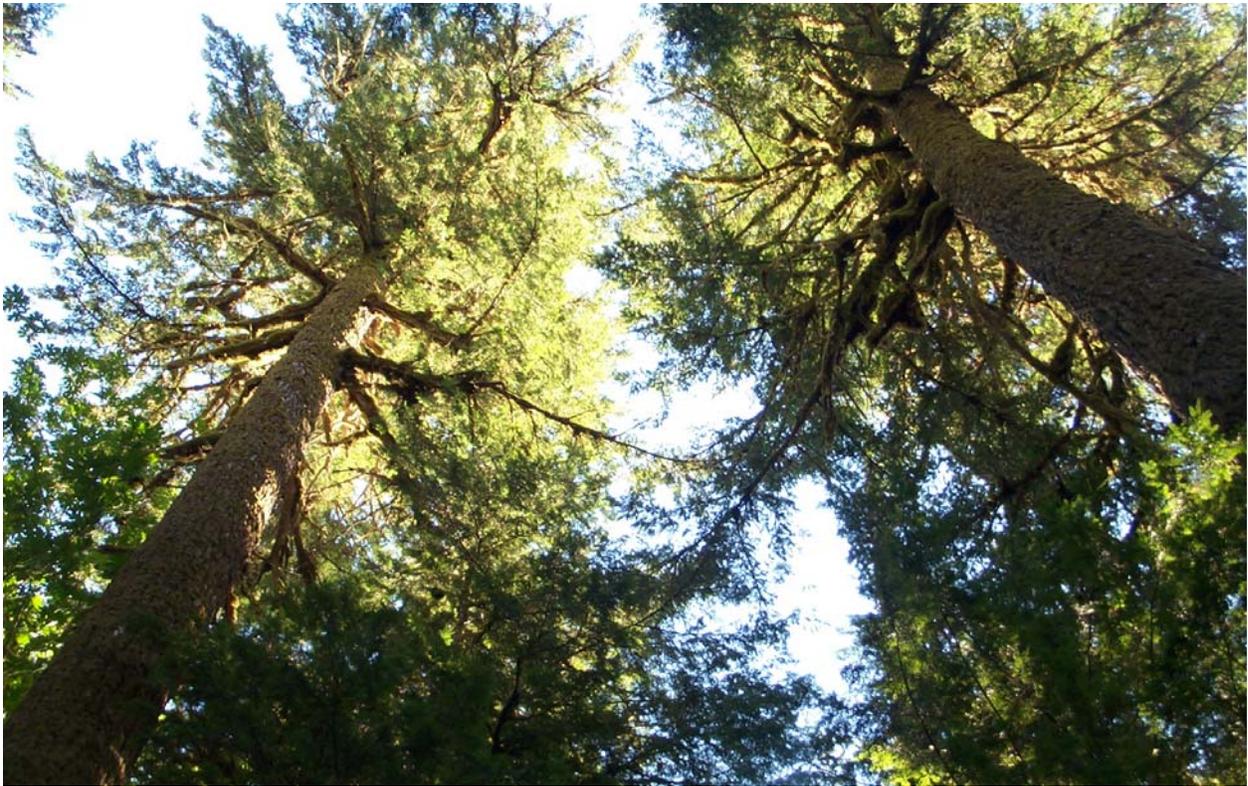


Ministry of Agriculture and Lands  
Integrated Land Management Bureau  
Coast Region

Sustainable Resource Management Plan

**Chehalis Landscape Unit Plan**



**July, 2005**

Prepared by: **Gary Sutherland, RPF**  
SRM Team Leader  
Ministry of Agriculture and Lands  
Integrated Land Management Bureau  
Coast Region – Surrey Office

**Smart Forest Planning**  
Brian Smart, RPF, RPBio.  
Halfmoon Bay, BC

## Executive Summary

The Chehalis LU encompasses the Entire Chehalis River watershed, and covers a total area of 40,115.8 ha. The Chehalis Landscape Unit has been assigned an Intermediate Biodiversity Emphasis option. Old Seral representation targets have been achieved through a combination of old growth and recruitment OGMA

The CWHdm OGMA target was 77.7 ha and 80.3 ha were delineated, of which 24.1ha or 30% is recruitment OGMA. The CWHvm1 target was 1448.4 ha and 1448.5 ha were delineated, including 510.0ha, or 35.2% of recruitment OGMA. The CWHvm2 target was 1465.7 ha and 1474.7 ha of OGMA were delineated with 7 ha, 0.5% of it being recruitment OGMA. The target for the MHmm1 was 995.7ha and 100.6 ha of old growth OGMA were delineated.

Forest cover inventory data was found to be spatially inaccurate within the Chehalis Landscape Unit so OGMA delineation was done based on aerial photograph ortho images, satellite images and TRIM data. The corresponding analysis of impacts pertaining to the Ministry TSR definition of THLB was subsequently based on this offset coverage and is useful as an approximation only. Canfor's operational staff analysed the OGMA delineation based on their local knowledge of operability and produced a more site-specific assessment of THLB impacts.

Wildlife Tree Retention Rates were obtained from the Regional Landscape Unit Planning Strategy Database, March 13, 2002 RLUPS Database v2.0. The WTP retention rates for the Chehalis LU BEC subzones are: CWHdm 12%, CWHvm 13% and 8% for the MHmm1.

# Table of Contents

<b>Executive Summary</b> .....	<b>ii</b>
<b>List of Tables</b> .....	<b>iv</b>
<b>List of Images</b> .....	<b>iv</b>
<b>List of Appendices</b> .....	<b>iv</b>
<b>1.0 Introduction</b> .....	<b>1</b>
<b>2.0 Chehalis Landscape Unit Description</b> .....	<b>1</b>
<b>2.1 Biophysical Description</b> .....	<b>1</b>
<b>2.2 Summary of Land Status</b> .....	<b>2</b>
<b>3.0 Key Resource Tenures</b> .....	<b>2</b>
<b>3.1 Forest Tenure Holders</b> .....	<b>3</b>
<b>3.2 Mineral Tenure Holders</b> .....	<b>3</b>
<b>4.0 Significant Resource Values</b> .....	<b>3</b>
<b>4.1 Fish, Wildlife and Biodiversity</b> .....	<b>3</b>
<b>4.2 Timber Resources</b> .....	<b>4</b>
<b>4.3 Recreation</b> .....	<b>4</b>
<b>4.4 Water</b> .....	<b>4</b>
<b>4.5 Mineral and Geological Resource Values</b> .....	<b>4</b>
<b>5.0 Existing Higher Level Plans</b> .....	<b>5</b>
<b>6.0 First Nations</b> .....	<b>5</b>
<b>7.0 Planning Methodology</b> .....	<b>5</b>
<b>7.1 Selection of Old Growth Management Areas and Boundary Mapping</b> .....	<b>5</b>
<b>7.2 Existing Planning Processes</b> .....	<b>6</b>
<b>7.3 Assessment and Review</b> .....	<b>7</b>
<b>7.4 Amendment Policy</b> .....	<b>7</b>
<b>7.5 Mitigation of Timber Supply Impacts</b> .....	<b>7</b>
<b>8.0 Chehalis Landscape Unit Old Seral Representation</b> .....	<b>8</b>
<b>8.1 Old Growth Management Areas</b> .....	<b>8</b>
<b>9.0 Wildlife Tree Retention</b> .....	<b>10</b>
<b>10.0 Landscape Unit Plan Objectives</b> .....	<b>10</b>

## **List of Tables**

<b>Table 1:</b>	<b>Productive Crown Forest Land Status from RLUPS .....</b>	<b>2</b>
<b>Table 2:</b>	<b>RLUPS Report current Level of Old Growth Forest and Targets by BEC Variant .....</b>	<b>7</b>
<b>Table 3:</b>	<b>Chehalis Landscape Unit OGMA Requirements.....</b>	<b>8</b>

## **List of Images**

<b>Image 1:</b>	<b>Old Growth and Recruitment OGMAs in the Chehalis Landscape Unit.....</b>	<b>9</b>
-----------------	---	----------

## **List of Appendices**

<b>Appendix I:</b>	<b>Public Consultation Summary.....</b>	<b>11</b>
<b>Appendix II:</b>	<b>List of Acronyms.....</b>	<b>12</b>

## **1.0 Introduction**

This report provides background information used during the preparation of the proposed legal objectives for the Chehalis Landscape Unit (LU). Planning for Old Growth Management Areas (OGMA) and Wildlife Tree Patch (WTP) biodiversity values is a high priority for the Province, as it is an important component of the *Forest and Range Practices Act (FRPA)*, *Forest Practices Code of BC Act (FPC)* which allows legal establishment of objectives to address landscape level biodiversity values.

Implementation of this initiative is intended to help maintain certain biodiversity values. Retention of biodiversity is important for wildlife and can also provide important benefits to ecosystem management, protection of water quality and preservation of other natural resources.

There are 23 LUs within the Chilliwack Forest District. Through a ranking process, the Chehalis LU was rated as an Intermediate BEO, which requires that priority biodiversity provisions, including the delineation of OGMAs and WTPs, be undertaken immediately.

Input from First Nations was gathered during consultation (prior to public review) between MSRM and individual First Nations. Comment from the public and other agencies will be sought during the 60 day public review and comment period. Refer to the attached map for the location of OGMAs.

This document should be read in conjunction with the *Landscape Unit Planning Guide (LUPG)*, the *Biodiversity Guidebook*, the *Vancouver Regional Landscape Unit Planning Strategy (1999)* and *Sustainable Resource Management Planning: A Landscape-level Strategy for Resource Development* for an understanding of government policy, planning processes and biodiversity concepts which are associated with landscape unit planning.

## **2.0 Chehalis Landscape Unit Description**

### **2.1 Biophysical Description**

The Chehalis LU encompasses the entire Chehalis watershed, which is situated immediately West of the Harrison River system. The Western boundary abuts Norrish Creek and the Stave River watershed at the height of land. The Landscape Unit covers a total area of 40,115.8 ha. Named tributaries to the Chehalis include Elbow, Statlu, Maisal and Eagle Creeks. Chehalis Lake is an 8.75 km long freshwater lake situated about two-thirds up the Chehalis watershed.

The total gross area of the Chehalis Landscape Unit is 40,115.8ha, and 28,686.3 ha is Crown Productive forest land base. The remaining 11,429.5 ha are non-forested or non-Crown (rock, alpine tundra, water, private land etc.) and have been excluded from OGMA contributions and calculations. Table 1, in Section 2.2 below, lists the Productive Forest in classes of timber productivity.

The Chehalis LU is almost entirely within the Southern Pacific Ranges Ecosection of the Pacific Ranges Ecoregion. Only the lower 4 km of the LU are within the Fraser Lowland Ecosection of the Lower mainland Ecoregion. Climatic conditions vary most prominently by elevation. Climate in the lower elevation areas along the main Chehalis River valley is typically wet and humid with cool summers and mild winters featuring relatively little snowfall. Growing seasons are long. At mid elevations in the LU climate is also wet and humid with cool, short summers and cool winters featuring substantial snowfall. High elevations in the LU are characterized by long, wet, cold winters with high snowfall and short, cool, moist summers.

The Chehalis LU has five Biogeoclimatic (BEC) subzones or variants, which include three natural disturbance types (NDT) The Mountain Hemlock variant – *windward* moist maritime (MHmm1) lies within NDT 1; as do the two Coastal Western Hemlock variants – *submontane* very wet maritime (CWHvm1) and *montane* very wet maritime (CWHvm2). The CWH dry maritime subzone (CWHdm) falls with in NDT2. The landscape unit also has substantial amounts of high elevation non-forested area in NDT5 (Alpine Tundra).

In the lower elevation variants, within CWHdm and CWHvm1, the Chehalis LU has sustained substantial levels of disturbance. Forested stands on lower elevation productive sites (typically on slopes with low to moderate gradient) have been disturbed by past timber harvesting, natural wildfire or other natural disturbance. As a result, the CWHdm and CWHvm1 do not have enough old seral forest to meet the RLUPS old seral retention targets.

## 2.2 Summary of Land Status

Table 1, below lists the productive Crown forested land in the Chehalis LU.

**Table 1. Productive Crown Forest Land Status from RLUPS**

BEC Unit	Total Productive Forest ha	Crown Forested Land Base*	
		THLB <sup>1</sup>	NC <sup>2</sup>
CWH dm	863.12	683.5	179.6
CWH vm1	11141.6	9452.8	1688.8
CWH vm2	11274.7	7059.1	4215.6
MH mm1	5240.3	2893.9	2346.2
<b>TOTAL</b>	<b>28519.72</b>	<b>20089.3</b>	<b>8430.2</b>

1) THLB Timber Harvesting Land Base

2) NC Non-Contributing (to the Allowable Annual Cut) landbase

## 3.0 Key Resource Tenures

The planning process included identification of tenures that are administered by agencies such as the Ministry of Forests (MOF), Ministry of Energy and Mines and Crown corporations such as British Columbia Assets and Land Corporation. For tenure holders, other than those administered by MOF, the management intent is to avoid placement of OGMAs within existing tenures.

### **3.1 Forest Tenure Holders**

Within the Chehalis plan area, two major licensees operate within volume-based forest licence tenures. The Chehalis also has substantial areas within timber licence tenures. The OGMA's selected do not impact any known approved category "A" cutblocks or roads as approved under a Forest Development Plan. Licensee involvement has taken place to ensure that the intent of this LU plan has been conveyed and impacts on planned development have been minimized.

### **3.2 Mineral Tenure Holders**

The establishment of an OGMA will not have an impact on the status of existing mineral and gas permits or tenures. Exploration and development activities are permitted in OGMA's. The preference is to proceed with exploration and development in a way that is sensitive to the old growth values of the OGMA; however, if exploration and development proceeds to the point of significantly impacting old growth values, then the OGMA will be moved.

## **4.0 Significant Resource Values**

### **4.1 Fish, Wildlife and Biodiversity**

Wildlife resources of primary management concern in the Chehalis LU include: spotted owl, black-tailed deer, mountain goat, grizzly bears and populations of both resident and anadromous fish. Approximately 45% of the gross forested area of the landscape unit is currently suitable owl habitat (>100 years old forest), with another 2,557 ha in recruitment area to eventually increase this to 67% suitable.

Forested winter range habitat for black-tailed deer and mountain goats has been identified by MWLAP, which are being considered for legal establishment. Some of the UWR overlaps with Spotted Owl SRMZ and some of each species habitats have been captured in OGMA. The habitat maintained for ungulates would also benefit other forest dependent species.

Most of the named stream systems support anadromous and/or resident salmonid populations. Riparian reserve zones adjacent to these fish streams will help maintain fish and wildlife habitat. Where riparian areas have been harvested habitat will be provided in the future as it re-grows.

Grizzly bears in the Chehalis LU, which exist in approximately the northern 1/3 of the LU, are part of the Garibaldi-Pitt grizzly bear population unit for which a Recovery Plan has yet to be developed. The Recovery Plan will include objectives and strategies to protect and enhance grizzly bear habitat values. Provisions exist within the Identified Wildlife Management Strategy to protect some critical Grizzly foraging and security habitat within Wildlife Habitat Areas (WHA). Other species of Identified Wildlife that may be discovered later may receive habitat protection with WHAs as well. In turn, these WHAs will help provide habitat for species not actively managed for.

## **4.2 Timber Resources**

The Chehalis landscape unit contains over 20,000 ha of timber harvesting landbase. The close proximity of the Chehalis Valley to the Lower Mainland log market and to the community for labour and industry support services adds to the value of the area for timber production. The close proximity to communities also makes silvicultural activities more economical, providing a greater employment opportunity than similar areas in more remote locations could.

## **4.3 Recreation**

There are no Provincial Parks within the landscape unit, however, several small recreation sites exist. Three are located around Chehalis Lake and two are situated along the lower Chehalis River. All are popular with the public and busy through the summer months. Overall, the Chehalis LU receives moderate to high public recreation use. Popular summer and fall recreational activities include: boating, lake and river fishing, camping, 4 wheel drive and ATV use, nature viewing, hiking, hunting, harvesting of botanical forest products as well as wildlife viewing and sightseeing. Winter recreational activity is normally restricted by seasonal snow accumulation, although snowmobiling does occur.

## **4.4 Water**

There is one Community Watershed within the Chehalis LU, in Elbow Creek, a tributary to Chehalis River.

All water bodies provide both aquatic ecosystem habitat and wetland/upland habitat diversity which supports a high degree of biodiversity. OGMAs and WTPs are often linked to FPC-designated riparian areas to increase the overall size of the reserves and to maintain a high degree of habitat diversity within them. The riparian areas also provide linkages between the other reserves.

## **4.5 Mineral and Geological Resource Values**

Subsurface resource potential (minerals, coal, oil, gas and geothermal) as well as aggregate resources are present within the Chehalis LU, although there are only several existing mineral tenures.

## **5.0 Existing Higher Level Plans**

There are no existing higher level plans within the Chehalis LU.



be transferable to operational maps, ensuring that the OGMA boundaries can be accurately located on the ground and specific OGMA stands can be easily identified by operational staff in the future.

All stands were selected using aerial photographs, and field checked (helicopter overview) to confirm their old growth status and the presence of appropriate habitat attributes.

OGMAs are not intended to be permanent. As current young stands in NC forest progress in age and structure to become suitable as old growth representation, they may be designated as an OGMA to replace a current OGMA within the THLB. As wildlife tree patches and other inoperable areas with appropriate characteristics are identified in the future, they may be substituted for current OGMAs.

## **7.2 Existing Planning Processes**

In general, each LU contains varying amounts of mature and old forested habitat provided by existing processes (e.g. some LUs have spotted owl Special Resource Management Zones, some have protected areas) from which to utilize for old seral representation. The FPC ungulate winter range process, once completed, may also help provide old seral representation and future Wildlife Habitat Areas may also contribute areas. In the long term, old growth developing in past harvested riparian reserve zones will add to old forest totals.

An important part of the OGMA planning exercise was to ensure that these separate processes complemented each other. For example, OGMAs were placed within or adjacent to Riparian management zones to overlap constraints and to increase patch size. These larger patches then allow greater opportunity to improve connectivity. The intent is to maintain (or recruit) a series of old forest habitat patches across probable movement corridors to allow wildlife dispersal and gene flow. Species such as deer are particularly susceptible to mortality in winter; connecting or aggregating OGMAs may help facilitate deer movement in addition to benefiting general biodiversity.

## **7.3 Assessment and Review**

OGMAs were selected based on a review of stand attributes in an effort to maximize their value from a biodiversity standpoint while minimizing timber supply impact. Spatial distribution of OGMAs throughout the LU was also a selection criterion. In general, larger patches were selected as OGMAs to provide for forest interior habitat conditions although this was not possible in some BEC subzones. In addition, smaller patches containing old forest with natural edges were included as well.

Table 2, below, shows the OGMA targets per BEC unit for the Chehalis LU.

In the Chehalis Landscape Unit there was insufficient old forest in two of the four BEC variants to meet OGMA targets. For these 2 variants it was necessary to designate some younger-aged stands as recruitment OGMAs. Where possible mature stands with old forest attributes (e.g.

veterans, snags, multi-layered canopy) or high resource values (e.g. riparian areas, spotted owl, ungulate winter range,) were chosen as recruitment OGMAs.

**Table 2. RLUPS Report Current Level of Old Growth Forest and Targets by Variant.**

BEC Unit and NDT <sup>1</sup>	Total Productive Forest (ha)	OGMA Target	
		%	Ha
CWHdm, 2	863.1	9	77.7
CWHvm1, 1	11141.6	13	1448.4
CWHvm2, 1	11274.7	13	1465.7
MHmm1, 1	5240.3	19	995.7

1) NDT = Natural Disturbance Type. Refer to LUPG, Appendix 2.

**CWHdm:** Coastal Western Hemlock biogeoclimatic zone, dry maritime subzone.

**CWHvm1:** Coastal Western Hemlock biogeoclimatic zone, very moist maritime, subzone, submontane variant.

**CWHvm2:** Coastal Western Hemlock biogeoclimatic zone, very moist maritime subzone, montane variant.

**MHmm1:** Mountain Hemlock biogeoclimatic zone, moist maritime subzone, variant 1; windward.

## 7.4 Amendment Policy

A MAL Coast Region policy has been developed and approved to give direction to forest tenure holders when applying for amendments to OGMA legal objectives. Amendment procedures cover such things as minor or major amendments for resource development (e.g. roads, bridges, boundary issues, rock quarries & gravel pits) or relocation of OGMAs. The policy also describes acceptable management activities and review procedures and it forms an integral part of this LU plan.

## 7.5 Mitigation of Timber Supply Impacts

The Chehalis LU plan has been developed to maximize the effectiveness of the Forest Practices Code (FPC) biodiversity management provisions while minimizing impacts on the Fraser TSA timber supply. Timber Supply Review inventory data-derived THLB definitions were not operationally accurate so Canfor staff provided site-specific operability information. Impacts to harvesting levels were avoided in all BEC units except the CWHvm1 where past wildfire and harvesting history has been extensive and operability is high. Impacts to the THLB of the CWHvm1 are 242 ha, although much of this timber is of lower value, having been left standing during past operations in the vicinity. Specific measures adopted to minimize THLB impacts of LU planning include the following:

- Areas identified as Environmentally-Sensitive Areas (ESA) and areas of difficult access were included within OGMAs where possible and where compatible with biodiversity strategies.

- Goat winter range formed the basis for portions of the higher elevation OGMAs, and OGMAs were located in Spotted Owl habitat as well.
- During the LU planning process, careful consideration was made to ensure that timber access was not cut off by OGMA delineation. Access corridors were left out of OGMAs and OGMA boundaries were delineated to simplify management of adjacent stands.
- Many non-contributing areas are not included as OGMAs at this time, mostly due to their young age class and absence of old growth characteristics. As stands in these areas mature they may become suitable as an OGMA replacing those within the THLB. Riparian management initiatives, such as creating old growth features, may speed the progress of some stands becoming an OGMA. Periodic assessment and revision of OGMAs will be required.
- Local licensee operational knowledge was necessary to ensure that impacts to the AAC were minimized.
- The Ministry of Forests' Timber Supply Review-defined maps of timber harvesting land base and non-contributing forest were not intended to be accurate at the small scale of OGMA delineation so the involvement of Licensee staff familiar with the area ensured that impacts were minimized.

## 8.0 Chehalis Landscape Unit Old Seral Representation

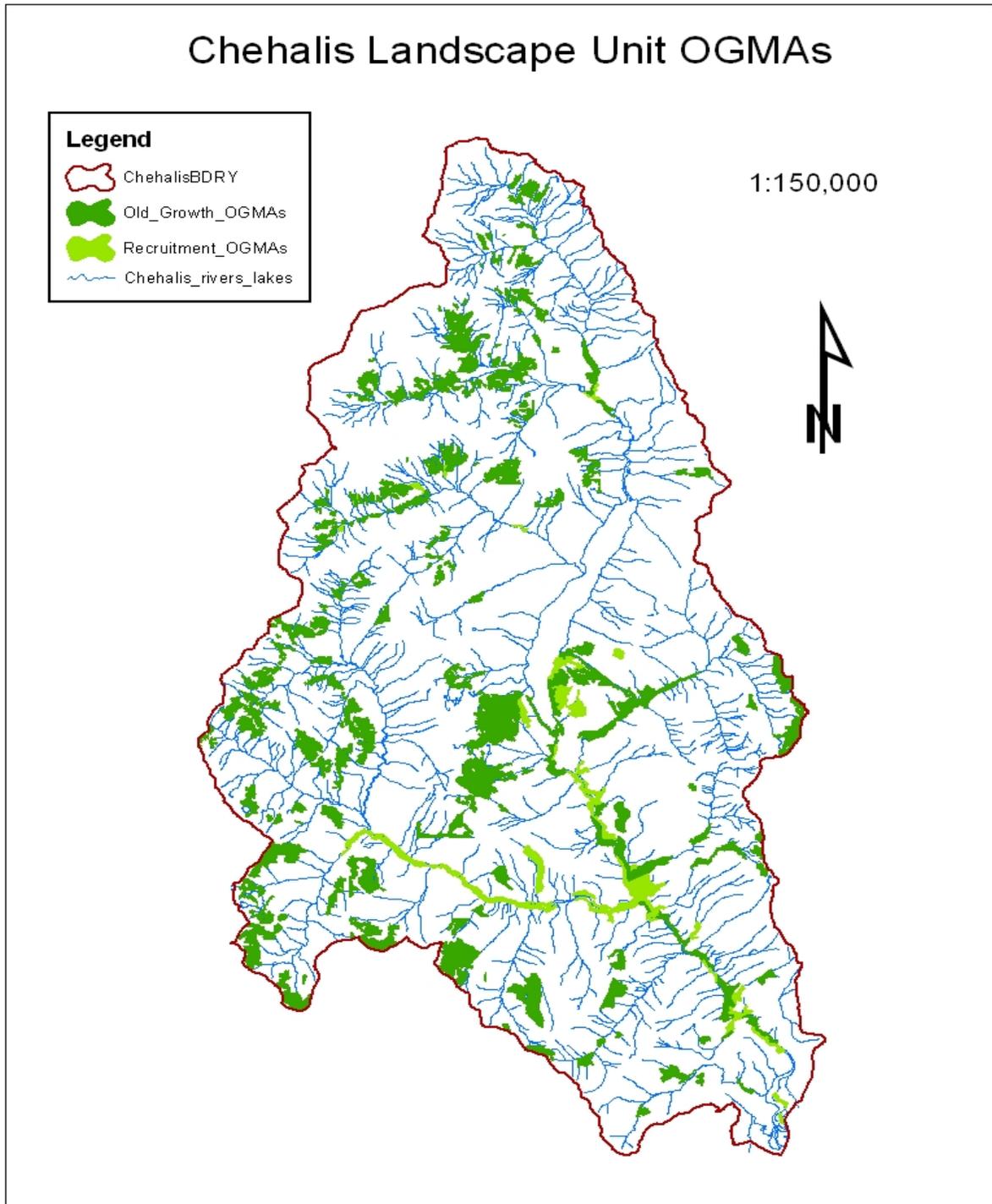
### 8.1 Old Growth Management Areas

The Chehalis LU was ranked as an Intermediate biodiversity emphasis option (BEO) through the biodiversity value ranking process completed earlier (see the *Vancouver Forest Region Landscape Unit Planning Strategy*, 1999). This Intermediate BEO designation along with the BEC variant determines the percentage of the Crown forest land base that will be designated as OGMA. Table 3, below, outlines the total amount of OGMA required and established in each variant and corresponding Crown forest category. See the attached map for location of OGMAs.

**Table 3. Chehalis Landscape Unit OGMA Requirements**

<b>BEC Variant</b>	<b>OGMA Target</b>	<b>Established OGMAs</b>	<b>Old Growth OGMAs</b>	<b>Recruitment OGMA</b>
	ha	ha	ha	ha
CWH dm	77.7	80.3	53.6	24.1
CWH vm1	1448.4	1448.5	938.4	510.0
CWH vm2	1465.7	1474.6	1458.7	7.0
MH mm1	995.7	1000.6	995.7	0.0
<b>Totals</b>	<b>3987.5</b>	<b>4004.0</b>	<b>3446.4</b>	<b>541.1</b>

Refer to image 5, below, a map of the old growth and recruitment OGMA's for the Chehalis LU.



**Image 1: Old Growth and Recruitment OGMA's in the Chehalis Landscape Unit**

## **9.0 Wildlife Tree Retention**

Wildlife Tree Retention (WTR) is managed at the stand level and maintains structural diversity within managed stands by retaining wildlife trees immediately adjacent to or within cutblocks. The WTR percentage by BEC subzone is described in Table A of the Legal Objectives. Retention percentages will meet the targets outlined in the LUPG (MOF/MOE 1999) for each BEC unit.

The retention percentage does not have to be fully implemented on a cutblock-by-cutblock basis. Instead, the retention target may apply over a larger area (e.g. FDP or equivalent), so long as the retention target is met each 3 year period. The intent is to provide limited flexibility at the cutblock level provided that the legally required percentage is met across the subzone. Since wildlife tree retention is a stand level biodiversity provision, wildlife tree patches are also to be distributed across each subzone and the landscape unit.

## **10.0 Landscape Unit Plan Objectives**

Landscape unit objectives will be legally established within the framework of the FPC, and as such will become Higher Level Plan objectives. Other operational plans must be consistent with these objectives.

## **Appendix I: Public Consultation Summary**

Prior to the public consultation period, MAL met with the local forest licensees and First Nations. Meetings were also held with MOFR and MOE. Mineral tenure holders were also advised of OGMA placement. Comments received were addressed wherever possible.

The Chehalis LU was advertised for public review and comment for 60 days from August 2, 2005 until October 4, 2005.

No comments were received.

## Appendix II: Acronyms

AAC	Allowable Annual Cut
BEC	Biogeoclimatic Ecosystem Classification
BEO	Biodiversity Emphasis Option
FRPA	Forest and Range Practices Act
FPC	Forest Practices Code
LU	Landscape Unit
LUPG	Landscape Unit Planning Guide
MAL	Ministry of Agriculture and Lands
MEM	Ministry of Energy and Mines
MOE	Ministry of Environment
MOF	Ministry of Forests
NC	Non-contributing
NDT	Natural Disturbance Type
OGMA	Old Growth Management Area
THLB	Timber Harvesting Land Base
UWR	Ungulate Winter Range
WHA	Wildlife Habitat Area
WTP	Wildlife Tree Patch
WTR	Wildlife Tree Retention