

Integrated Land Management Bureau, Coast Region
Johnstone Strait Sustainable Resource Management Plan
Biodiversity Chapter
for the
Tsitika Landscape Unit

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1.0 Introduction

This report describes the biodiversity conservation plan for the Tsitika Landscape Unit (LU) and includes the associated legal objectives for old growth retention. A description of the planning unit, discussion on significant resource values, and an Old Growth Management Area (OGMA) summary are provided.

Biological diversity 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, 115 species or subspecies of known vertebrates and 364 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).

Planning to maintain biodiversity occurs at a variety of levels, all of which are linked hierarchically. At the provincial level, biodiversity conservation is broadly achieved through provincial parks and the Protected Area Strategy, while at the regional level, the Vancouver Island Land Use Plan gives guidance and legal direction to finer levels of strategic planning, in this case, landscape and stand level conservation of old growth forests.

Planning for the conservation of OGMA biodiversity values is recognized as a high priority for the province. LU planning is supported by the *Forest and Range Practices Act (FRPA)* and the *Land Act* provides for the legal establishment of objectives to address landscape level biodiversity values.

Implementation of this strategic planning initiative is intended to help sustain certain biodiversity values. Managing for biodiversity through retention of old growth forests is not only important for wildlife, but can also provide important benefits to ecosystem management, protection of water quality and preservation of other natural forest resources. Although not all elements of biodiversity can be, or need to 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 Campbell River Forest District has completed LU boundaries for Vancouver Island and established Biodiversity Emphasis Options (BEOs) in accordance with the direction

¹ FPC Biodiversity Guidebook, September 1995
<http://www.for.gov.bc.ca/tasb/legsregs/fpc/fpcguide/biodiv/biotoc.htm>

² BC Species and Ecosystems Explorer. Victoria, British Columbia, Canada. Available:
<http://www.env.gov.bc.ca/atrisk/toolintro.html>

provided by government. Current government direction requires that priority biodiversity provisions, particularly the delineation of OGMAs, must be undertaken as one of the FRPA objectives required by government. This work was completed by the Integrated Land Management Bureau (formerly initiated by the Ministry of Sustainable Resource Management) in conjunction with BC Timber Sales and Western Forest Products Limited (formerly Cascadia Forest Products Limited TFL 39, Weyerhaeuser and previously MacMillan Blodell Limited).

As a replacement for Wildlife Tree Patch Retention policy in the Landscape Unit Planning Guide, the specifications for Wildlife Tree Retention (WTR objectives) are now covered separately under the new *FRPA* Forest Planning and Practices Regulation (FPPR), Part 4, Division 5, Section 66.

<http://www.for.gov.bc.ca/tasb/legsregs/archive/fpc/fpcact/part4-5.htm>

Supporting documentation regarding government policy, planning processes and biodiversity concepts are provided in the following documents:

- 1995 *Biodiversity Guidebook*,
<http://www.for.gov.bc.ca/tasb/legsregs/fpc/fpcguide/biodiv/biotoc.htm>
- 1999 Landscape Unit Planning Guide (LUPG),
http://archive.ilmb.gov.bc.ca/slrp/srmp/Background/lup_landscape.html
- Vancouver Forest Region Landscape Unit Planning Strategy (1999),
Vancouver Forest region Planning Document, Nanaimo, B.C.
- Vancouver Island Land Use Plan (Feb. 2000)
http://archive.ilmb.gov.bc.ca/slrp/lrmp/nanaimo/vancouver_island/index.html
- the associated VILUP Higher Level Plan Order (Dec. 2000),
http://archive.ilmb.gov.bc.ca/slrp/lrmp/nanaimo/vancouver_island/plan/vihlp.htm
- Sustainable Resource Management Planning: Standards for Creating, implementing and Administering Sustainable Resource Management Plans
http://archive.ilmb.gov.bc.ca/slrp/lrmp/policiesguidelinesandassessments/docs/SRMP_applied_standards_guide.pdf

2.0 Tsitika LU Description

2.1 Tsitika LU Biophysical Description

The Tsitika LU is situated within the Northern Island Mountains Ecosection on north-central Vancouver Island. The total landscape unit area is approximately 33,300 ha, of which 82% is covered by productive forest. The LU is composed of one main riparian system, the Tsitika River, with several large tributaries. The most productive forests occur at lower elevations and, especially, at the mouth of the Tsitika river. This is a very rugged, mountainous LU with large areas of subalpine and alpine forest. The highest point in the LU is approximately 1650 m above sea level. Dominant tree species in the LU are western hemlock, amabilis fir and western red cedar, with smaller amounts of yellow cedar at higher elevations. Pacific yew is present, but not dominant. The local climate is dominated by maritime influence, with cool summers and stormy, wet winters. Although most precipitation occurs as rain, large snow accumulations may occur at higher elevations. Average annual precipitation at Duncan Bay, the nearest climate recording center, is 162 centimetres. Based on biogeoclimatic classification, it is expected that average annual precipitation within the LU would be greater than that reported for Duncan Bay.

The location of the Tsitika LU on Vancouver Island is shown in figure 1

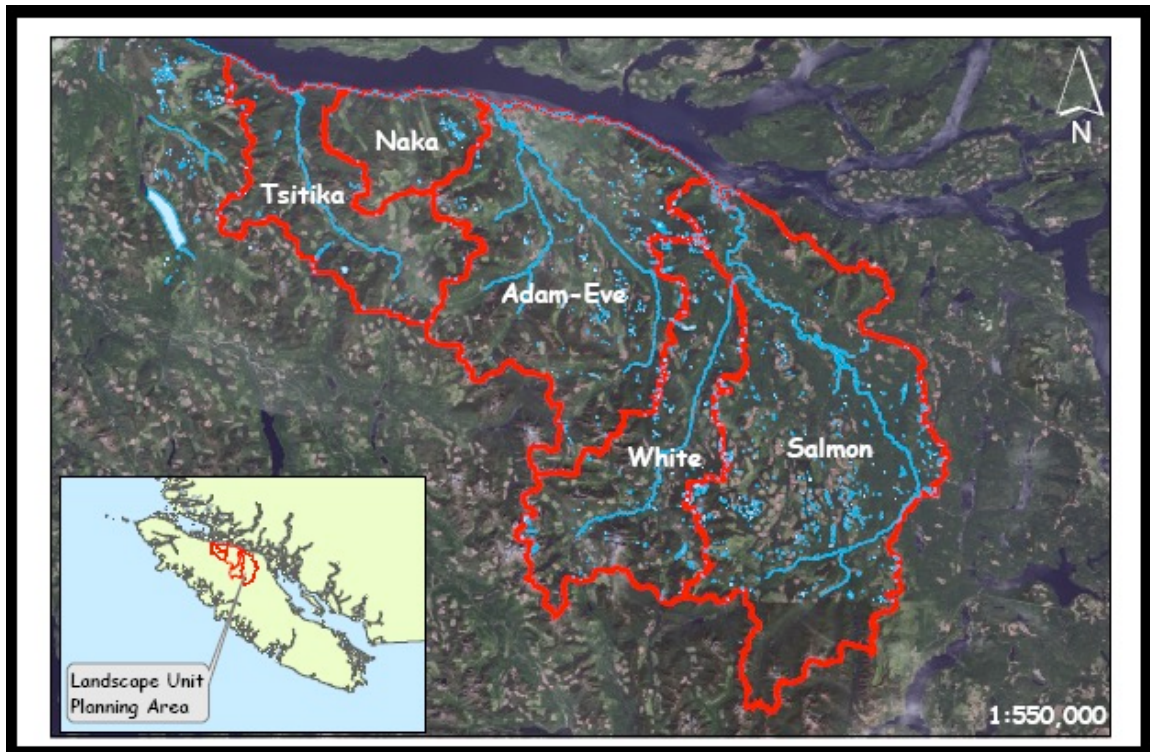


Figure 1 Tsitika Landscape Unit, Northeastern Vancouver Island

The Coastal Western Hemlock (CWH) and Mountain Hemlock (MH) Biogeoclimatic Ecosystem Classification (BEC) Zones cover the Tsitika landscape unit. The CWH is sub-divided into the CWHvm1 (submontane very wet maritime) and the CWHvm2 (montane very wet maritime). The only biogeoclimatic variant recognized at higher elevation is the MHmm1 (windward moist maritime variant). One natural disturbance type (NDT 1) ³ is dominant, representing mixed conifer, old growth forest ecosystems with uneven-aged stands. Natural regeneration typically occurs after the death of individual trees, or small patches of trees. Some unclassified NDT3 may certainly be present where periodic catastrophic wind disturbances have affected larger stands of trees.

2.2 Summary of Land Status

Land status within the Tsitika LU is summarized in Table 1.

Table 2 Land Status of the Tsitika Landscape Unit

Land Status of the Tsitika Landscape Unit		
Ownership	Hectares	Percentage
BC Timber Sales (TFL 39 BLK 2)	27,299	82
Protected Areas: including Robson Bight, Mount Elliot, Tsitika River, Claude Elliot Lake and Claude Elliot Creek Provincial Parks	6,005	18
Total	33,304	100

3.0 Key Resource Tenure Holders

Tenure holdings include forest tenures administered by the Ministry of Forests BC Timber Sales Program, mineral tenures administered by the Ministry of Energy, Mines and Petroleum Resources and other resource tenures administered by the Ministry of

³ FPC Biodiversity Guidebook, September 1995

Agriculture and Lands. With tenure holders, other than forestry, the planning strategy generally aims to avoid placement of OGMAs within existing tenures. With regard to forest tenures the management intent is to avoid placement of OGMAs over cutblocks and roads that have received approval status.

3.1 Forest Tenure Holders

The LU plan area, apart from protected areas, is covered entirely by BC Timber Sales which was allocated the area following provincially authorized take back from Cascadia's Tree Farm Licence 39, Block 2 (formerly Weyerhaeuser). Extensive iterative review and discussion with Weyerhaeuser staff in 2001-2004 took place to ensure that the intent of this LUP was conveyed and that impacts on future planned development were minimized. Planning discussions with BCTS continued during 2003-2008, particularly with regard to addressing marbled murrelet habitat protection.

3.2 Mining Tenure Holders

In the Tsitika LU, 47% of the western portion of the LU has high metallic and industrial mineral potential, 48% in the centre and eastern portions of the LU is low metallic and industrial mineral potential and to the very east there is 5% of the LU which has moderate metallic potential and low industrial mineral potential. There is one known mineral occurrence, a granite showing, located south of the Tsitika River and north of Mt. Elliot.

Exploration and development activities are permitted in OGMA's. The preference is to proceed with exploration and development in a way that would be sensitive to the old growth values of the OGMA. If exploration and development proceed to the point of significantly impacting old growth values, then the OGMA status would be moved and re-designated elsewhere.

4.0 Significant Resource Values

4.1 Fish, Wildlife and Biodiversity

Anadromous fisheries values are considered high in the Tsitika River. Riparian reserve zones adjacent to fish streams and established as per the *FRPA* FPPR Part 4, Division 3 Section 47 will help maintain a significant amount of riparian fish and wildlife habitat associated with forested ecosystems. These riparian areas provide additional opportunities to conserve old growth values.

Wildlife resources of primary management concern in the Tsitika LU include: black tailed deer, eagles, black bear, northern goshawk, *Accipiter gentiles laingi* (nogo), and

marbled murrelet, *Brachyramphus marmoratus* (mamu). The northern goshawk and the marbled murrelet are the primary species at risk that are recognized as “Identified Wildlife”⁴ in this landscape unit. There are, currently, two wildlife habitat areas (WHAs) included as OGMAs that will provide habitat suitable for northern goshawk. There are also two WHAs included as OGMAs which are highly suitable for providing marbled murrelet nesting habitat. Additional WHA areas may be proposed in the future for both nogo and/or mamu. Many other species occur in the area including numerous forest birds, other raptors, small mammals, amphibians and furbearers, but their habitat requirements are generally managed within a mixture of forested seral stages distributed across the landscape.

4.2 Timber Resources

The timber harvesting land base (THLB) in the Tsitika LU was estimated to be approximately 18,500 ha as of April 2006. This estimate was done prior to the addition of the 1402 ha of TFL 25, formerly classified as part of the Naka Landscape Unit, to the Tsitika Landscape Unit. The addition included 734 ha of productive forest and 668 ha of non contributing land including non productive forest, scrub timber, rock, ice and riparian OGMA. The amount of old forest greater than 225 years of age in Protected Area is approximately 5,700 ha. The high operability factor relative to more rugged parts of the west coast of British Columbia establishes the importance of the localized timber resource values. Whereas approximately 40% of the THLB has already been harvested, continued access to commercially valuable timber, including future second growth, is a significant economic and social interest. Relatively low-impact, first pass harvesting of accessible old growth timber will continue for the foreseeable future.

Commercially valuable tree species in the Tsitika LU are western red cedar, western hemlock, amabilis fir, and yellow cedar. Based on forest cover information, Table 2 shows the age class distribution of old forest within productive landbase of the Tsitika LU. There are currently over 20,300 ha of old seral forest (225 years and older) remaining in the Tsitika LU.

⁴ Volume 1 of the *Identified Wildlife Management Strategy* includes a list of 36 wildlife species and 4 plant communities that are considered to be at risk. These species or plant communities require special management of critical habitat to maintain or restore populations or distributions. Critical habitat is protected within Wildlife Habitat Areas. See the *Identified Wildlife Management Strategy Volume 1 February 1999* for more information.

Table 2 Seral Stage Distribution of Productive Forest within the Tsitika LU

BEC Variant	Early Seral 1 - 60 yrs	Mid Seral 61 -120 yrs	Mature Seral 121 - 224	Old Seral 225 +yrs
CWH vm1	4678.69	294.76	137.13	5014.34
CWH vm2	1380.40	130.72	96.60	6001.23
MH mm1	233.60	3.92	78.37	3240.37
CMA unp	0.11	0.00	1.86	136.82
Total	6292.80	429.41	313.96	14,392.77

4.3 Private Land

There is no private land found within the Tsitika LU.

5.0 Existing Higher Level Plans

5.1 Legally Binding Direction

Legally binding Higher Level Plan (HLP) objectives are one provision that enable specific forest resource management objectives to direct operational planning. Hierarchically, landscape unit objectives must be consistent with established Higher Level Plan Resource Management Zone (RMZ) objectives.

There are no HLP objectives that apply to the Tsitika General Management Zone (RMZ 26). The HLP objectives which apply to the Johnstone Strait Special Management Zone (SMZ 7) and the Tsitika River Special Management Zone (SMZ 8) are summarized below and details provided in Appendix 1:

For SMZ 7 and SMZ 8:

- The target for mature seral forest should range between one quarter to one third of the forested area of each SMZ and

- Retain, within cutblocks, structural forest attributes and elements with important biodiversity functions.

Specifically for SMZ 7:

- Maintain the visual quality of known scenic areas in accordance with the recommended visual quality classes in the visual landscape inventory, until the district manager establishes visual quality objectives for the area.

Specifically for SMZ 8:

- Retain late-successional habitat elements and attributes of biodiversity in patches of variable size; and
- Maintain late-successional habitat elements and attributes of biodiversity in forested ecosystems with emphasis on regionally rare and underrepresented ecosystems, by retaining old seral forest at the site series/surrogate level of representation.

5.1.1 SMZ 7 Location and Values

The Johnstone Strait SMZ extends along the coastline of Johnstone Strait from the vicinity of Telegraph Cove southeast to the western boundary of Robson Bight Provincial Park. The area covered by SMZ 7 is approximately 3150 ha.

Primary values are recognized as maintenance of scenic values as visible from coastal areas, maintenance of old growth biodiversity values, maintenance of critical fish and wildlife habitat, and maintenance of coastal recreation opportunities. Further details regarding primary and secondary management objectives are provided in the Vancouver Island Summary Land use Plan.

5.1.2 SMZ 8 Location and Values

The Tsitika River SMZ extends from the southern boundary of Robson Bight Provincial Park south along the Tsitika River, predominantly on the west side of the river, as far as Mount Elliott Ecological Reserve. The SMZ also bounds Claude Elliott Lake Provincial Park and Claude Elliott Creek Ecological Reserve. The area covered by SMZ 8 is approximately 5100 ha.

Primary values are recognized as the maintenance of old growth biodiversity and connectivity functions, and maintenance of critical fish and wildlife habitat. Further details regarding primary and secondary management objectives are provided in the Vancouver Island Summary Land use Plan.

5.2 Non-binding HLP Direction

The Vancouver Island Summary Land Use Plan (VISLUP) includes additional direction for the Tsitika LU. Recommended objectives are provided which recognize both timber and non-timber resource values.

5.2.1 SMZ 7

Primary management objectives are listed which are considered as policy guidance to address the following values in the Johnstone Strait SMZ: visual resources, recreation, tourism, fisheries, biodiversity, and watershed management. Secondary objectives are for timber, wildlife, and cultural heritage resources.

5.2.2 SMZ 8

Primary management objectives for the Tsitika River SMZ are listed as wildlife (deer and elk winter range), fisheries resources including a steelhead run into Fickle Lake, biodiversity conservation, and watershed management. Secondary objectives are for timber production, visual resource management, recreation and tourism resources, and cultural heritage resources.

5.2.3 GMZ 26

The remainder of the Tsitika LU, excluding the protected areas and SMZ's, is designated as Resource Management Zone 26 under the VILUP HLP Order. The size of this RMZ is approximately 29000 ha with the overall management direction recognizes the need to maintain wildlife, fish, and biodiversity values, while integrating management for timber and other resources. Further details regarding objectives and strategies are provided in the Vancouver Island Summary Land Use Plan.

5.3 SMZ 7 and 8 Mature Seral Target

The target HLP objective for mature seral forest requires retention of, at minimum, one quarter to one third of the forested area of each SMZ being greater than 80 years of age. The structure of mature seral forest is expected to be more complex than younger, mid-seral forests, and exhibit tree canopy complexity that varies vertically, or horizontally, or both. Although mature forests are precursors to becoming old growth forests, the specific age at which a mature seral forest stand changes to old, cannot truly be tied to one

specific age, and is recognized as being dependent on local site features influenced by climate, soils and terrain. Consequently, the mature seral target may include a contribution of old seral forest, particularly from those stands captured in OGMA, or from other constrained areas. In Special Management Zones with a low supply of old seral forest, the requirements will be greater to retain more mature seral forest.

The mature plus old component of SMZs 7 is nearly 100% with no recent logging disturbance and possibly a small amount of mid seral forest (41-80 years) from past shoreline logging. The mature plus old component of SMZ 8 is 76 %⁵.

5.4 SMZ 7 and 8 Patch Size Distribution

The patch size distribution for all OGMA in the Tsitika LU is presented in Appendix 4 and demonstrates that a variety of OGMA sizes have been designated. Visual analysis of the size and distribution of OGMA in SMZs 7 and 8 indicates a satisfactory range in patch sizes, pattern and distribution.

5.5 SMZ 8 Site Series mapping

Retaining old seral forest at the site series or surrogate level of representation is required in the Tsitika River SMZ. The spatially diverse representation of ecosystems throughout the SMZ should be ensured through the retention of large patches of riparian forest reserves; stand level retention practices; protection of four large ungulate winter ranges; and incorporation of other areas from the non-contributing landbase retained in OGMA.

6.0 First Nations

The Tsitika LU is located within the traditional territory of the Tlowitsis First Nation and two of the Laich-Kwil-Tach Treaty Society member bands, namely, the Campbell River Band and the Cape Mudge Band. The Tsitika LU also includes a small portion of the asserted traditional territory of the Namgis First Nation.

7.0 OGMA Methodology

7.1 Integrating other values in OGMA selection

The Tsitika LU contains a broad distribution of old seral forest habitat from which to build on for old growth representation. This includes a variety of forest types such as ecologically suitable

⁵ Percent Mature and Old Growth of total area for each SMZ.

old growth forest habitats in various protected areas, areas within the two Special Management Zones subject to harvest constraints which accommodate other resource values, ungulate winter ranges, as well as other forested areas including riparian reserve zones and gully complexes, and numerous areas of inoperable, uneconomic and inaccessible forest.

Landscape Unit			Potential marbled murrelet nesting habitat				
			conserved in OGMA and Protected Area				
	BEO	Total ha of OGMA with mamu habitat plus Protected Area with mamu habitat	Class 1 % conserved	Class 2 % conserved	Class 3 % conserved	Class 4 % conserved	Total % of mamu habitat protected in LU
Tsitika	High	964 + 536 Class 1-3	70%	38%	37%	Not included	39% Class 1-3

There are 16 Ungulate Winter ranges (UWRs) found within the Tsitika LU. In addition, two Wildlife habitat Areas (WHAs) have been established for northern goshawk and two WHAs established for marbled murrelet within the LU area. In general, the selection of OGMA has captured a good variety of the different habitat types beneficial to each species, while also securing increased coarse filter ecological representation

To address the marbled murrelet habitat management concerns, the forested area of the Landscape Unit was scored according to the frequency of key habitat potential nesting features and quality. OGMA analysis indicates that 70% of the existing ranked Class 1 marbled murrelet habitat was captured in OGMA (see Table 3 below). An estimated 1,500 ha of Class 1-3 mamu habitat was captured in OGMA and Protected Area

Table 3. Marbled Murrelet Habitat in OGMA and Protected Area

An important part of the OGMA planning exercise was to ensure that these separate components complemented each other. For example, the proposed OGMA have been placed throughout different sections of the Tsitika LU, and not concentrated in one area. Both large and small OGMA have been located throughout the LU area, with some OGMA located on drier south facing slopes (deer winter ranges) while others are located in more productive riparian ecosystems. Larger patches have been selected to provide interior forest conditions favoured by non-edge adapted species. Using this approach with stand level biodiversity measures will increase the likelihood of sustaining ecosystems and viable wildlife populations well distributed across their natural range.

7.2 Assessment and Review

In general, OGMA were selected on the basis of providing ecological representation while reviewing harvest constraints in an effort to maximize their value for habitat diversity while minimizing timber supply impacts. Further efforts were made to

minimize the impact on the timber supply by considering the ecological contribution of old growth in protected areas.

7.3 Boundary Mapping

OGMA boundaries used natural features wherever possible to ensure they could be located on the ground. OGMA were also delineated to include complete forest stands (forest cover polygons) wherever possible to reduce operational uncertainty and increase ease of OGMA mapping. OGMA were mapped using a 1:20,000 scale TRIM base that forms the legal standard for measurement. Actual boundaries will be expected to be determined in the field at a 1:5,000 scale level of resolution. Procedures for operating adjacent to, within and along OGMA boundaries are discussed in the OGMA objectives and amendment policy.

7.4 OGMA Administrative Adjustment and Amendment Policy

The Integrated Land Management Bureau's Coast Region amendment policy gives direction to proponents (forest tenure holders) when modifications to OGMA objectives are required. This regional policy describes procedures for making administrative adjustments to established OGMA as well as describes procedures for amending legally established Old Growth Management Areas (see Appendix 3). Also included is a short description explaining how OGMA will be reviewed when certain events or activities occur. Operational procedures to guide activities adjacent to OGMA are also described.

7.5 Mitigation of Timber Supply Impacts

During delineation of OGMA for priority biodiversity provisions, an attempt was made to mitigate the short and long-term impacts on timber supply. OGMA were considered first in the non-contributing forest land base. Given the extent of this landbase in the Tsitika LU, there is minimal impact of OGMA placement in the timber harvesting landbase.

In addition to the forested area selected as OGMA, it was recognized that there may be additional areas that would be included as OGMA in the future. These areas may be included as OGMA after determining, via field inspection and assessment, that these areas would not be harvested. These areas will become contributory to the OGMA population which will be revised once every five years, or when the licensees Forest Stewardship Plan is amended or re-submitted.

OGMA were chosen in the oldest available age class first, however, old forest stands that were approved or proposed for harvesting on Forest Development Plans (FDPs) were

excluded from candidate OGMAs. In the early phases of planning, Weyerhaeuser and Ministry of Sustainable Resource Management staff reviewed the draft OGMA maps, determining that concentrating all OGMAs into just the Special Management Zones or was not a viable or ecologically sensible option.

Within the Tsitika Landscape Unit, there are 5,700 ha of old seral forest in Protected Areas greater than 225 years of age, but not including the higher elevations of alpine parkland. 2813 ha of the old seral forest are required to help contribute towards achieving the full old seral landscape unit targets (5337 ha) for the CWHvm1, CWHvm2, and MHmm1.

Most OGMAs were designated in old growth forest not contributing to Timber Supply. Two newly established Wildlife Habitat Areas were added as OGMA late in the planning process and had some impact on the Timber Harvesting Land Base as noted in Table 4 below.

Landscape Unit	THLB PC + C (ha)	Harvest Opportunity (ha)
Tsitika	92	IAFIRM 7
THLB= Timber Harvesting Land Base as rated by GIS analysis		
NC= Non-contributing to THLB		
PC= Partially Contributing Productive Forest		
C= Contributing Productive Forest		
IAFIRM: Impact Accommodated For Integrated Resource Management		
VL= Very Limited		
Tsitika: Two established mamu WHAs added as OGMAs and impacts to be accounted for through 1% IWMS budget		

Table 4 Modelled THLB impacts and lot harvest opportunity assessment

8.0 Old Growth Management Areas

8.1 OGMA Targets

The Tsitika LU was ranked with a “High” Biodiversity Emphasis Option (BEO) through the biodiversity value ranking process completed earlier (see the *Vancouver Forest Region Landscape Unit Planning Strategy*, 1999). This BEO designation along with the BEC variant determines the percentage of the Crown forest land base that should be designated as OGMA. Table 5 outlines the old seral targets, by variant, for the landscape

unit. Most of the targets are achieved by using non-contributing old growth forest from the Protected Areas and from other forests which are constrained (non-contributing to timber supply) or partially constrained from operational harvesting (i.e. Non Contributing-NC, or partially contributing forest versus the operational Timber Harvesting Land Base)⁶.

The old growth target figures in Table 5 are derived from Appendix 2 in the *Landscape Unit Planning Guide*. For the purposes of this plan, old seral forest was considered as forest greater than 225 years of age. Table 6 below shows that there are relatively insignificant amounts of younger seral stages captured in OGMA's.

Table 5 Old Growth Targets for the Tsitika LU

BEC Variant	Total Ha in Tsitika LSU	Non Protected Area	Protected Areas PA	Tsitika productive forest excluding PA	Tsitika productive forest plus PA	Old seral target	Target based on productive area + PA	Total productive mapped OGMA 225 yrs+	Top-up old seral contribution from Protected Areas
CWH vm1	13,519.47	10,338.79	3,180.68	9,909.86	13,090.54	19%	2,487.2	1,572.1	915.1
CWH vm2	10,048.29	8,545.01	1,503.28	6,853.20	8356.49	19%	1,587.7	555.9	1,031.8
MH mm1	7,877.46	6,699.92	1,177.55	3,330.77	4508.32	28%	1,262.3	395.9	866.4
AT unsp	1,859.05	1,656.54	202.51	138.27	340.78	NA	NA	NA	NA
Total	33,304.27	27,240.25	6,064.02	20,232.10	26,296.13		5,337.3	2,523.9	2,813.4

Table 6 Age Class Composition of OGMA's

BEC Variant	Age Class 1-40 yrs	Age Class 41-60 yrs	Age Class 61-80 yrs	Age Class 81-120 yrs	Age Class 121-224 yrs	Age Class 225+ yrs	Total Mapped OGMA Ha
CWH vm1	74.3	0.0	11.4	13.3	4.6	1572.1	1675.7
CWH vm2	64.5	0.0	0.0	0.7	1.7	555.9	622.8
MH mm1	1.0	0.0	0.0	0.0	1.6	395.9	398.5
Total Hectares	139.8	0.0	11.4	14.0	7.9	2523.9	2697.0

⁶ Non Contributing (NC) forest land does not contribute to the Allowable Annual Cut. The Timber Harvesting Land Base (THLB) is made up of Contributing (C) forests and a portion of the Partially Contributing (PC) forests. Partially Contributing forests are "constrained" due to one of several factors such as unstable soils or wildlife habitat, but are still partially available for harvest. Contributing forest is unconstrained and available for timber harvest.

9.0 Landscape Unit Plan Objectives

OGMA objectives apply only to provincial forest lands. While Protected Areas (parks and ecological reserves) may contribute to old seral representation, OGMA Objectives do not apply to these areas.

This landscape unit plan does not supersede the regulatory authority of statutes of other regulatory agencies, nor the legislated rights of valid existing crown tenure or private land that is not part of any tenure agreement with the Crown.

PROVINCE OF BRITISH COLUMBIA

Ministry of Agriculture and Lands

Ministerial Order

Land Use Objectives for Old Growth Management Areas (OGMAs) within the Tsitika Landscape Unit situated on northeast Vancouver Island within the Campbell River Forest District.

Part 1 - Interpretation

1. Pursuant to Section 93.4 of the *Land Act*, the following objectives are established as land use objectives for the purposes of the *Forest and Range Practices Act* and apply to OGMAs within the Tsitika Landscape Unit shown on the map attached as Schedule 1 (Appendix 2).
2. Nothing in, under or arising out of this order either abrogates or derogates from any aboriginal rights, aboriginal title or treaty rights of any applicable First Nation, nor relieves the Province of any obligation to consult with any applicable First Nation.
3. Where an objective refers to an area shown on a map and the area is also defined by a spatial dataset, the area as defined by the spatial dataset will apply. All spatial datasets are available at <http://www.geobc.gov.bc.ca>.

4. In the event of any inconsistency between the location of an OGMA boundary as described in a spatial data set and the actual location as determined in the field, the latter shall apply.

Part 2 - Objectives

5. Objectives for Old Growth Management Areas

- (1) Maintain or recruit old growth forests in established Old Growth Management Areas, as shown on the map attached as Schedule 1, subject to subsections (2) to (6) below.
- (2) Despite subsection 1, timber harvesting and road or bridge construction are permitted within OGMA's, provided that:
 - i) the area of the OGMA that is subject to timber harvesting or road or bridge construction does not exceed the greater of one hectare or 10% of the area of the OGMA,
 - ii) replacement forest is identified which is
 - i. biologically suitable
 - ii. of equivalent age, structure and area, and,
 - iii. situated in order of priority, either immediately adjacent to the OGMA, or adjacent to another OGMA in the same variant and landscape unit as the existing OGMA, and
 - iii) road or bridge construction, if applicable, is required to access resource values beyond or adjacent to the OGMA and no other practicable option for road or bridge location exists.
- (3) For the purposes of subsection (2)(b) and (c), as an alternative to identifying replacement area, a temporary road or bridge site may be permanently deactivated and rehabilitated within four years after construction.
- (4) Within OGMA's, the following activities are permitted:
 - a) First Nations traditional use of trees or understory plants.
 - b) Topping or pruning of trees along boundaries to improve wind firmness.
 - c) Sanitation to prevent the spread of insect infestations or diseases that pose significant threat to forested areas outside of OGMA's. Salvage within OGMA's will be done in a manner that retains as many old growth forest attributes as possible.
 - d) Road maintenance, deactivation, removal of danger trees, or brushing and clearing on existing roads under active tenure within the right-of-way for safety purposes.

- e) Felling for guyline clearance, tailhold anchor trees, or danger trees along cutblock boundaries or within the right-of-way on new road/bridge alignments to meet safety requirements.
 - f) Silvicultural habitat enhancement in recruitment OGMA.
 - g) Trail and site maintenance or development, and silvicultural treatments to address public safety associated with the management and operation of recreation sites and trails.
- (5) OGMA replacement forest is required if the total area of an OGMA that is subject to the activities pursuant to subsection (4) exceeds the greater of one hectare or 10% of the area of the OGMA. Replacement forest must be biologically suitable, of equivalent age, structure and area, and situated, in order of priority, either immediately adjacent to the OGMA, or adjacent to another OGMA in the same variant and landscape unit as the OGMA.

Where the total area of established OGMA exceeds the minimum old seral requirement for the respective biogeoclimatic variant, OGMA replacement forest is not required, provided that the total area of old seral forest maintained in OGMA, along with the recognized contributing old seral forest in Protected Areas, meets or exceeds the targets in Table A.

- (6) OGMA adjustments and replacements made in accordance with subsections (2) to (5) must be documented and submitted as digital spatial data to the delegated decision maker at the end of each calendar year.

Part 3 - Effective Date and Transition

6. Application of this order

- (1) This order and the land use objectives in this order take effect on the date that notice of this order is published in the Gazette.
- (2) The period of time under section 8 of the *Forest and Range Practices Act* is two years.

Appendix 1. Vancouver Island Land Use Plan Higher Level Plan (VILUP HLP) Order

Order Establishing Resource Management Zones and Resource Management Zone Objectives within the area covered by the Vancouver Island Land Use Plan, pursuant to sections 3(1) and 3(2), as well as section 9.1 of the Forest Practices Code of British Columbia Act (the Act)

Pursuant to section 3(1) of the Act, the following zones, as presented on Map 1 (attached), are Resource Management Zones (RMZ):

- A. Special Management Zones (SMZ) 1 through 14 and 17 through 22;
- B. Resource Management Zones 4, 5, 6, 8, 10, 11, 15, 18, 19, 21, 23, 24, 27, 28, 30, 36, 38, 40, 42, 43, 44, and 47; these RMZ are also referred to as Enhanced Forestry Zones (EFZ);
- C. Resource Management Zones 7 and 14; these two RMZ are also referred to as General Management Zones (GMZ).

Pursuant to section 3(2) of the Act, the following provisions are Resource Management Zone objectives:

A. for Special Management Zones 1 through 14 and 17 through 22:

- 1. Sustain forest ecosystem structure and function in SMZs, by:
 - (a) creating or maintaining stand structures and forest attributes associated with mature⁷ and old⁸ forests, subject to the following:
 - i. the target for mature seral forest should range between one quarter to one third of the forested area of each SMZ⁹; and
 - ii. in SMZs where the area of mature forest is currently less than the mature target range referred to in (i) above, the target amount of mature forest must be in place within 50 years;

⁷ The mature seral forest is defined as generally 80 to 120 years old or older, depending on species and site conditions. The structure of mature seral forests generally includes canopies that vary vertically or horizontally, or both. The age and structure of the mature seral stage will vary significantly by forest type and from one biogeoclimatic zone to another.

⁸ The old seral forest is defined as generally greater than 250 years old, containing live and dead (downed and standing) trees of various sizes, including large diameter trees, and of various tree species, including broad-leaved trees. The structure of old seral forest varies significantly by forest type and from one biogeoclimatic zone to another.

⁹ Mature seral targets will be established through landscape unit planning. See transition provisions under III.

- (b) retaining, within cutblocks¹⁰, structural forest attributes and elements with important biodiversity functions¹¹; and
 - (c) applying a variety of silvicultural systems, patch sizes and patch shapes across the zone, subject to a maximum cutblock size of 5 ha if clearcut, clearcut with reserves or seed tree silvicultural systems are applied, and 40 ha if shelterwood, selection or retention silvicultural systems are applied¹².
- 2. Despite subsection 1(c) above, cutblocks larger than 5 or 40 ha, as the case may be, may be approved if harvesting is being carried out to recover timber that was damaged by fire, insects, wind or other similar events and wherever possible, the cutblock incorporates structural characteristics of natural disturbances.
- 3. Pursuant to section 2(1) of the Operational Planning Regulation (OPR)¹³, the approval of both the district manager, Ministry of Forests and the designated environment official, Ministry of Environment, Lands and Parks is required for all forest development plans, or parts of forest development plans that relate to areas within the following SMZs: 1, 3, 4, 6, 8, 9, 10, 11, 13, 17, 19, 20 and 21.
- B. *for Special Management Zones 8, and 13, and parts of Special Management Zones 1, 3 and 11, which are located within landscape units with higher biodiversity emphasis, as shown on Map 2:***
 - 4. Maintain late-successional habitat elements and attributes of biodiversity¹⁴ in forested ecosystems with emphasis on regionally rare and underrepresented ecosystems, by retaining old seral forest at the site series/surrogate level of representation¹⁵.
 - 5. Retain late-successional habitat elements and attributes of biodiversity in patches of variable size.
- C. *for the following Special Management Zones with primary visual resource values: 1, 2, 3, 5, 6, 7, 10, 11, 12, 13, 14, 18, 19 and 22, as shown on Map 3:***
 - 6. Maintain the visual quality of known scenic areas in accordance with the recommended visual quality classes in the visual landscape inventory, until the district manager establishes visual quality objectives for the areas.
- D. *for all Enhanced Forestry Zones, as shown on Map 1, save and except the parts of those zones which are designated as community watersheds as defined in section 41(8) of the Act:***
 - 7. To increase the short-term availability of timber,

¹⁰ Within cutblocks: generally means non-contiguous with cutblock boundaries.

¹¹ This includes, but is not limited to snags, wildlife trees, downed logs.

¹² Maximum cutblock sizes refer to net area to be reforested.

¹³ BC Reg. 107/98 O.C. 426/98 - Effective: June 15, 1998.

¹⁴ This includes, but is not limited to: large diameter (> 60 cm) live, decaying and dead standing trees (providing nest and cavity sites); downed wood, including large diameter pieces (50 to 150 cm); deciduous broad-leaved trees, both in riparian and upland areas.

¹⁵ The level of representation of old seral forest will be applied through landscape unit planning.

(a) a cutblock may be larger than 40 ha pursuant to section 11(2)(a) of the OPR; and

(b) pursuant to section 68(4) of the OPR, a cutblock is greened-up if it is adequately stocked and the average height of those trees that are

(i) the tallest tree in each 0.01 ha plot included in a representative sample, and

(ii) a commercially valuable species or other species acceptable to the district manager is at least 1.3 meters; unless the district manager determines that a cutblock referred to under (a) or (b) would significantly impact specific hydrological, wildlife, biodiversity, scenic or recreation values.

8. Avoid or mitigate adverse hydrological impacts, which may result from the practices referred to in objective 7, in watersheds with significant watershed sensitivity and significant fisheries values, as determined by the district manager and designated environment official.
9. When proposing the species composition for the purposes of OPR section 39 (3) (o), a person may, pursuant to OPR section 41, select a single species that is ecologically suited to the area, if a mix of species was present on the area before the timber was harvested.
- 9.1 The area that may be subject to selection of a single species pursuant to objective 9 is limited to no more than 20 per cent of the forested area of any variant within a given EFZ.

E. for Resource Management Zones 7 and 11:

10. To avoid severe social and economic consequences, as determined by the district manager and the designated environment official, the full target of 13 per cent for old growth retention in CWHvm1 may be reduced by up to one third provided that ecologically suitable second growth forest is identified to recruit the shortfall¹⁶.

F. for Resource Management Zone 42:

11. Retain old seral forest in CWHvm1 in accordance with the full old seral target of 13 per cent for the variant.
- 11.1 Despite objective 11, up to one third of the old seral target may be recruited from second growth provided that
 - (a) such recruitment is necessary to avoid severe social and economic consequences;
 - (b) such recruitment will not impact the ability to conserve suitable habitat of identified wildlife in accordance with the Identified Wildlife Management Strategy¹⁷; and

¹⁶The targets for retention or recruitment of old growth forests will be achieved through the establishment of old growth management areas as part of landscape unit planning.

¹⁷ See "Managing Identified Wildlife: Procedures and Measures", Volume 1, February 1999.

- (c) ecologically suitable second growth forest is identified to recruit the shortfall.¹⁸

G. for Special Management Zone 10:

- 12. Retain or recruit old growth forest in CWHxm2 in accordance with the full old seral target of 9 per cent for the variant.

H. for Resource Management Zone 10

- 13. Retain old seral forest in CWHxm2 in accordance with the full old seral target of 9 per cent for the variant.
- 13.1 Despite objective 13, up to one third of the old seral target may be recruited from second growth provided that
 - (a) such recruitment is necessary to avoid severe social and economic consequences;
 - (b) such recruitment will not impact the ability to conserve suitable habitat of identified wildlife in accordance with the Identified Wildlife Management Strategy¹⁹; and
 - (c) ecologically suitable second growth forest is identified to recruit the shortfall.²⁰

I. for Resource Management Zone 30:

- 14. Retain all remaining old growth forest in CWHxm2 until landscape unit objectives for old growth retention or recruitment have been established in accordance with the full old seral target of 9 per cent for the variant.

J. for Resource Management Zones 8, 14, 28 and 43:

- 15. Retain old growth forests to meet old seral targets²¹ and marbled murrelet habitat requirements²² in the non-contributing²³ land base to the fullest extent possible.
- 16. Beyond retention in the non-contributing land base, retain old forests in the timber harvesting land base, up to the full target amount, if the district manager and the designated environment official determine that such retention is required to maintain critical marbled murrelet habitat²⁴.

III. Transition

¹⁸ The targets for retention or recruitment of old growth forests will be achieved through the establishment of old growth management areas as part of landscape unit planning.

¹⁹ See “Managing Identified Wildlife: Procedures and Measures”, Volume 1, February 1999.

²⁰ The targets for retention or recruitment of old growth forests will be achieved through the establishment of old growth management areas as part of landscape unit planning.

²¹ See “Landscape Unit Planning Guide”, March 1999.

²² See “Managing Identified Wildlife: Procedures and Measures”, Volume 1, February 1999.

²³ Non-contributing: the crown forested land base that does not contribute to the annual allowable cut, but does contribute to biodiversity objectives and targets.

²⁴ Retention or recruitment of old growth forests will be achieved through the establishment of old growth management areas as part of landscape unit planning.

17. Pursuant to section 9.1 of the Act, the following objectives will not be implemented in an area until landscape units and objectives have been established for the area, in accordance with section 4 of the Act:

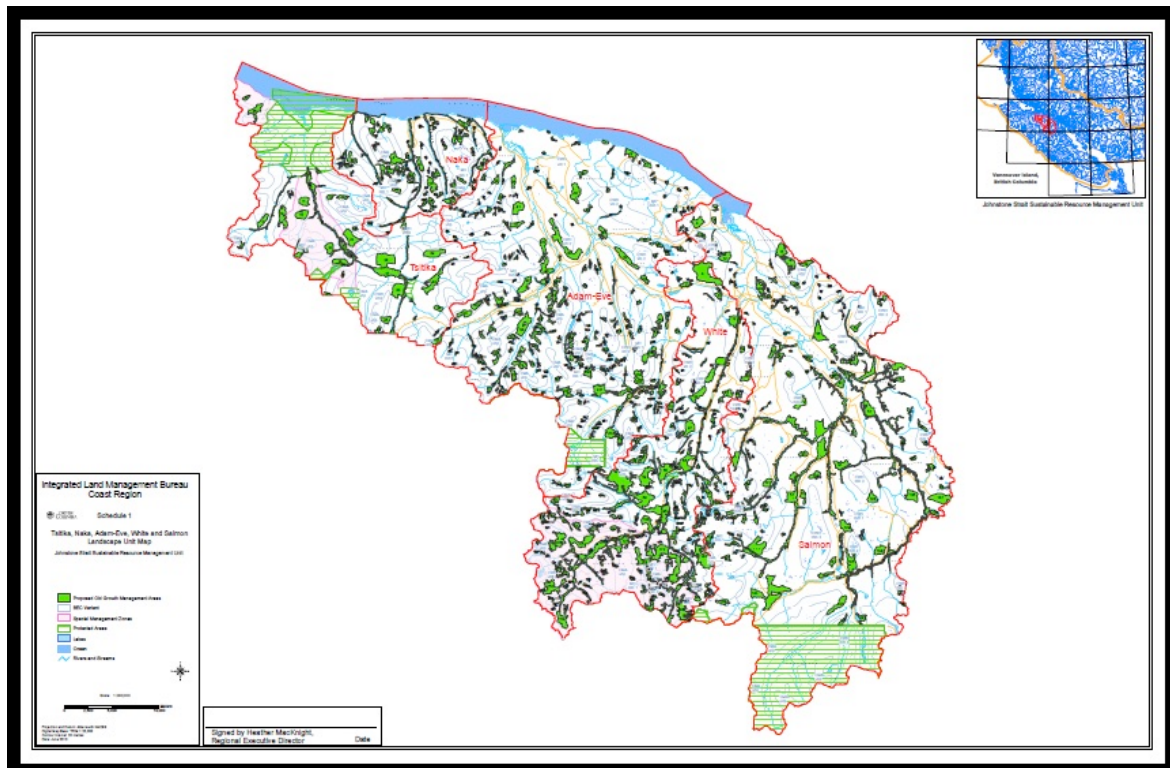
Objectives 1(a); 4; 5; 10; 11; 11.1; 12; 13; 13.1; 15; and 16.

18. In the event that landscape units and objectives are not established in an area within 2 years of the date that this order takes effect, the objectives referred to in paragraph 17 will be implemented in the area.

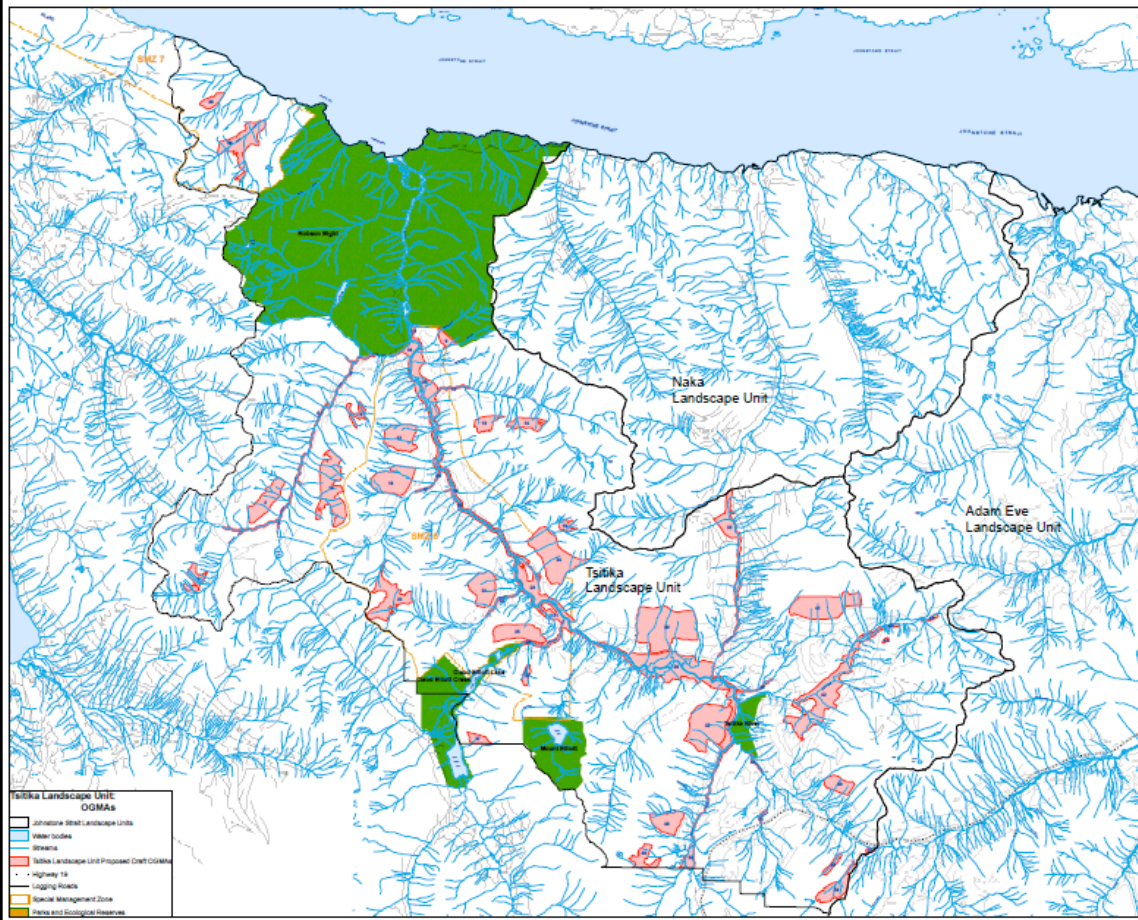
IV. Filing the Order

This order will be filed with the regional manager of the Vancouver Forest Region and will take effect on December 1, 2000.

Appendix 2. OGMA Map for the Tsitika Landscape Unit, Johnstone Strait Sustainable Resource Management Plan Area



Johnstone Strait Tsitika Landscape Unit: OGMAs



Appendix 3. Landscape Unit Planning Policy: Administrative Adjustments, Amendments and Operational Procedures for Old Growth Management Areas

This regional advice is provided for those practitioners needing to make alterations to approved Old Growth Management Areas (OGMAs) and has been developed to:

- 1) Describe procedures for adjusting, or amending OGMAs; and
- 2) To provide operational advice to anyone working adjacent to, or within OGMAs.

This policy does not authorize violation of any other federal or provincial statute or legal objective and does not constitute approval on behalf of any other agency with jurisdiction in this matter. Approval of all amendment proposals submitted to the Integrated Land Management Bureau (ILMB) will be at the discretion of the delegated decision maker.

1.0 General Procedures for Administrative Adjustments, Minor Amendments and Significant Amendments

1.1 Administrative Adjustments

Administrative adjustments to OGMAs are those allowed by the established legal objectives and will not require agency approval. In general, they allow small boundary adjustments to be made based on ground-truthing and layout design of adjacent harvest operations. The proponent prescribing an adjustment to an OGMA must address the principle of *no net loss* by adding suitable replacement forest area to the OGMA, or to a nearby OGMA, in the same variant and landscape unit. These adjustments need to be submitted to ILMB annually before December 31st of each year. Ideally, multiple administrative adjustments should be combined into a single submission annually. All administrative adjustments will be reviewed in January-February for completeness. An acknowledgement of receipt by ILMB will be sent to the licensee by fax or e-mail once completeness is confirmed. Completed adjustments will be sent to GeoBC for subsequent upload into the GeoBC Geographic Warehouse (former Land and Resources Data Warehouse) in March-April. The Coast Region OGMA administrative adjustment form should be used for all submissions.

Amendments are not required for correcting mapping errors. For example, proposed harvesting or road development may show potential OGMA overlap or encroachment at a 1:20,000 scale, but is deemed not to occur based on field engineering. The site or operating plan should clearly indicate that there is no overlap between proposed development and an adjacent OGMA. In other instances, the intended OGMA boundary (e.g. along a stream) may be shown to be in the wrong location on the original approved legal map as proven by subsequent field engineering. If this occurs, the prescribing/planning forester should record the discrepancy. Corrections would then be summarized and submitted to ILMB annually.

1.2 Minor Amendments

A minor amendment is one that does not materially change the original order, or its affect on forest and range tenure holders. The consideration of “materially change” applies to the landscape unit’s entire suite of OGMA’s considered as a whole, not to each individual one. In general, a minor amendment will apply to any proposed adjustment to a single OGMA where there would be a net loss of more than 10 per cent to the original OGMA. This would also include the proposed deletion of a single OGMA, even if an equivalent area can be added as a new OGMA, or to an existing OGMA in the same variant and landscape unit. A minor amendment would also be required if a proposed adjustment does not result in a net loss to the original OGMA of more than 10 per cent of the area, but where a suitable replacement area requires designation of a new OGMA because a suitable replacement area cannot be found adjacent to an existing OGMA in the same BEC variant and landscape unit.

Proponents should submit their requests for amendments in a timely manner so that review/approval can occur without delaying operations. Proponents should recognize that OGMA’s may overlap with other legal designations, most notably Ungulate Winter Ranges and Wildlife Habitat Areas and it is their responsibility to ensure compliance with all legal requirements.

If a replacement OGMA is necessary, it must be identified by the proponent and submitted with the amendment application. The replacement OGMA should be in the same biogeoclimatic variant and must have similar or more suitable ecological attributes for conserving biological diversity. These attributes may include: tree species and sub-canopy complexity, tree height and diameter, stand age, stocking and site index, slope, aspect, elevation, patch size, forest interior habitat and connectivity. The replacement area could also be critical habitat for species at risk. The presence of old forest attributes such as multi-layered canopies, vets and moderate to high value wildlife trees in the replacement area will further increase its suitability. Attributes of both the proposed replacement OGMA and original OGMA need to be clearly summarized and submitted with the amendment application. This information must be clearly presented to aid in the review. Complete and accurate submissions will allow faster processing.

Replacement area proposals must be submitted in digital format to the following preferred minimum data standards to expedite the review and approval process: ARC Export file (E00), 1:20000 scale, TRIM base, ALBERS projection, and NAD 83 datum. ILMB will make every effort to process minor amendments within 10 working days and no greater than 30 days

1.3 Significant Amendments

A significant amendment is required where one or more OGMA alterations will result in consequential and substantive variations to the order; for example, a proposed alteration, or deletion of one or more OGMA’s that would have a material effect on forest or range tenure holders, public access opportunity, First Nations traditional use, or disturbance to

significant ecological values. For significant amendments, it will be necessary for ILMB to undertake public review and comment, including First Nations and inter-agency consultation and provide the demonstrated achievement of the criteria laid out in regulation to the delegated decision maker. Demonstrated achievement is essentially the rationale for approval relative to the tests in the Land Use Objectives Regulation accompanied by the licensee's supporting documentation.

ILMB will make every effort to review major amendments within 120 calendar days. A 60-day public review and comment period will normally be required for major amendments and is included in the 120 day time period. ILMB will review all amendments and notify the submitter as soon as possible if the amendment is considered a significant one requiring advertisement and public review.

2.0 OGMA Operational Procedures

The following clarifies how OGMAs will be reviewed when certain events or activities occur. Operational procedures to guide activities adjacent to OGMAs are also described.

2.1 Periodic review

The distribution of OGMAs may be reviewed periodically to ensure their ecological suitability through time. This would occur at the delegated decision maker's discretion, or as the result of an event that significantly altered the OGMAs, or the total area of productive Crown forested land (e.g. catastrophic fire, landslides, windthrow, disease, insect outbreaks). In the event that the natural disturbance is considered a threat to forested areas outside OGMAs (as determined by a qualified person and brought to the attention of the SDM), control measures may be implemented and relocation of the OGMA may occur.

2.2 OGMA boundaries and ground-truthing

OGMA boundaries do not have to be legally surveyed. To deal with a discrepancy between an OGMA boundary and actual on-the-ground development, the following may be proposed to accommodate areas that may be left between harvest boundaries and the OGMA. Where approved or proposed developments are located in close proximity to established OGMAs (e.g. within 50 m) and the final development results in a forested leave area (suitable for OGMA) adjacent to the OGMA boundary, the leave area could be added to the OGMA. The SDM should be notified regarding an opportunity to amend the OGMA boundary.

2.3 Right-of-Ways

The cleared portion of the right-of-way for new road or new bridge construction within an OGMA must be as narrow as possible with due regard for all safety issues.

2.4 Wildlife trees and safety requirements

When a conflict arises between operational activities and high value wildlife trees in an OGMA, the preference is where practicable to retain high value wildlife trees by establishing no work zones or by altering the road/bridge alignment. Any danger trees that are felled as a result of exemptions from the legal objectives or amendments are to be left on the ground to provide a source of coarse woody debris, unless safety dictates otherwise.

2.5 Changes to the Crown Forest Land Base

Significant changes to the available Crown Forest Land Base (CFLB) within a landscape unit will trigger the requirement to update the OGMA layer to reflect the change since the OGMAs are based on a percentage of the CFLB. For example, removal of CFLB for urban development, mining or some other uses which results in the land being permanently alienated or altered to a non-forested state. Changes in ownership of the land such as First Nations treaty settlements will also trigger updates.

Appendix 4. OGMA Summary & Patch Size Distribution



Microsoft Office Excel
97-2003 Worksheet

Tsitika OGMA Patch Distribution by Ha			
Patch Size Category in Ha	Total Ha within Patch Size Category	OGMA's per Patch Size	%
2-19	197.53	22	42
20-49	308.93	10	19
50-99	979.59	13	25
100-149	270.10	2	4
150-249	728.74	4	8
250+	285.67	1	2
	2770.57	52	100

Appendix 5 Public Consultation Summary

The plan was made available for a 60 day review period commencing January 15, 2010 and ending March 16, 2010. No comments were received from the public

Landscape Unit	Comment	Action taken
Tsitika	None specific to this LU	
Johnstone Straits aggregate	Impacts acceptable. Licensees in agreement. Campbell River Forest District comment.	None required