5	Old forest representation
47	67.6	Old forest representation, class 3 marbled murrelet habitat
48	16.2	Old forest representation, class 3 marbled murrelet habitat, proposed MAMU WHA
49	77.2	Old forest representation, class 1, 2 & 3 marbled murrelet habitat, riparian, proposed MAMU WHA
51	10.2	Old forest representation, draft UWR JE 21
52	70.4	Old forest representation, class 3 marbled murrelet habitat, proposed MAMU WHA
53	12.7	Old forest representation
56	501	Old forest representation, class 2 & 3 marbled murrelet habitat, proposed MAMU WHA, draft UWR JE 29, riparian
57	7.0	Old forest representation, draft UWR JE 21
58	9.9	Old forest representation, draft UWR JE 21
59	18.2	Old forest representation, draft UWR JE 21
60	6.8	Age class 8: 200+, draft UWR JE 27
61	10.5	Old forest representation, class 3 marbled murrelet habitat
62	116.5	Old forest representation, Age class 8: 200+, draft UWR JE 27 & 23
63	24.3	Old forest representation, class 3 marbled murrelet habitat, lakeshore
64	3.7	Old forest representation, draft UWR JE 21
65	27.8	Age class 8: 200_, draft UWR JE 23
66	19.5	Old forest representation
68	26.8	Old forest representation, draft UWR JE 23
69	18.2	Old forest representation, draft UWR JE 24
71	4.0	Old forest representation, draft UWR JE 29
73	35.7	Old forest representation, class 2 & 3 marbled murrelet habitat, proposed MAMU WHA
74	1.7	Age class 8, 200 +, draft UWR JE23, part of Larger complex with OGMA 65 and 127
75	23.5	Old forest representation
77	25.8	Old forest representation, age class 8: 200+, MAMU 3
78	13.9	Old forest representation, class 3 marbled murrelet habitat, proposed MAMU WHA, draft UWR JE 26, shoreline
79	33.7	Old forest representation, class 3 marbled murrelet habitat
80	32.6	Old forest representation, class 3 marbled murrelet habitat, proposed MAMU WHA, riparian
81	55.8	Old forest representation , draft UWR JE 31
82	49.5	Old forest representation, class 2 & 3 marbled murrelet habitat, proposed MAMU WHA
83	6.5	Old forest representation, draft UWR JE 30
84	325.4	Old forest representation, class 2 & 3 marbled murrelet habitat, some lakeshore, riparian
85	92.0	Old forest representation, class 3 marbled murrelet habitat, riparian
86	13.0	Old forest representation, draft UWR JE 31
88	16.0	Old forest representation , draft UWR JE 31
89	64.9	Old forest representation, class 2 & 3 marbled murrelet habitat
90	10.0	Old forest representation, MAMU 3, draft UWR JE 31
91	29.1	Old forest representation, shoreline, draft UWR JE 31
92	32.3	Old forest representation, class 3 marbled murrelet habitat, riparian
93	51.3	Old forest representation, class 2 & 3 marbled murrelet habitat
94	20.4	Old forest representation, class 3 marbled murrelet habitat
95	22.0	Old forest representation, class 3 marbled murrelet habitat
96	30.7	Old forest representation, class 2 & 3 marbled murrelet habitat

OGMA Number	Total Area (ha)	Rationale
97	46.5	Old forest representation , class 3 marbled murrelet habitat
98	87.0	Old forest representation
99	13.9	Old, class 3 marbled murrelet habitat
100	107.9	Old forest representation, class 3 marbled murrelet habitat
101	23.6	Age class 8, recruitment (age class 5), class 3 marbled murrelet habitat, riparian, near estuary
102	25.8	Old forest representation , lakeshore
103	8.9	Old forest representation
104	26.3	Old forest representation
105	20.3	Old forest representation , class 3 marbled murrelet habitat, riparian, shoreline
106	31.9	Old forest representation
107	15.3	Old forest representation, shoreline
108	12.5	Old forest representation
109	23.4	Old forest representation, class 3 marbled murrelet habitat, riparian
110	13.7	Old, near shoreline
111	11.3	Old forest representation
112	9.7	Old forest representation
113	13.9	Old forest representation, class 3 marbled murrelet habitat, riparian
114	17.5	Old forest representation
115	8.2	Old forest representation
116	13.9	Old forest representation
118	24.7	Age class 8: 200+, draft UWR JE 1
119	11	Old forest representation
121	32.2	Age class 8: 200+, draft UWR JE 9
122	11.4	Old forest representation
123	50.9	Old forest representation, class 3 marbled murrelet habitat, draft UWR JE 17
125	25.3	Old forest representation, class 3 marbled murrelet habitat
126	40.4	Age class 8: 200+
127	29.2	Age class 8: 200+, draft UWR JE 23
129	40.1	Old forest representation
130	3.9	Old forest representation , draft UWR JE 18
131	23.9	Old forest representation, draft UWR Je 18
132	6.7	Age class 8: 200+, class 2 marbled murrelet habitat, riparian
133	14.2	Old forest representation
134	94.7	Recruitment (age class 4, 5, & 7), class 3 marbled murrelet habitat, riparian
135	8.2	Age class 8: 200+, draft UWR JE 10
136	6.4	Old forest representation
137	18.9	Old, lakeshore
138	8.1	Old forest representation
139	6.8	Age class 8, class 3 marbled murrelet habitat
140	17.7	Age class 8, class 3 marbled murrelet habitat, riparian
142	39.2	Old forest representation
143	8.0	Age class 8
144	3.2	Old forest representation , draft UWR
146	24.4	Old forest representation, recruitment
147	11.2	Recruitment, riparian

OGMA Number	Total Area (ha)	Rationale
148	4.2	Recruitment
149	19.8	Old forest representation, recruitment, Princess Louisa Park
150	24.0	Age class 8, Princess Louisa Park
151	4.5	Age class 8, Princess Louisa Park
152	5.0	Old forest representation, island within Princess Louisa Park
153	25.4	Old forest representation, recruitment, Princess Louisa Park
154	4.6	Old forest representation, draft UWR JE 24
155	23.8	Old forest representation, recruitment
156	15.3	Old forest representation
Grand Total	4,503.0	

APPENDIX 2. Public Consultation Summary

Advertising was placed in the following publications: BC Gazette (December 24, 2013), Campbell River Mirror (December 20, 2013), Powell River Peak (December 20, 2013), Sechelt Reporter (December 20, 2013). The public consultation period was set for December 20, 2013 to February 18, 2014. This period was extended until March 20, 2014 at the request of the Sunshine Coast Conservation Association.

Date	Received From	Comment Summary	Reply
Jan. 16, 2014	Billy Griffith Egmont, BC	Support establishment of OGMA's.	Acknowledgement and thanks.
Feb. 17, 2014	Sunshine Coast Regional District	Recommendation to include overlays of areas designated for harvesting, a summary of OGMA's in Parks and "unharvestable" areas. Plan does not consider Grizzly Bear or Wolf Habitat.	Acknowledgement and thanks.
Feb. 18, 2014	Ken WU Ancient Forest Alliance	Support for expansion of OGMA's on the Sunshine Coast. Encourages establishment of OGMA's in lower elevations. As well as in yellow cedar stands such as Dakota Bowl (not part of these 5 LUs).	Minister's Response Letter: Acknowledgement and thanks. Explanation of OGMA Targets. Informing of recent establishment of 2 new OGMA's in the Dakota Bowl area.
Mar. 3, 2014	Dwight Yochim, RPF Truck Loggers Association	Working Forest already constrained. What is target for OGMA's? Is the OGMA coming from THLB or existing protected areas?	Explanation of the OGMA targets. Advised we have worked very closely with the licensees in order to meet the required targets without unduly reducing the timber supply. Advised OGMA's have been co-located in other constrained areas.
Mar. 20, 2014	Lannie Keller & Eve Flager Discovery Islands Ecosystem Advocacy	Extensive review comments largely on policy and procedures issues. A request to be advised if and when Draft plans will be revised.	Acknowledgement and thanks. Advised that revisions to Draft LUPs as a result of their comments not anticipated.
Mar. 20, 2014	Jason Herz Sunshine Coast Conservation Association	Extensive review comments largely on policy and procedures issues. Some Specific recommendations on Salmon LU.	Acknowledgement and thanks. Advised that revisions to Draft LUPs as a result of their comments not anticipated.