

Ministry of Agriculture and Lands
Coast Region

Draft Adam-Eve Landscape Unit Plan

March 31, 2009



Prepared by:

Ian McDougall, R.P.Bio
Senior Forest Planner
Strategic Planning and Operations,
Integrated Land Management Bureau, Coast Region
B.C. Ministry of Agriculture and Lands

Table of Contents

1.0	Introduction	3
2.0	Adam-Eve LU Description	4
2.1	Adam-Eve LU Biophysical Description	4
2.2	Summary of Land Status.....	6
3.0	Key Resource Tenure Holders	6
3.1	Forest Tenure Holders.....	6
3.2	Mining Tenure Holders.....	7
4.0	Significant Resource Values	7
4.1	Fish, Wildlife and Biodiversity.....	7
4.2	Timber Resources	7
4.3	Private Land	8
5.0	Existing Higher level Plans	8
6.0	First Nations	9
7.0	OGMA Methodology	10
7.1	Integrating other values in OGMA selection.....	10
7.2	Assessment and Review.....	10
7.3	Boundary Mapping	11
7.4	Amendment Policy.....	11
7.5	Mitigation of Timber Supply Impacts.....	11
8.0	OGMA and Wildlife Tree Patch Requirements	13
8.1	OGMA Targets	13
8.2	Wildlife Tree Retention Targets	15
8.3	Draft Legal Objectives for the Adam-Eve Landscape Unit.....	16

Figure 1: Adam-Eve Landscape Unit, North Central Vancouver Island

Appendix 1	Vancouver Island Land Use Plan Higher Level Plan Order
Appendix 2	Proposed Legal OGMA Map
Appendix 3	OGMA Summary

1.0 Introduction

This report describes the biodiversity conservation plan for the Adam-Eve Landscape Unit (LU) and includes the associated legal objectives for old growth retention and wildlife tree retention. A description of the planning unit, discussion on significant resource values, and an Old Growth Management Area (OGMA) summary is 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. The provincial level includes 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 provided by government. Current government direction requires that priority biodiversity provisions, particularly the delineation of OGMAs, must be undertaken as one of the

¹ FPC Biodiversity Guidebook, September 1995

² BC Species and Ecosystems Explorer. 2003. Victoria, British Columbia, Canada. Available: <http://srmaps.gov.bc.ca/apps/eswp/> (September 15, 2003).

FRPA objectives required by government. This work was completed by the Ministry of Agriculture and Lands (formerly initiated by the Ministry of Sustainable Resource Management) in conjunction with BC Timber Sales and Western Forest Products (formerly Cascadia Forest Products Limited TFL 39, Weyerhaeuser and previously MacMillan Bloedel 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/frpa/frparegs/forplanprac/fppr.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://ilmbwww.gov.bc.ca/lup/srmp/background/lup_landscape.html
- *Vancouver Forest Region Landscape Unit Planning Strategy (1999)*,
Vancouver Forest region Planning Document, Nanaimo, B.C.
- *Vancouver Island Summary Land Use Plan* (Feb. 2000)
http://ilmbwww.gov.bc.ca/lup/lrmp/coast/vanisle/summary_lup/toc.htm
- the associated *VILUP Higher Level Plan Order* (Dec. 2000),
<http://ilmbwww.gov.bc.ca/lup/lrmp/coast/vanisle/vihlp.htm>
- *Sustainable Resource Management Planning: Standards for Creating, implementing and Administering Sustainable Resource Management Plans*
http://ilmbwww.gov.bc.ca/lup/policies_guides/docs/SRMP_applied_standards_guide.pdf

2.0 Adam-Eve LU Description

2.1 Adam-Eve LU Biophysical Description

The Adam-Eve LU is situated within the Northern Island Mountains Ecosection on north-central Vancouver Island. The total landscape unit area is approximately 70618 ha, of which 80 % is covered by productive forest. There are highly productive forests concentrated at lower elevations, especially in the major drainages of the Adam and Eve rivers. Broad valleys nearer the ocean ascend into more rugged interior valleys,

especially in the south and western portions of the LU. The highest point in the LU is approximately 1750 m above sea level. Dominant tree species in the LU are western hemlock, amabilis fir and western red cedar, with smaller amounts of Douglas-fir, and yellow cedar at higher elevations. Portions of the LU have experienced massive windthrow events in the past, with extensive older second growth western hemlock forests developing in the aftermath. 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 Adam-Eve LU on Vancouver Island is shown in Figure 1.

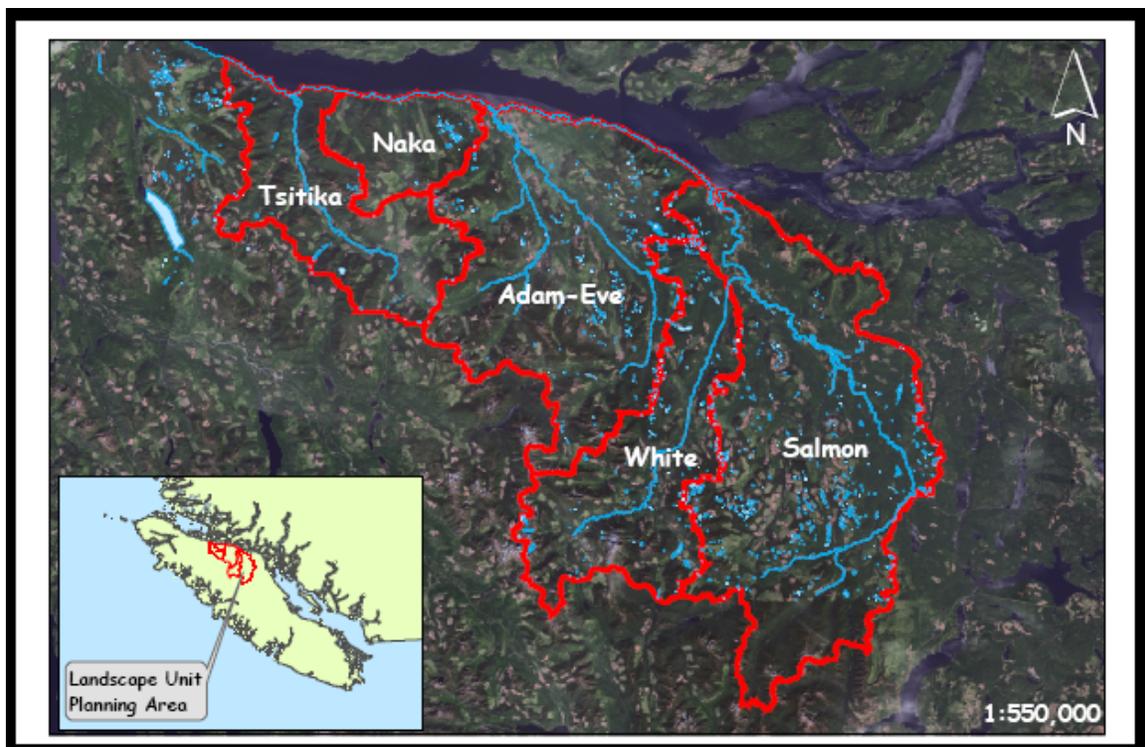


Figure 1 Adam-Eve Landscape Unit, North Central Vancouver Island

The Biogeoclimatic Ecosystem Classification (BEC) covering the Adam-Eve LU includes the Coastal Western Hemlock (CWH) Zone and Mountain Hemlock (MH) zones. The two main biogeoclimatic subzone variants found in the CWH are the CWHvm1 (submontane very wet maritime), and the CWHvm2 (montane very wet maritime). The very small area of CWH xm2 (very dry maritime) situated at the eastern end of the Adam River is considered negligible relative to the other variants. The subzone variant found in the higher elevation MH Zone is the MHmm1 (windward moist

maritime) 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 is certainly present given the history of periodic catastrophic wind disturbances. These disturbances tend to produce a landscape mosaic of even-aged stands ranging in size and usually containing mature forest remnants

2.2 Summary of Land Status

Land status within the Adam-Eve LU is summarized in Table 1.

Table 1. Land Status of the Adam-Eve Landscape Unit

Land Status of the Adam-Eve Landscape Unit		
Ownership	Hectares	Percentage
BCTS	18535	26
Western Forest Products (TFL 39 BLK 2)	50812	72
Schoen Lake Park--Protected Area that falls within LU	1271	2
Total	70618	100

3.0 Key Resource Tenure Holders

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

3.1 Forest Tenure Holders

In 2004, a large portion of Tree Farm License 39, Block 2 in the Eve watershed was reapportioned to BC Timber Sales. 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 FPC Biodiversity Guidebook, September 1995

3.2 Mining Tenure Holders

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 Eve River; with other river systems providing moderate values for non-anadromous species. Riparian reserve zones adjacent to fish streams established as per the *Forest and Range Practices Act (FRPA) Forest Planning and Practices Regulation (FPPR)* Part 4, Division 3 Section 47 will help maintain a significant amount of riparian fish and wildlife habitat. These riparian areas provide additional opportunities to conserve old growth values.

Wildlife resources of primary management concern in the Adam-Eve LU include black tailed deer, Roosevelt elk, eagles, black bear, and marbled murrelet (MAMU) *Branchyrampus marmoratus*. The marbled murrelet is the primary species at risk that is recognized as "Identified Wildlife"⁴ in the Adam-Eve LU. The VILUP Higher Level Plan Order, referenced in Appendix 1, describes Objectives and the process for managing MAMU in the Adam-Eve LU. A large portion of the OGMA budget is attributable to MAMU habitat needs in this LU with some of this area being located in the Timber Harvesting Land Base (THLB). Although many other species occur in the area including numerous forest birds, raptors, small mammals, amphibians and furbearers, 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 Adam-Eve LU is estimated to be approximately 45,000 ha, while the additional area of forest in the Shoen Lake Protected Area Protected portion of the upper Eve is 1270 ha. The high operability factor establishes the importance of the localized timber resource values. Whereas 64% of the THLB has already been harvested, continued access to commercially valuable timber, including existing and future second growth, is a significant economic and social interest. First pass harvesting of accessible old growth timber will continue for the foreseeable future although harvest of advanced second growth resulting from the 1908 windthrow event has already commenced.

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.

Commercially valuable tree species in the Adam-Eve LU are western hemlock, western red cedar, Douglas-fir, 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 Adam-Eve LU. There are currently over 25,000 ha of old growth forest remaining in the Adam-Eve LU.

Table 3 Distribution of Productive Forest Land within the Adam-Eve LU

BEC Variant	Early Seral 1 - 60 yrs	Mid Seral 61 -120 yrs	Mature Seral 121 - 224	Old Seral 225 +
CWH vm1	21745.28	1118.53	240.681	6807.41
CWH vm2	5723.87	665.81	148.091	11301.19
MH mm1	1143.08	8.08	131.515	7189.48
CMA unsp	3.76	0.00	12.59	137.44
Total	28615.99	1792.42	532.88	25435.52

4.3 Private Land

There is no private land within the Adam-Eve 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.

The HLP objectives which apply to the Adam and Eve Enhanced Forestry Zone (RMZ 28) are summarized below and details provided in Appendix 1:

For RMZ 28

- Increase the short term availability of timber by the application of larger cut block sizes, and modified green-up requirements
- Apply modified silvicultural stocking practices where appropriate
- Retain old growth forests with an emphasis on conserving marbled murrelet nesting habitat in the non-contributing and contributing forest where appropriate

5.1.1. EFZ 28 Location and Values

The entire Adam-Eve landscape unit, excluding Schoen Strathcona Provincial Park, is designated as Resource Management Zone 28 under the VILUP HLP Order. The size of the EFZ is approximately 70,300 ha and includes all of the Adam and Eve River watersheds, as well as the Cain Creek portion of Davie watershed, up to Tsitika-Woss SMZ boundary; bounded by Newcastle Ridge to the east. Approximately 69,350 ha of RMZ 28 lie in the Adam-Eve Landscape Unit. The overall management direction recognizes the opportunity for increased timber production while maintaining fisheries values and watershed integrity. The Vancouver Island Summary Land use Plan and may be viewed at the following Web address: http://ilmbwww.gov.bc.ca/slrp/lrmp/nanaimo/vancouver_island/index.html

5.2 Non-binding HLP Direction

The Vancouver Island Summary Land Use Plan (VISLUP) includes specific guidance for the Adam-Eve LU. Recommended objectives are outlines which recognize both timber and non-timber resource values, and may be viewed at the following Web address: http://ilmbwww.gov.bc.ca/slrp/lrmp/nanaimo/vancouver_island/plan/summary_lup/efz27_47.htm#rmz28

Primary management objectives for the Enhanced Forestry Zone recommend that the following values be addressed: timber productivity, fisheries values, (notably in the Eve River), wildlife management, and visual resources management along the coastline and Highway 19. Secondary forest objectives are provided to address access, watershed management, recreation and tourism resources, biodiversity, and cultural heritage.

6.0 First Nations

The Adam-Eve LU is located within the traditional territory of the Cape Mudge, Campbell River, Comox, and Tlowitsis First Nations. A map depicting the location of their asserted traditional territories may be viewed at the following Web address: http://slkux14.env.gov.bc.ca/apps/cbd/jsp/Ministry/min_main.jsp

7.0 OGMA Methodology

7.1 Integrating other values in OGMA selection

The Adam-Eve 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 old growth forest habitats in Schoen Strathcona Provincial Park, areas historically recognized as ungulate wintering areas, numerous areas of inoperable, uneconomic and inaccessible forest, and additional forests including riparian reserve zones and gully complexes.

There are 20 Ungulate Winter Ranges (UWRs) proposed as OGMAs under this LU plan, but have not been previously established through legal mechanisms. As noted previously, MAMU habitat has been extensively identified and captured as part of the OGMA population. In general, the selection of OGMAs has captured a good variety of the different habitat types beneficial to each species, while also securing increased coarse filter ecological representation.

An important part of the OGMA planning exercise was to ensure that these separate components complemented each other. For example, the proposed OGMAs have been placed so that they are located throughout the entire LU, rather than being concentrated in one area. As well, both large and small OGMAs have been located throughout the major riparian systems. Well protected forested area characterized by large trees provide suitable habitat for potential marbled murrelet nesting. Other OGMAs are located so as to capture drier ecosystems with features such as rock outcrops and southerly aspects. An attempt was also made to select for patches of the largest possible size. These patches can then be expected to provide interior forest conditions required by some species. Using this varied and combined 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, OGMAs were selected on the basis of providing ecological representation and providing the greatest opportunity for marbled murrelet nesting sites up to the full target percentage specified for each biogeoclimatic unit. Initially, these sites were selected based on database attributes and air photo interpretation. OGMAs were selected and finalized, to draft status, based on a review of stand attributes and harvest constraints in an effort to maximize their value for habitat diversity while minimizing timber supply impacts. Specific riparian patches, particularly gully complexes, were selected in order to capture known constrained areas with likely good potential for marbled murrelet nesting. Further efforts were made to minimize the impact on the timber supply by

considering the potential for MAMU nesting sites and ecological contribution of old growth areas in Schoen Strathcona Provincial Park.

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. Permissible activities for operating within OGMA are discussed in the OGMA objectives and in the amendment policy.

Further information on OGMA selection may be viewed on this web site:

<http://srmwww.gov.bc.ca/rmd/srmp/background/index.htm>

7.4 Amendment Policy

The Ministry of Agriculture and Lands, Coast Region amendment policy gives direction to proponents (forest tenure holders) when modifications to OGMA objectives are required. This Regional policy describes procedures for amending legally established Old Growth Management Areas (OGMA); and serves to guide operations when working in or adjacent to OGMA. The amendment portion is consistent with Section 4 of the *Forest Practices Code of British Columbia Act*, which allows for the Delegated Decision Maker (DDM) to vary a Landscape Unit objective (i.e. amending the location of an OGMA).

Amendment procedures cover such things as minor or major amendments for resource development (e.g. roads, bridges, boundary issues, rock quarries & gravel pits) or relocation of OGMA. The policy also discusses acceptable management activities and review procedures. Where specified under a legal landscape unit objective, some commonly occurring forestry operations can be exempted from referral to the Ministry of Agriculture and Lands. Major amendment requests, however, cannot be exempted.

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. Although OGMA were considered first in the non-contributing forest land base, the non-contributing land base did not always satisfy all requirements to address suitable, representation of old forest attributes. This was particularly true where selection of suitable MAMU habitat was undertaken. Given habitat suitability concerns, assessment and selection of OGMA from

within the timber harvesting land base tended to proceed from the most to the least constrained portions of the THLB.

Consideration was also given to credit Cascadia's commitment (formerly Weyerhaeuser and originally MacMillan Blodell Limited) to continue with Variable Retention (VR). Cascadia was given the opportunity to include VR patches that are old growth and greater than two hectares in area as potential OGMA. The incorporation of VR into OGMA reflects a desire to capture the full spatial diversity, both size and ecosystem, across the LU, while also minimizing timber supply impacts.

The old seral target for the CWH vm1 is 3965 ha with 2532 ha of mapped OGMA and 352 of protected area contribution resulting in a deficit of 1081 ha (see Table 4b, Section 8.1). Conversely, the CHW vm2 old seral target is 2406 ha with 2414 ha of mapped OGMA and a supplemental contribution of 422 ha in protected area. The full potential contribution of 606 ha of Variable Retention in the vm1 would still result in a shortfall of 475 ha, but conversely, for the vm2, a potential contribution of 992 ha of VR, plus recognition of the protected area value, would result in a surplus of 1422 ha of old seral forest. To this end, the temporary deficit of mapped OGMA in the vm1 is considered acceptable and consistent with the principles of old growth conservation and recruitment in a "lower" biodiversity emphasis landscape unit. Although additional old growth could have been mapped as OGMA in the vm1, it was not mapped for a variety of reasons, most notably because of inadequacy as marbled murrelet potential nesting habitat, presence of Category A approved blocks, or THLB, or in recognition of good habitat representation in the vm2 plus the additional contribution from Schoen Park.

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.

OGMAs 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 OGMA. Cascadia (Weyerhaeuser) staff reviewed the draft OGMA maps over the period of 2002-2005 and identified harvesting opportunities in concert with areas of greater harvest constraint so that timber supply impacts could be reduced wherever possible.

Approximately 1100 ha of productive forest in Schoen Strathcona Provincial Park will contribute to meeting the old growth targets for the Adam-Eve LU. Although these areas are not technically OGMA, retention of these areas in the park suggests that they will function in terms of old growth attributes as equivalent to OGMA.

8.0 OGMA and Wildlife Tree Patch Requirements

8.1 OGMA Targets

The Adam-Eve LU was ranked with a “low” 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 3 outlines the total amount of OGMA required and tallies the available types of Crown forest (i.e. Non Contributing-NC forest versus Timber Harvesting Land Base)⁵. The old growth target figures in Table 3 are derived from Appendix 2 in the *Landscape Unit Planning Guide*.

Table 4a Old Growth Targets and Old Growth Management Area summary for the Adam-Eve LU

Adam-Eve Landscape Unit Summary

Total Landscape Unit Area:	ha
Forested Area:	ha
Timber Harvesting Landbase Area:	ha
% of LU Available for Harvest:	
% of THLB Harvested:	

Old growth targets and availability						
BEC	Total Forest	OLD - Non THLB	OLD - THLB	OG Target	NC Balance	THLB Contribution
CWH xm2						
CWH vm 1						
CWH vm 2						

⁵ 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.

MH mm 1						
---------	--	--	--	--	--	--

BEC	SERAL	Forested Area	Non-Contributing		THLB Area	
			Area	%	Area	%
CWH xm 2	Early					
	Mid					
	Mature					
	Old					
CWH vm 1	Early					
	Mid					
	Mature					
	Old					
Total Areas						
CWH vm 2	Early					
	Mid					
	Mature					
	Old					
Total Areas						
MH mm 1	Old					
Total Areas						
Total						

Based on revised operability for TFL 39
 Forest Cover updated to **Jan 2001**
Includes all Parks

Table 4b Old Seral Contribution for the Adam-Eve LU

Old seral contribution from OGMA, Protected Area and Variable Retention										
BEC Variant	Productive Area	Target %	Target Ha	Total OG Component	Total Mapped OGMA (gross)	Old seral contribution within	OGMA within Productive Forest	Potential VR ha	Surplus /Deficit	OGMA from THLB

					Protected Areas	(net)				
CWH vm 1	30495	13	3965	8947	2551	352	2532	606	-475	747
CWH vm 2	18513	13	2406	12763	2509	422	2414	992	1422	691
CWH xm 2	6	9	1	3	1	NA	1	3	3	NA
MH mm1	8879	19	1687	7967	1013	326	957	668	264	343
Total	57893		8059	29680	6074	1100	5904	2269	1214	1781

Note* There are also 10 ha's of OGMA within the AT_p BEC variant

8.2 Wildlife Tree Retention Targets

In addition to the initial focus on retention of old growth forests at the landscape level, this plan also proposes to maintain stand structure through retention WTPs according to the target defined in Table 4 below. Upon designation of the Adam-Eve LU biodiversity objectives by legal order, the WTP targets specified below will apply, consistent with policy direction and technical application of the Wildlife Tree Tables in Appendix 3 of the Landscape Unit Planning Guide.

Table 5 Wildlife Tree Retention Report for the Adam-Eve LU

BEC Subzone	Block Productive	THLB	% Subzone Available for Harvest	% THLB harvested (Productive Forest 60 years or less)	%WTP Retention when LU Objectives Established
CWH vm 1	30495	25006	82	81	13
CWH vm 2	18513	13619	74	41	8
CWH xm 2	6	6	100	33	Not applicable
MH mm 1	8879	6551	74	20	6
Total	57893	45182			

8.3 Draft Legal Objectives for the Adam-Eve Landscape Unit

Preamble

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

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

Legal Objectives – Adam-Eve Landscape Unit

Pursuant to Section 4 of the *Forest Practices Code of British Columbia Act*, the following are the landscape unit objectives for the Adam-Eve Landscape Unit.

Objective 1 – Old Growth Management Areas

1. Maintain or recruit old growth forests in established old growth management areas (OGMAs), as shown on the attached Adam-Eve Landscape Unit map dated XXXXX, 2005 subject to parts 2 and 3 below.
2. Recruit additional old growth forest within 20 years to meet the full OGMA target by selecting and maintaining, at minimum, the combined area (hectares) of variable retention⁶ patches greater than 2 hectares in individual size for each biogeoclimatic unit described in the following table.

Biogeoclimatic Unit	Hectares of Variable Retention Required
CWHvm1	475
CWHvm2	0
MHmm1	0

3. Permissible activities within OGMAs
 - (a) Minor OGMA boundary adjustments for operational reasons:
To accommodate operational requirements for timber harvesting and road or bridge construction, boundaries of OGMAs that are 10 ha or greater in size may be adjusted, provided that
 - i) the boundary adjustment does not affect more than 10 per cent of the area of the OGMA,

⁶ This objective is in force only where the licensee has committed to 100% of forest harvesting occurring by Variable Retention (Beese et al. 2003. Maintaining attributes of old-growth forests in coastal B.C. through variable retention. *Forestry Chronicle*, 570-578). Where this commitment is no longer in effect, the number of hectares required to meet the full spatial OGMA target will be located within mapped OGMAs.

- ii) road or bridge construction is required to access resource values beyond or adjacent to the OGMA and no other practicable option for road or bridge location exists,
- iii) suitable OGMA replacement forest of at least equivalent quantity is identified either (in order of priority) directly adjacent to, or in the same variant and landscape unit as the adjusted OGMA, and
- iv) boundary adjustments and OGMA replacements areas are documented, mapped and submitted to the delegated decision maker at the end of each calendar year.

In the case of ii) above, as an alternative to finding replacement area the licensee may permanently deactivate and rehabilitate a temporary road or bridge site within four years after construction.

(b) Other permissible activities

- i) Boundary pruning of trees to improve wind firmness
- ii) Timber harvesting to prevent the spread of insect infestations or diseases that pose a significant threat to forested areas outside of OGMAs. Salvage within OGMAs will be done in a manner that retains as many old growth forest attributes as possible.
- iii) 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.
- iv) Felling of 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.
- v) Construction of rock quarries and gravel pits under authority of forest tenure where the development will be located immediately adjacent to existing roads under tenure and will affect the OGMA by less than 0.5 ha in total.
- vi) Small boundary adjustments for operational reasons, or intrusions, other than those specified above, that result in a net loss to the OGMA by less than or equal to 0.5 hectare in total.

OGMA replacement forest is required as a result of the activities in 2 (b) above when the total net change to the OGMA exceeds 0.5 ha in size. Replacement forest must be biologically suitable, of equivalent age, structure and area and situated (in order of priority), either immediately adjacent to the existing OGMA, or in the same variant and landscape unit as the existing OGMA. Boundary adjustments and OGMA replacement areas must be documented, mapped and submitted to the delegated decision maker at the end of each calendar year for approval.

Objective 2 – Wildlife Tree Retention

Maintain stand-level structural diversity within harvested cutblocks by retaining wildlife tree patches (WTPs). With the exception of minor salvage cutblocks⁷, each licensee by tenure will ensure that over any five year period, commencing on the date the objectives are established, the target percentages as noted in the following table will be achieved.

Biogeoclimatic Subzone	WTP requirement (%)
CWH vm	
MH mm	

In addition:

- (1) WTPs must be well distributed across the BEC subzone.
- (2) When designated at the site plan level, WTPs must be located within or immediately adjacent to a cutblock.
- (3) No timber harvesting, including single tree selection is to occur within WTPs, except as noted below:
 - (a) Falling of danger trees;
 - (b) Salvage of windthrown timber is permitted within WTPs where windthrow impacts 25% to 50% of the dominant or co-dominant stems. Salvage of windthrown timber and harvesting of remaining standing stems is permitted within WTPs where windthrow exceeds 50% of the dominant or co-dominant stems; or where forest health issues pose a significant threat to areas outside the WTP. Where such salvage/harvesting is planned and authorized, suitable replacement WTP of at least equivalent area must be identified to achieve the retention target.
- (4) WTPs should include, if present, remnant old-growth patches and live or dead veteran trees (excluding danger trees).
- (5) WTPs should include representative larger trees (dbh \geq average operational cruise) for the stand and suitable wildlife trees, if available, as well as identified wildlife habitat features, if present (excluding danger trees).
- (6) BEC subzones and variants will be determined by site plan information.
- (7) In WTPs with a high likelihood of windthrow, pruning and/or topping may be carried out to maintain the integrity of the WTP.

⁷ A minor salvage cutblock is defined as less than 2.0 ha of harvesting and/or less than a total volume of 2000 m³ excluding volume harvested from any road clearing width, if the road is required to facilitate the removal of the timber within the minor salvage cutblock.

References

BC Species and Ecosystems Explorer. 2003. Victoria, British Columbia, Canada.
Available: <http://srmapps.gov.bc.ca/apps/eswp/> (September 15, 2003).

Landscape Unit Planning Guide (1999). BC Forest Practices Branch and BC Ministry of Environment, Lands and Parks. Victoria, BC.

Resources Inventory Committee. Species inventory fundamentals: standards for components of B.C.'s biodiversity. No. 1, v.2. November, 1998.

Sustainable Resource Management Planning: A Landscape-level Strategy for Resource Development. Victoria, BC.

Vancouver Island Summary Land Use Plan. 2000. Land Use Co-ordination Office. Victoria, BC.

Vancouver Regional Landscape Unit Planning Strategy, 1999

Appendix 1 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)

- I. ***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).

- II. **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 mature⁸ and old⁹ 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 SMZ¹⁰; and
 - ii. in SMZs where the area of mature forest is currently less than the mature target range referred to in (i) above, the target amount of mature forest must be in place within 50 years;
 - (b) retaining, within cutblocks¹¹, structural forest attributes and elements with important biodiversity functions¹²; and

⁸ 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.

⁹ 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.

¹⁰ Mature seral targets will be established through landscape unit planning. See transition provisions under III.

¹¹ Within cutblocks: generally means non-contiguous with cutblock boundaries.

(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 applied¹³.

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)¹⁴, 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:*

Maintain late-successional habitat elements and attributes of biodiversity¹⁵ in forested ecosystems with emphasis on regionally rare and underrepresented ecosystems, by retaining old seral forest at the site series/surrogate level of representation¹⁶.

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,

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

¹² This includes, but is not limited to snags, wildlife trees, downed logs.

¹³ Maximum cutblock sizes refer to net area to be reforested.

¹⁴ BC Reg. 107/98 O.C. 426/98 - Effective: June 15, 1998.

¹⁵ 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.

¹⁶ The level of representation of old seral forest will be applied through landscape unit planning.

(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 shortfall¹⁷.

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 Strategy¹⁸; and
 - (c) ecologically suitable second growth forest is identified to recruit the shortfall.¹⁹

¹⁷The 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.

¹⁸ See “Managing Identified Wildlife: Procedures and Measures”, Volume 1, February 1999.

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 Strategy²⁰; and
 - (c) ecologically suitable second growth forest is identified to recruit the shortfall.²¹

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 targets²² and marbled murrelet habitat requirements²³ in the non-contributing²⁴ 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 habitat²⁵.

III. Transition

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:

¹⁹The 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.

²⁰ See “Managing Identified Wildlife: Procedures and Measures”, Volume 1, February 1999.

²¹The 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.

²² See “Landscape Unit Planning Guide”, March 1999.

²³ See “Managing Identified Wildlife: Procedures and Measures”, Volume 1, February 1999.

²⁴ Non-contributing: the crown forested land base that does not contribute to the annual allowable cut, but does contribute to biodiversity objectives and targets.

²⁵ Retention or recruitment of old growth forests will be achieved through the establishment of old growth management areas as part of landscape unit planning.

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.

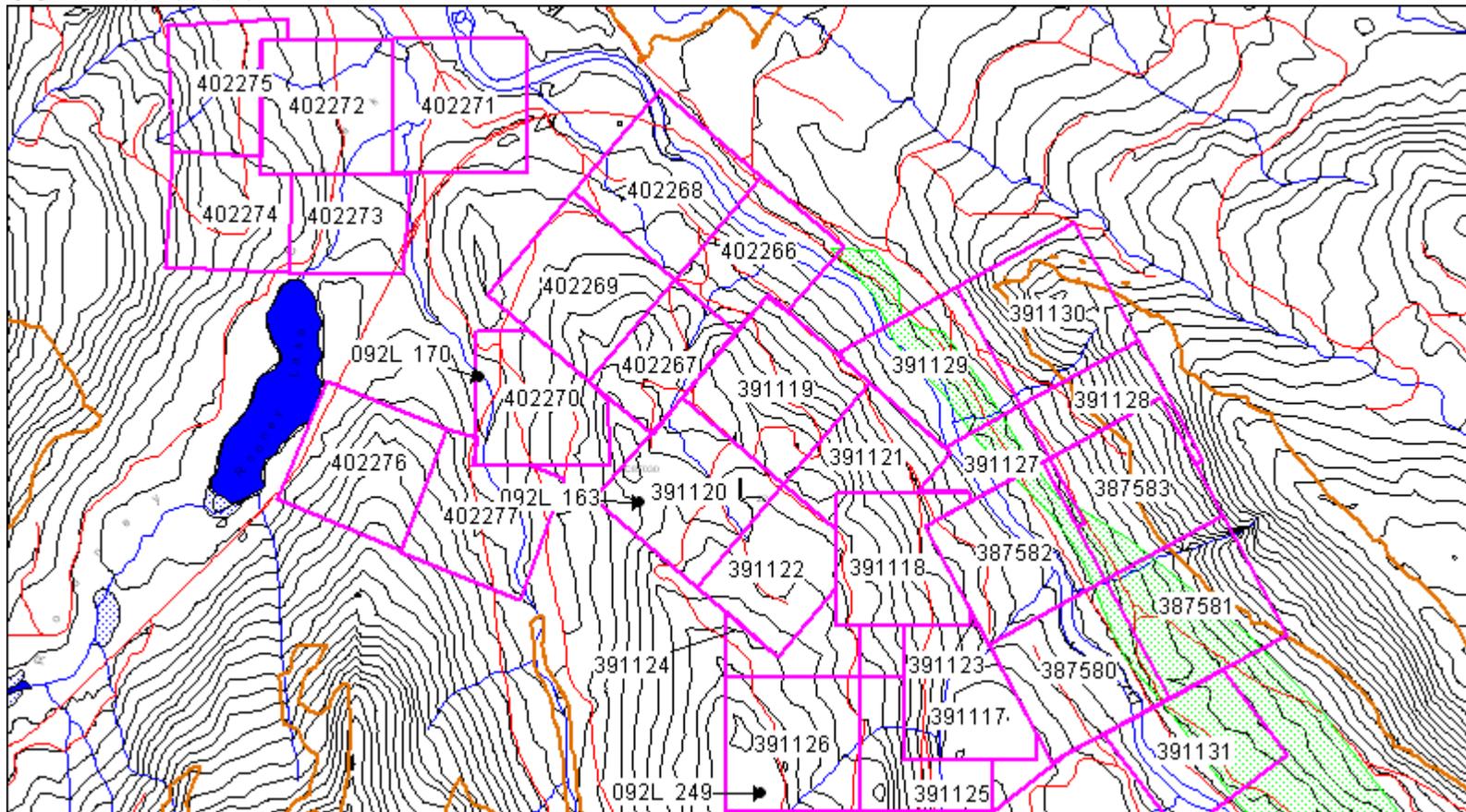
IV. Filing the Order

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

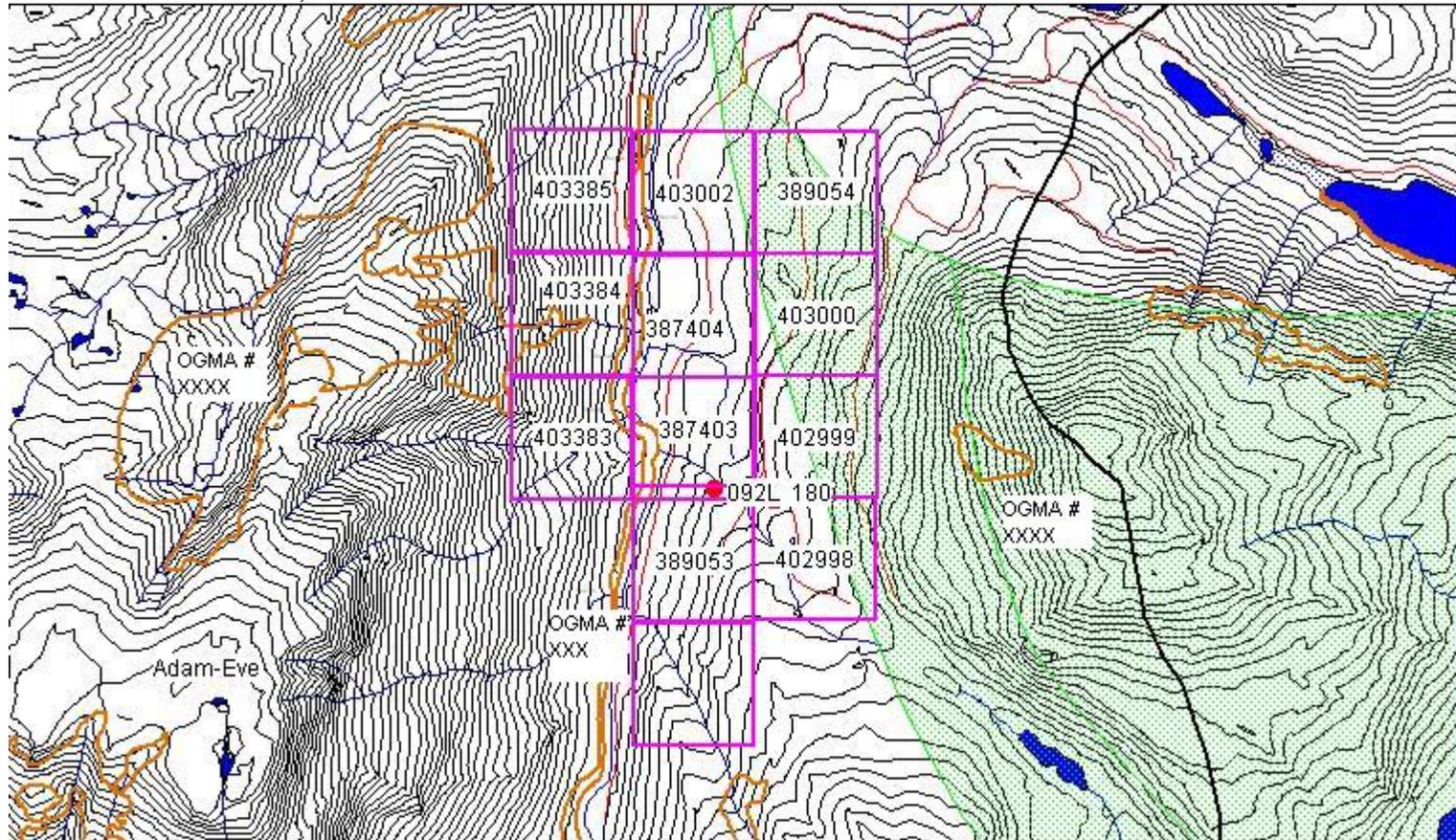
Appendix 2. Proposed Legal OGMA Map for the Adam-Eve Landscape Unit

Appendix 3 Mineral Tenure and Mineral Occurrence with OGMAs

OGMA Numbers: 82



OGMA Numbers: 214; 215



Appendix 4 OGMA Summary

Enhanced Management Zone	
Old Growth Mangement Areas (OGMA's)	Attributes
6, 14, 28, 29, 76, 84-87, 101, 109-116, 127, 131, 133, 182, 184, 187, 224, 226, 238,	Riparian Values
All OGMA polygons within this landscape unit outside of existing UWR's	Selected as potential Marbled Murrelet Habitat
2,3,5,6,7,8,9,9,12,14,14,17,18,19,20,21,22,24,25,26,30,31,32,33,34,37,38,38,39,40,41,41,42,44,46,50,53,56,57,63,64,66,67,68,69,70,70,71,77,78,78,80,80,81,82,84,85,85,86,87,92,93,94,94,96,103,115,115,122,126,126,127,130,133,135,136,136,138,140,143,157,161,162,164,167,170,171,175,176,178,178,182,183,185,185,193,194,200,200,201,225,231,237,238A,238B,239,244,256,278	Identified as moderate-to good quality potential Marbled Murrelet Habitat 2-3 Good Habitat 2 = green Moderate Habitat 3 = blue Bold = UWR
11, 26, 30 41, 51, 93, 94, 196, 197	Identified as very high quality Marbled Murrelet Habitat-mostly existng within UWR's
26, 30, 41, 51, 55, 78, 80, 82, 93, 94, 103, 105, 122, 126, 162, 164, 165, 231, 237, 246	Established (UWR) Ungulate Winter Range with old growth characteristics
2,3,4,5,6,7,8,9,11,12,13,14,15,16,18,25,26,27,28,29,34,39,52,53,54,55,69,79,81,82,83,84,85,86,87,88,94,95,96,99,100,101,102,103,104,109,110,111,112,113,114,120,121,123,128,129,160,161,162,163,164,165,166,173,211,215,229,230,232,234,238,239,240,241,244,245,247,248,249,269,270,271	Provides for target establishment and representation within the CWH vm1 BEC
19,21,31,33,35,36,37,38,40,44,45,46,57,61,62,64,65,66,67,68,70,71,72,73,76,89,90,117,118,119,122,124,135,137,138,139,140,141,142,144,149,150,151,152,154,155,157,158,172,178,180,181,182,183,187,204,205,206,207,208,209,210,216,218,220,221,222,223,224,225,227,235,236,253,255,256,257,258,259,260,261,262,263,264,265,266,267,272,273,274,275,276	Provides for target establishment and representation within the CWH vm2 BEC
32,42,43,63,58,92,134,143,145,147,153,169,170,171,175,176,179,186,188,189,190,191,192,193,194,195,196,197,198,199,201,212,213,217,	Provides for target establishment and representation within the MHmm1 BEC
133,135,174,184,193,194,211,219,224,238,247,	Maintains connectivity between OGMA within the LSU
223, 224, 227, 229, 230, 263	OGMA is adjacent and contiguous with existing protected area (PARK)
9, 15, 41, 44, 56, 66, 75, 77, 93, 94, 97, 98, 101, 102, 104, 106, 108, 117,	OGMA is part of, or adjacent to existing WTP (Wildlife Tree Patch)

123, 124, 125, 127, 131, 133, 136, 146, 168, 173, 193, 204, 211, 215, 238a, 238b, 244	
--	--

Appendix 5 - Adam- Eve Landscape Unit Patch Size Distribution of OGMA's

Patch Size Category in HA	Total Ha within patch size category	Including Schoen Lake Park
0-10	799	
11-20	733	
21-40	984	
41-60	827	
61-80	706	
81-100	258	
101-200	1204	
200+	270	1641

