# SUSTAINABLE FOREST MANAGEMENT PLAN

# 2003 ANNUAL REPORT

# FINAL

*Canadian Forest Products Ltd.*

*Peace Region*

*Chetwynd Operations —TFL 48*

**Canadian Forest Products Ltd.**

Chetwynd
Chetwynd, BC V0C 1J0

Version 1.1

July 8, 2004

# SUSTAINABLE FOREST MANAGEMENT PLAN

# 2003 ANNUAL REPORT

Canadian Forest Products Ltd.

Chetwynd Operations — TFL 48

**Prepared by:**


Warren Jukes, RPF
Management Forester

Don Rosen
Forest Inventory Specialist

Ted Newbery
Consultant


July *2004*

## EXECUTIVE SUMMARY

The following table summarizes suggested revisions or significant progress to indicators in the 2003 Annual Report:

| Indicator | Synopsis of Significant Revisions, Progress or Methodology |
|---|---|
| 5 – Habitat Supply for Indicator Species | Update on Fisher and Elk models |
| 7 – Collection and Use of Registered Seed | Exceptions are reported |
| 12 – OGMA's | Interim Conservation Areas identified |
| 13 – Coarse Woody Debris | Analysis completed and new indicator and objective is proposed |
| 14 – Habitat Connectivity | Proposed extension of timeline to include with MP4 Analysis |
| 22 – Area in Cutblock Managed as RRZ or RMZ | Proposed adjustment to Indicator Statement (i.e. width versus area) |
| 24 – Stream Crossing Quality Index | Update on Hasler watershed |
| 31 – Timber Harvesting Utilization Standards | Propose to discontinue indicator and objective |
| 39 – Botanical Forest Products | Propose to remove indicator and objective |

# TABLE OF CONTENTS

**EXECUTIVE SUMMARY** ..... **I**

**ACKNOWLEDGEMENTS** ..... **V**

**1 INTRODUCTION & OVERVIEW** ..... **1**

1.1 OVERVIEW ..... 2

**2 SFM INDICATORS AND OBJECTIVES** ..... **3**

2.1 CONSERVATION OF BIOLOGICAL DIVERSITY ..... 3

*2.1-1 Forest Types Over Time* ..... *3*

*2.1-2 Seral Stage Over Time* ..... *4*

2.2 PATCH SIZE DISTRIBUTION ..... 10

2.3 PROTECTED AREA BY SERAL STAGE ..... 12

2.4 SPECIES AT RISK ..... 13

2.5 HABITAT SUPPLY FOR INDICATOR SPECIES ..... 15

*2.5-1 Wildlife Models* ..... *15*

*2.5-2 Furbearer Habitat Availability* ..... *17*

2.6 DISEASE TRANSMISSION TO SHEEP ..... 18

2.7 COLLECTION AND USE OF REGISTERED SEED ..... 18

2.8 INCIDENCE OF FIRE, WINDFALL INSECTS AND DISEASE ..... 19

*2.8-1 Minimize Non-Recoverable Losses* ..... *19*

*2.8-2 Salvage of Merchantable Timber Volumes* ..... *21*

2.9 PERCENT OF A HARVESTED AREA REFORESTED ..... 21

2.10 MINIMUM HARVEST AGE ..... 22

2.11 WILDLIFE TREE PATCHES ..... 23

2.12 OLD GROWTH MANAGEMENT AREAS ..... 25

2.13 COARSE WOODY DEBRIS ..... 27

2.14 HABITAT CONNECTIVITY ..... 29

2.15 AREA OF THE TFL OCCUPIED BY PERMANENT ACCESS CORRIDORS ..... 29

2.16 NUMBER OF REPORTABLE SPILLS ..... 29

2.17 USE OF ENVIRONMENTALLY FRIENDLY LUBRICANTS ..... 30

2.18 SOIL PRODUCTIVITY MEASURES ..... 30

2.19 SOIL DEGRADATION ..... 32

2.20 SEEDLING GROWTH OR ESTABLISHMENT ..... 33

2.21 SOIL DISTURBANCE SURVEYS ..... 33

2.22 AREA IN CUTBLOCK MANAGED AS RRZ OR RMZ ..... 34

2.23 AREA OF A STREAM AFFECTED BY HARVESTING AND ROAD CONSTRUCTION ..... 35

*2.23-1 Hazard Indices* ..... *35*

*2.23-2 Watercourses and Hazards to Watercourses* ..... *35*

2.24 STREAM CROSSING QUALITY INDEX ..... 36

2.25 PEAK FLOW INDEX ..... 39

2.26 FOREST HEALTH ..... 42
2.27 ALLOWABLE ANNUAL CUT ..... 42
2.28 SAWMILL LRF, CRF AND SHIPMENT OF MINI-CHIPS ..... 42
2.29 HARVEST LEVELS/VOLUMES ..... 43
2.30 WASTE ..... 44
2.31 TIMBER HARVESTING UTILIZATION STANDARDS ..... 45
2.32 AREA OF FORESTED LAND ..... 46
*2.32-1 Track and Project Losses ..... 46*
2.33 INVESTMENT IN NEW TECHNOLOGY, CAPITAL MAINTENANCE AND CONSTRUCTION ..... 46
2.34 ECONOMIC CONTRIBUTION TO LOCAL COMMUNITIES AND CONTRACTORS ..... 47
*2.34-1 Local Economic Indices ..... 47*
*2.34-2 Local Contractors ..... 48*
2.35 ANIMAL UNIT MONTHS ..... 48
2.36 VISUAL LANDSCAPE INVENTORY ..... 49
2.37 LEVEL OF PUBLIC ACCEPTANCE ..... 49
*2.37-1 Visual Landscape Inventory Public Input ..... 49*
*2.37-2 Visual Impact Assessments ..... 50*
2.38 BACK COUNTRY CONDITION ..... 53
2.39 BOTANICAL FOREST PRODUCTS ..... 54
2.40 PUBLIC ADVISORY COMMITTEE ..... 55
*2.40-1 Public Advisory Committee ..... 55*
*2.40-2 Annual Open House ..... 56*
2.41 PARTICIPATION IN LRMP ..... 56
2.42 LRMP AND LAND USE PLANS ..... 56
2.43 PROACTIVE CONSULTATION PROCESS ..... 57
2.44 ARCHAEOLOGICAL IMPACT ASSESSMENTS ..... 57
2.45 ABORIGINAL LIAISON ..... 57
2.46 INCORPORATE OBJECTIVES OF KLIN SE ZA INTO FDP AND MP ..... 58
2.47 ABORIGINAL EMPLOYMENT ..... 58
2.48 FDP, PMP AND MP ..... 58
2.49 PUBLIC ENQUIRY FORMS ..... 59
2.50 LEVEL OF PUBLIC COMMENTS ..... 60
2.51 SPATIAL AND TEMPORAL MODELS ..... 61
*2.51-1 Modelling Systems ..... 61*
*2.51-2 Vegetation Inventory ..... 61*
*2.51-3 Best Available Science ..... 62*
2.52 NUMBER OF RECREATIONAL TRAILS AND CAMPSITES ..... 62

**3 LITERATURE CITED ..... 63**

## LIST OF TABLES


Table 1: Forest Types March 2000 ..... 3
Table 2: Seral Stages 2001 and 2006 ..... 5
Table 3: Patch Size Distribution Status and Targets ..... 10
Table 4: Current Status of Seral Stages within Protected Areas as of July 2000 ..... 12
Table 5: Species at Risk Listing ..... 14
Table 6: Summary of Species at Risk by Taxa 1999-2003 ..... 14
Table 7: Tree Seed Origin ..... 18
Table 8: Forest Health Incidence ..... 20
Table 9: Summary of Salvage ..... 21
Table 10: Average Harvest Age for Proposed Category A Blocks ..... 22
Table 11: Wildlife Tree Patch by Landscape Unit and BEC Variant ..... 24
Table 12: Average Site Index by Leading Species ..... 31
Table 13: Conformance To Site Degradation Guidelines ..... 32
Table 14: Free Growing Status as of April 2003 ..... 33
Table 15: Summary of Riparian Reserve and Management Zones in 2000 - 2003 ..... 34
Table 16: Stream Crossing Inventory for Bogus Watershed ..... 37
Table 17: SCQI and Water Quality Concerns for Three Sub-Basins within TFL 48 – Sampling Completed During 2003 ..... 38
Table 18: Peak Flow Index (Current and Target) and Watershed Characteristics for Block 1 and Block 2 ..... 40
Table 19: Peak Flow Index (Current and Target) and Watershed Characteristics for Block 4 and Block 5 ..... 41
Table 20: Summary of Sawmill LRF, CRF and Shipment of Mini-Chips ..... 43
Table 21: Actual Recorded and Allowable Annual Cut Summary ..... 44
Table 22: Summary of Waste and Residue ..... 45
Table 23: Annual Average Investment ..... 46
Table 24: Canfor's Contribution to Local Communities ..... 47
Table 25: Animal Unit Months on TFL 48 for 2001 ..... 48
Table 26: Blocks Harvested in 2001 with Post Harvest Assessments Required ..... 50
Table 27: Blocks Harvested in 2002 with VIA Requirements ..... 50
Table 28: Blocks Harvested in 2003 with VIA Requirements ..... 52
Table 29: Canfor Road Activity within Backcountry Areas in 2002 ..... 53
Table 30: Canfor Harvest/Silviculture Activity within Backcountry Areas in 2002 ..... 53
Table 31: Area of ROS Class by PAS and SMZ's from MP 3 ..... 54
Table 32: Revised Baseline Area of ROS Class for Butler Ridge and Dunlevy ..... 54
Table 33: Summary of Meeting Dates, Committee, Advisors and Public Attendance ..... 55
Table 34: Number of Meetings Held with First Nations Annually ..... 57
Table 35: Summary of Plan Referrals in 2003 ..... 59
Table 36: Summary of Public Enquiries Received in Relation to TFL 48 in 2003 ..... 59

## LIST OF FIGURES

Figure 1: Tree Farm Licence 48 ..... 1
Figure 2: 2001 - 2006 Seral Stage Summary for TFL 48 ..... 4
Figure 3: Natural Disturbance Units ..... 9
Figure 4: Patch Size Distribution by Natural Disturbance Unit (2001 - 2006) ..... 11
Figure 5: Habitat Suitability for Indicator Species ..... 16
Figure 6: Interim Conservation Areas ..... 26
Figure 7: Range of CWD Accumulations (volume/ha) Over Age. ..... 28

## APPENDICES

Appendix 1. Glossary of Acronyms and Terms ..... 65
Appendix 2. ROS Polygon Delineation Standards ..... 79
Appendix 3. KPMG Forest Certification Update – February 2004 ..... 83
Appendix 4. Canfor - Chetwynd SFM Matrix ..... 85

## ACKNOWLEDGEMENTS

We would like to thank Carol Norris for her hard work in compiling the document and the Chetwynd Woodlands staff and BC Timber Sales (Dawson Creek) staff for compiling data.

We would like to thank the Public Advisory Committee members and advisors for their continued input to the Sustainable Forest Management process and providing input on the draft document.

# 1 INTRODUCTION & OVERVIEW

Canadian Forest Products Ltd. (Canfor) achieved registration under the Canadian Standards Association CAN/CSA Z809-96 Sustainable Forest Management System for Tree Farm Licence (TFL) 48's (see Figure 1) forestry operations in July 2000, and re-registration in 2002. In partial fulfilment of achieving registration, a public group — the Chetwynd Public Advisory Committee (PAC) — was formed at the beginning of 2000 to help Canfor identify quantifiable local-level Indicators and Objectives for sustainable forest management. The original Indicators and Objectives identified by the PAC were detailed with associated forest management practices to achieve those objectives in Management Plan 3 for Tree Farm Licence 48 (Canfor, 2000 and 2001). The 2003 Annual Report is a summary report on the status of each indicator and provides revisions to several indicators, objectives, or the way they are measured. The 2003 Annual Report is the fourth time annual reporting has been undertaken. It is expected that work will commence in late 2004 to prepare for the new CSA Sustainable Forest Management System CAN/CSA Z809-02.

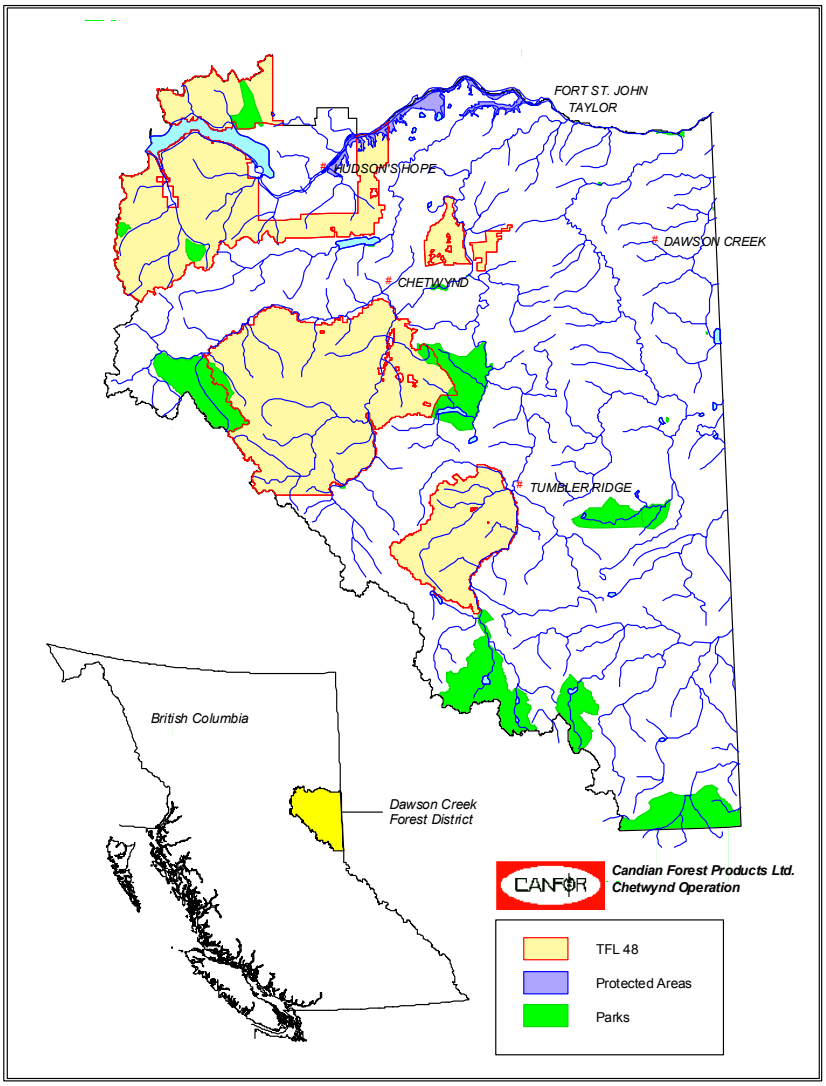



**Figure 1: Tree Farm Licence 48**

This report is prepared as an annual report required by the CSA standard and also serves as a TFL Annual Report. In this report, each Indicator is reiterated, and a brief status report is provided. For additional information on the Indicators and Objectives, or the practices involved, the reader should refer to Canfor's Management Plan 3 for Tree Farm Licence 48 (Canfor, 2001).

## 1.1 OVERVIEW

The format of the remainder of this document and the detailed status of each indicator are provided below. *This document is subject to review by the Public Advisory Committee (PAC).*

Comments and suggestions on the format of the annual report received during the Canfor internal audit have been incorporated where possible to help make the report more meaningful and easier to use by not having to refer to multiple documents.

Information noted as SBFEP was collected and provided by BC Timber Sales staff at the Dawson Creek office of the Peace Forest District. Canfor then included this information into applicable indicator reporting. No new information was provided by Louisiana-Pacific as no activities occurred on the TFL in 2003.

# 2 SFM INDICATORS AND OBJECTIVES

The format of each status report is described below:

## X.X INDICATOR NAME

| Indicator: | Objective: |
|---|---|
| #. A reiteration of the Indicator as identified in the SFM matrix. | A reiteration of the Objective as identified in the SFM matrix. |

**STATUS AND COMMENTS**

This section provides an update on the status of each Indicator and Objective. The best information available up to and including December 31, 2003 (except where noted) was used for the preparation of this status report.

**REVISIONS**

When required, this section describes Canfor's suggested revisions to details (i.e., wording, reporting periods) of the Indicator and Objective. These revisions will be presented to the PAC for their review.

## 2.1 CONSERVATION OF BIOLOGICAL DIVERSITY

| Indicator: | Objective: |
|---|---|
| 1. Forest type and seral stage distribution | **1-1** We will sustain forest types over time.<br>**1-2** We will sustain seral stage within the natural range over time. |

### 2.1-1 Forest Types Over Time

**STATUS AND COMMENTS**

There is no new information to present for this indicator. Canfor will continue to develop a tracking system over the term of MP 3 to track forest types over time. The status of this indicator was reported in MP 3 shown in Table 1.

**Table 1: Forest Types March 2000**

| Forest Type | Area ('000 ha) | % |
|---|---|---|
| Coniferous | 455 | 80% |
| Mixed-Coniferous | 28 | 5% |
| Mixed-Deciduous | 19 | 3% |
| Deciduous | 69 | 12% |
| Totals | 571 | 100% |

Source: VRI 1999

**REVISIONS**

No revisions are suggested for this indicator or objective.

### 2.1-2 Seral Stage Over Time

**STATUS AND COMMENTS**

During 2003 Canfor submitted a major amendment to the 2002 Forest Development Plan. This included adding blocks to the Carbon LU (blocks T2053 and T2054) and the Wolverine LU (blocks T5012, T5013 and T5014). Table 2 has been updated to reflect these changes. Amendments to the variances have been highlighted to reflect these changes.

There has been one small change in the information for seral stage completed in 2002. The SBFEP completed a major amendment to their FDP. Information as provided in the 2001 annual report has not changed with the exception of the Gething Landscape Unit in the ESSFmv2 and SBSwk2 BEC variants. Table 2 has been updated to reflect this change. There was no impact to the targets or variances as a result of this amendment.

Figure 2 shows the seral stage distribution as of October 2001 and the distribution after the proposed development. Table 2 shows seral distribution by landscape unit and biogeoclimatic unit.

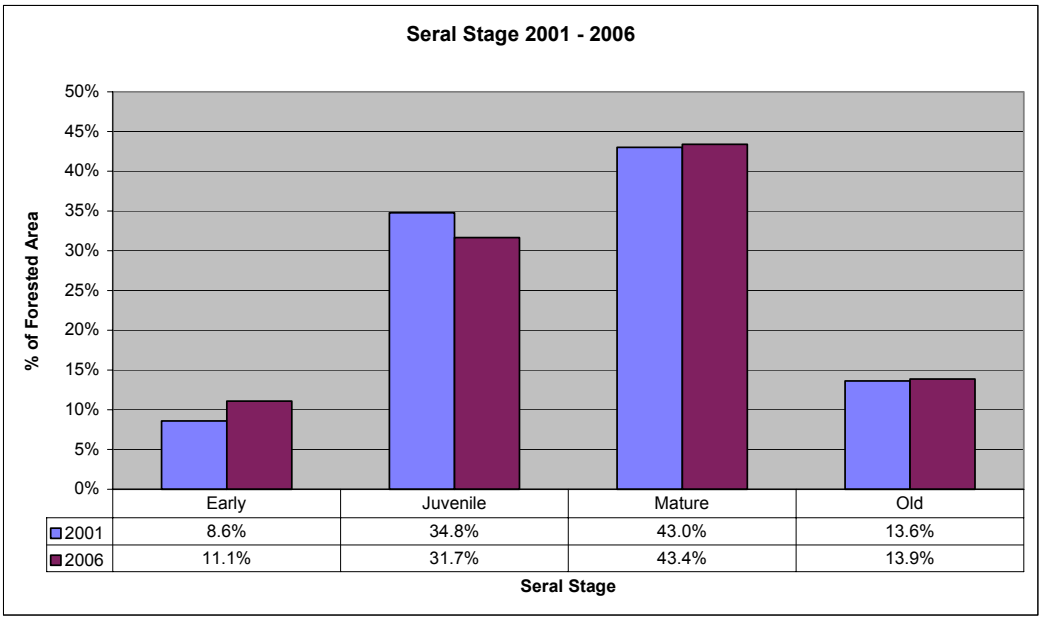



**Figure 2: 2001 - 2006 Seral Stage Summary for TFL 48**

The seral stage distribution for 2001 is based on the updated Vegetation Resource Inventory (VRI) to October 2001 and the 2006 seral stage distribution is based on the draft FDP submitted in January 2002, approved September 9, 2002 by the Ministry of Forests and the 2001-2005 FDP major amendment conducted by SBFEP. On November 10, 2003 Canfor submitted a major amendment to the 2002 Forest Development Plan, which was subsequently approved on June 15, 2004. Table 2 represents the 2002 FDP and all subsequent major amendments.

October 2001 was chosen as the reporting period rather than December 31, 2001 to facilitate analysis of the 2002 – 2007 Forest Development Plan prior to submission in January 2002.

## Table 2: Seral Stages 2001 and 2006

| Seral Stage Area (ha) of Productive Forest by Landscape Unit / BEC Zone for 2001 and 2006 | | Seral Stage | | | | | | | | | | | | | | | | | | | Total Forested Area |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Early | | | | Juvenile | | | | Mature | | | | Old | | | | | | Old Target | |
| | | 2001 | | 2006 | | 2001 | | 2006 | | 2001 | | 2006 | | 2001 | | | 2006 | | | | |
| Landscape Unit | BEC | Area | % | Area | % | Area | % | Area | % | Area | % | Area | % | Area | % | Surplus / Deficit | Area | % | Surplus / Deficit | | |
| BOUCHER | BWBSmw 1-C | 1,509 | 13.3% | 1,706 | 15.0% | 5,241 | 46.1% | 5,228 | 46.0% | 3,802 | 33.5% | 3,651 | 32.1% | 807 | 7.1% | -125 | 776 | 6.8% | -156 | 8.2% | 11,359 |
| | BWBSmw 1-D | 162 | 1.0% | 992 | 6.2% | 8,864 | 55.3% | 8,659 | 54.0% | 2,987 | 18.6% | 2,764 | 17.2% | 4,009 | 25.0% | 2,455 | 3,607 | 22.5% | 2,052 | 9.7% | 16,022 |
| | BWBSwk 1-C | 442 | 8.4% | 1,765 | 33.5% | 1,374 | 26.1% | 1,349 | 25.6% | 3,094 | 58.8% | 1,837 | 34.9% | 354 | 6.7% | -78 | 315 | 6.0% | -117 | 8.2% | 5,264 |
| | BWBSwk 1-D | 8 | 0.4% | 89 | 4.9% | 855 | 47.2% | 842 | 46.5% | 517 | 28.6% | 489 | 27.0% | 431 | 23.8% | 255 | 390 | 21.5% | 214 | 9.7% | 1,810 |
| | SBS wk 2 | 5 | 0.6% | 5 | 0.5% | 881 | 92.5% | 882 | 92.5% | 66 | 7.0% | 66 | 7.0% | | 0.0% | -64 | | 0.0% | -64 | 6.7% | 953 |
| **BOUCHER Total** | | **2,126** | **6.0%** | **4,556** | **12.9%** | **17,215** | **48.6%** | **16,959** | **47.9%** | **10,467** | **29.6%** | **8,806** | **24.9%** | **5,600** | **15.8%** | | **5,087** | **14.4%** | | | **35,408** |
| BURNT-LEMORAY | AT | 7 | 6.4% | | 0.0% | 77 | 67.5% | 85 | 73.9% | 30 | 26.1% | 30 | 26.1% | | 0.0% | | | 0.0% | | N/A | 114 |
| | BWBSmw 1-C | 0 | 0.0% | | 0.0% | 2 | 20.1% | 2 | 20.1% | 0 | 0.1% | 0 | 0.0% | 7 | 79.8% | 6 | 7 | 79.9% | 6 | 8.2% | 8 |
| | BWBSmw 1-D | | 0.0% | | 0.0% | 1 | 2.5% | 1 | 2.5% | 2 | 4.0% | 2 | 4.0% | 41 | 93.4% | 36 | 41 | 93.4% | 36 | 9.7% | 43 |
| | ESSFwc 3 | 2,006 | 4.8% | 710 | 1.7% | 16,364 | 39.3% | 14,882 | 35.8% | 19,735 | 47.4% | 21,715 | 52.2% | 3,501 | 8.4% | -2,407 | 4,299 | 10.3% | -1,609 | 14.2% | 41,606 |
| | ESSFwcp3 | 57 | 2.0% | | 0.0% | 2,539 | 87.5% | 2,515 | 86.7% | 306 | 10.5% | 387 | 13.3% | 0 | 0.0% | | 0 | 0.0% | | N/A | 2,902 |
| | ESSFwk 2 | 4,491 | 11.5% | 4,949 | 12.7% | 12,941 | 33.1% | 10,606 | 27.1% | 14,644 | 37.5% | 15,846 | 40.6% | 6,988 | 17.9% | 1,441 | 7,662 | 19.6% | 2,115 | 14.2% | 39,064 |
| | SBS wk 2 | 2,213 | 9.6% | 2,606 | 11.3% | 8,389 | 36.4% | 7,268 | 31.6% | 11,127 | 48.3% | 11,681 | 50.7% | 1,298 | 5.6% | -245 | 1,471 | 6.4% | -72 | 6.7% | 23,027 |
| **BURNT-LEMORAY Total** | | **8,776** | **8.2%** | **8,266** | **7.7%** | **40,312** | **37.8%** | **35,358** | **33.1%** | **45,843** | **42.9%** | **49,661** | **46.5%** | **11,834** | **11.1%** | | **13,480** | **12.6%** | | | **106,765** |
| CARBON | AT | 0 | 0.0% | 0 | 0.0% | 212 | 99.3% | 212 | 99.3% | 1 | 0.7% | 1 | 0.7% | | 0.0% | | | 0.0% | | N/A | 214 |
| | BWBSmw 1-C | | 0.0% | | 0.0% | 5 | 46.2% | 5 | 46.2% | 5 | 53.8% | 5 | 53.8% | | 0.0% | -1 | | 0.0% | -1 | 8.2% | 10 |
| | BWBSmw 1-D | | 0.0% | | 0.0% | 5 | 29.8% | 5 | 29.8% | | 0.0% | | 0.0% | 12 | 70.2% | 10 | 12 | 70.2% | 10 | 9.7% | 17 |
| | ESSFmv 2 | 1,462 | 3.2% | 2,796 | 6.1% | 13,805 | 29.9% | 12,608 | 27.3% | 27,120 | 58.7% | 27,130 | 58.8% | 3,777 | 8.2% | 684 | 3,631 | 7.9% | 538 | 6.7% | 46,164 |
| | ESSFmvp2 | 19 | 0.6% | 19 | 0.6% | 2,397 | 76.7% | 2,367 | 75.7% | 709 | 22.7% | 738 | 23.6% | 0 | 0.0% | | 0 | 0.0% | | N/A | 3,125 |
| | ESSFwc 3 | | 0.0% | 178 | 1.8% | 1,546 | 15.9% | 1,545 | 15.9% | 6,385 | 65.9% | 6,213 | 64.1% | 1,765 | 18.2% | 388 | 1,761 | 18.2% | 384 | 14.2% | 9,696 |
| | ESSFwcp3 | | 0.0% | | 0.0% | 885 | 62.7% | 885 | 62.7% | 523 | 37.0% | 523 | 37.0% | 5 | 0.3% | | 5 | 0.3% | | N/A | 1,413 |
| | ESSFwk 2 | 41 | 0.9% | 421 | 9.6% | 297 | 6.8% | 297 | 6.8% | 2,133 | 48.8% | 1,884 | 43.1% | 1,901 | 43.5% | 1,280 | 1,770 | 40.5% | 1,149 | 14.2% | 4,371 |
| | SBS wk 2 | 2,535 | 16.7% | 3,158 | 20.8% | 746 | 4.9% | 645 | 4.2% | 11,179 | 73.6% | 10,632 | 70.0% | 732 | 4.8% | -285 | 757 | 5.0% | -267 | 6.7% | 15,192 |
| **CARBON Total** | | **4,057** | **5.1%** | **6,028** | **7.5%** | **19,898** | **24.8%** | **18,698** | **23.3%** | **48,055** | **59.9%** | **47,538** | **59.3%** | **8,192** | **10.2%** | | **7,939** | **9.9%** | | | **80,203** |
| DUNLEVY | AT | 0 | 0.5% | 0 | 0.5% | 75 | 79.1% | 75 | 79.1% | 19 | 20.4% | 19 | 20.4% | | 0.0% | | | 0.0% | | N/A | 94 |
| | BWBSmw 1-C | 1,474 | 14.2% | 1,805 | 17.4% | 2,883 | 27.8% | 2,771 | 26.8% | 4,725 | 45.6% | 4,506 | 43.5% | 1,276 | 12.3% | 426 | 1,276 | 12.3% | 426 | 8.2% | 10,358 |
| | BWBSmw 1-D | 555 | 6.0% | 682 | 7.4% | 4,527 | 49.3% | 4,752 | 51.7% | 626 | 6.8% | 466 | 5.1% | 3,475 | 37.8% | 2,584 | 3,283 | 35.7% | 2,392 | 9.7% | 9,183 |
| | BWBSwk 2-C | 1,177 | 15.9% | 1,445 | 19.5% | 2,436 | 32.9% | 2,395 | 32.4% | 2,896 | 39.1% | 2,842 | 38.4% | 892 | 12.0% | 285 | 719 | 9.7% | 112 | 8.2% | 7,401 |
| | BWBSwk 2-D | 11 | 0.2% | 293 | 5.7% | 1,440 | 28.1% | 1,330 | 26.0% | 723 | 14.1% | 754 | 14.7% | 2,950 | 57.6% | 2,453 | 2,748 | 53.6% | 2,251 | 9.7% | 5,125 |
| | ESSFmv 4 | 1,149 | 9.8% | 1,572 | 13.4% | 7,007 | 59.7% | 6,976 | 59.4% | 3,564 | 30.4% | 3,164 | 26.9% | 23 | 0.2% | -764 | 31 | 0.3% | -756 | 6.7% | 11,743 |
| | ESSFmvp4 | 39 | 2.7% | 36 | 2.5% | 876 | 61.6% | 879 | 61.8% | 503 | 35.4% | 504 | 35.4% | 3 | 0.2% | | 3 | 0.2% | | N/A | 1,422 |
| **DUNLEVY Total** | | **4,406** | **9.7%** | **5,833** | **12.9%** | **19,244** | **42.5%** | **19,178** | **42.3%** | **13,056** | **28.8%** | **12,255** | **27.0%** | **8,619** | **19.0%** | | **8,060** | **17.8%** | | | **45,325** |
| EAST PINE | BWBSmw 1-C | 920 | 15.7% | 1,490 | 25.5% | 305 | 5.2% | 312 | 5.3% | 4,405 | 75.2% | 3,868 | 66.1% | 225 | 3.8% | -256 | 185 | 3.2% | -295 | 8.2% | 5,855 |
| | BWBSmw 1-D | 884 | 6.4% | 1,809 | 13.1% | 4,984 | 36.2% | 4,995 | 36.3% | 693 | 5.0% | 964 | 7.0% | 7,213 | 52.4% | 5,877 | 6,006 | 43.6% | 4,670 | 9.7% | 13,774 |
| **EAST PINE Total** | | **1,805** | **9.2%** | **3,156** | **16.1%** | **5,289** | **26.9%** | **5,306** | **27.0%** | **5,099** | **26.0%** | **4,832** | **24.6%** | **7,437** | **37.9%** | | **6,334** | **32.3%** | | | **19,629** |

Seral Stage Area (ha) of Productive Forest by Landscape Unit / BEC Zone for 2001 and 2006

| Landscape Unit | BEC | Seral Stage | | | | | | | | | | | | | | | | | | Old Target | Total Forested Area |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Early | | | | Juvenile | | | | Mature | | | | Old | | | | | | | |
| | | 2001 | | 2006 | | 2001 | | 2006 | | 2001 | | 2006 | | 2001 | | | 2006 | | | | |
| | | Area | % | Area | % | Area | % | Area | % | Area | % | Area | % | Area | % | Surplus / Deficit | Area | % | Surplus / Deficit | | |
| GETHING | BWBSmw 1-C | 2,674 | 29.4% | 2,816 | 31.0% | 764 | 8.4% | 748 | 8.2% | 2,476 | 27.3% | 1,827 | 20.1% | 3,168 | 34.9% | 2,423 | 3,690 | 40.6% | 2,946 | 8.2% | 9,082 |
| | BWBSmw 1-D | 395 | 15.7% | 49 | 2.0% | 234 | 9.3% | 600 | 23.9% | 31 | 1.2% | 29 | 1.2% | 1,849 | 73.7% | 1,605 | 1,830 | 73.0% | 1,587 | 9.7% | 2,508 |
| | ESSFmv 2 | 2,607 | 10.8% | 3,549 | 14.8% | 3,509 | 14.6% | 3,417 | 14.2% | 17,655 | 73.4% | 16,804 | 69.9% | 269 | 1.1% | -1,341 | 269 | 1.1% | -1,341 | 6.7% | 24,039 |
| | ESSFmvp2 | | 0.0% | | 0.0% | 98 | 92.4% | 98 | 92.4% | 8 | 7.6% | 8 | 7.6% | | 0.0% | | | 0.0% | | N/A | 106 |
| | SBS wk 2 | 4,566 | 22.7% | 5,844 | 29.0% | 973 | 4.8% | 986 | 4.9% | 14,411 | 71.6% | 13,120 | 65.2% | 183 | 0.9% | -1,166 | 183 | 0.9% | -1,166 | 6.7% | 20,133 |
| **GETHING Total** | | **10,241** | **18.3%** | **12,258** | **21.9%** | **5,578** | **10.0%** | **5,849** | **10.5%** | **34,581** | **61.9%** | **31,788** | **56.9%** | **5,469** | **9.8%** | | **5,973** | **10.7%** | | | **55,869** |
| HIGHHAT | BWBSmw 1-C | 198 | 2.6% | 496 | 6.5% | 2,728 | 35.9% | 2,293 | 30.2% | 2,851 | 37.5% | 2,527 | 33.3% | 1,823 | 24.0% | 1,200 | 2,284 | 30.1% | 1,661 | 8.2% | 7,600 |
| | BWBSmw 1-D | 92 | 1.1% | 413 | 4.8% | 1,641 | 19.1% | 919 | 10.7% | 3,940 | 45.8% | 3,441 | 40.0% | 2,932 | 34.1% | 2,097 | 3,831 | 44.5% | 2,997 | 9.7% | 8,604 |
| | BWBSwk 1-C | 1 | 13.9% | 1 | 13.9% | | 0.0% | | 0.0% | 0 | 4.5% | 0 | 4.5% | 8 | 81.6% | 8 | 8 | 81.6% | 8 | 8.2% | 10 |
| | ESSFmv 2 | 2,032 | 6.5% | 4,300 | 13.7% | 15,068 | 48.1% | 11,671 | 37.3% | 13,213 | 42.2% | 14,336 | 45.8% | 995 | 3.2% | -2,042 | 1,001 | 3.2% | -2,036 | 9.7% | 31,308 |
| | ESSFwc 3 | 0 | 0.0% | | 0.0% | 7 | 91.6% | 4 | 55.8% | 1 | 8.4% | 4 | 44.2% | | 0.0% | -1 | | 0.0% | -1 | 14.2% | 8 |
| | ESSFwk 2 | 0 | 0.0% | 371 | 14.6% | 1,450 | 57.0% | 947 | 37.2% | 963 | 37.9% | 1,130 | 44.4% | 130 | 5.1% | -231 | 96 | 3.8% | -265 | 14.2% | 2,544 |
| | SBS wk 2 | 2,362 | 6.3% | 3,933 | 10.5% | 15,106 | 40.3% | 12,884 | 34.4% | 18,712 | 49.9% | 19,717 | 52.6% | 1,282 | 3.4% | -1,228 | 928 | 2.5% | -1,582 | 6.7% | 37,462 |
| **HIGHHAT Total** | | **4,685** | **5.4%** | **9,514** | **10.9%** | **36,002** | **41.1%** | **28,719** | **32.8%** | **39,680** | **45.3%** | **41,155** | **47.0%** | **7,170** | **8.2%** | | **8,149** | **9.3%** | | | **87,537** |
| MARTIN CREEK | BWBSmw 1-C | 2,001 | 15.8% | 2,772 | 22.0% | 3,861 | 30.6% | 3,283 | 26.0% | 4,323 | 34.2% | 3,932 | 31.1% | 2,442 | 19.3% | 1,407 | 2,640 | 20.9% | 1,604 | 8.2% | 12,627 |
| | BWBSmw 1-D | 58 | 0.5% | 617 | 5.9% | 2,984 | 28.4% | 2,157 | 20.5% | 3,252 | 30.9% | 3,132 | 29.8% | 4,224 | 40.2% | 3,204 | 4,612 | 43.8% | 3,592 | 9.7% | 10,518 |
| | BWBSwk 1-C | 1,422 | 7.6% | 2,306 | 12.3% | 5,008 | 26.8% | 3,958 | 21.2% | 8,912 | 47.7% | 8,634 | 46.2% | 3,348 | 17.9% | 1,815 | 3,791 | 20.3% | 2,258 | 8.2% | 18,689 |
| | BWBSwk 1-D | 48 | 2.2% | 88 | 4.0% | 869 | 39.7% | 674 | 30.8% | 831 | 38.0% | 952 | 43.5% | 440 | 20.1% | 228 | 474 | 21.7% | 262 | 9.7% | 2,188 |
| | ESSFmv 2 | 75 | 0.6% | 788 | 5.9% | 7,022 | 52.1% | 5,223 | 38.8% | 6,161 | 45.7% | 7,236 | 53.7% | 219 | 1.6% | -684 | 228 | 1.7% | -675 | 6.7% | 13,476 |
| **MARTIN CREEK Total** | | **3,603** | **6.3%** | **6,572** | **11.4%** | **19,743** | **34.3%** | **15,296** | **26.6%** | **23,479** | **40.8%** | **23,886** | **41.5%** | **10,673** | **18.6%** | | **11,745** | **20.4%** | | | **57,498** |
| WOLVERINE | AT | 8 | 1.3% | | 0.0% | 639 | 98.1% | 641 | 98.5% | 4 | 0.6% | 10 | 1.5% | | 0.0% | | | 0.0% | | N/A | 651 |
| | BWBSmw 1-C | 441 | 10.9% | 712 | 17.5% | 756 | 18.6% | 708 | 17.4% | 1,275 | 31.4% | 938 | 23.1% | 1,589 | 39.1% | 1,256 | 1,703 | 41.9% | 1,370 | 8.2% | 4,061 |
| | BWBSmw 1-D | 7 | 0.5% | 63 | 4.3% | 469 | 31.7% | 418 | 28.2% | 355 | 23.9% | 350 | 23.6% | 650 | 43.9% | 507 | 651 | 43.9% | 507 | 9.7% | 1,481 |
| | BWBSwk 1-C | 408 | 7.8% | 1,266 | 24.2% | 1,483 | 28.3% | 1,200 | 22.9% | 992 | 19.0% | 961 | 18.4% | 2,351 | 44.9% | 1,922 | 1,806 | 34.5% | 1,377 | 8.2% | 5,233 |
| | BWBSwk 1-D | 4 | 0.3% | 53 | 3.6% | 915 | 63.1% | 843 | 58.1% | 153 | 10.6% | 215 | 14.8% | 378 | 26.1% | 238 | 340 | 23.4% | 199 | 9.7% | 1,451 |
| | ESSFmv 2 | 4,926 | 14.4% | 1,767 | 5.1% | 17,301 | 50.4% | 18,689 | 54.5% | 9,588 | 27.9% | 11,169 | 32.5% | 2,504 | 7.3% | 204 | 2,695 | 7.9% | 395 | 6.7% | 34,319 |
| | ESSFmvp2 | 154 | 5.0% | | 0.0% | 2,042 | 65.8% | 1,963 | 63.3% | 902 | 29.1% | 1,112 | 35.9% | 5 | 0.2% | | 28 | 0.9% | | N/A | 3,103 |
| | ESSFwc 3 | 55 | 1.0% | 244 | 4.4% | 921 | 16.5% | 859 | 15.4% | 3,470 | 62.1% | 3,375 | 60.4% | 1,142 | 20.4% | 349 | 1,110 | 19.9% | 317 | 14.2% | 5,588 |
| | ESSFwcp3 | 0 | 0.0% | | 0.0% | 1,141 | 63.1% | 1,130 | 62.4% | 631 | 34.9% | 638 | 35.2% | 37 | 2.1% | | 42 | 2.3% | | N/A | 1,810 |
| | ESSFwk 2 | 523 | 7.7% | 1,193 | 17.6% | 985 | 14.6% | 899 | 13.3% | 2,397 | 35.5% | 2,096 | 31.0% | 2,855 | 42.2% | 1,895 | 2,572 | 38.0% | 1,612 | 14.2% | 6,760 |
| | SBS wk 2 | 1,755 | 13.4% | 1,224 | 9.3% | 7,151 | 54.6% | 6,586 | 50.3% | 3,587 | 27.4% | 4,651 | 35.5% | 604 | 4.6% | -273 | 635 | 4.9% | -242 | 6.7% | 13,097 |
| **WOLVERINE Total** | | **8,254** | **10.6%** | **6,232** | **8.0%** | **33,803** | **43.6%** | **33,935** | **43.8%** | **23,354** | **30.1%** | **25,583** | **33.0%** | **12,144** | **15.7%** | | **11,806** | **15.2%** | | | **77,555** |
| **Grand Total** | | 47,953 | 8.5% | 62,188 | 11.0% | 197,084 | 34.8% | 179,297 | 31.7% | 243,615 | 43.1% | 245,733 | 43.4% | 77,138 | 13.6% | | 78,572 | 13.9% | | | 565,790 |

* Targets are as per TFL 48 Base Case Timber Supply Analysis (See Table 40 and Appendix C of Info Pack)

**VARIANCES**

The following variances to the old seral target have been identified as part of the FDP proposal. These variances are consistent with MP 3 for previously approved blocks. No new harvesting of old forest has been proposed or approved since the development of MP 3. A significant amount of effort and cost is expended to both have blocks approved for harvest, laid out and permits acquired. The areas identified below are relatively small and will not compromise or delay significantly the achievement of the targets in the future. This approach is consistent with the implementation schedule and forest management activities included in the SFM Plan for this indicator.

**1. Boucher LU; BWBSmw 1 – C**

Previously approved blocks (T2039, 040 and 041) in LeBleau Creek that contained old forest have been dropped from the plan. 28 hectares of old is approved for harvest in previously approved blocks (CP 364 and 501). 16 hectares of old in proposed block T2044 will be reserved from harvest, if field check confirms that this type is old forest. No other old forest is either approved or proposed for harvest. At the end of 2006, the amount of old will be 6.8%, 1.4% less than target. Approximately 3600 hectares of mature is available for recruitment.

**2. Boucher LU; BWBSwk 1 – C**

Previously approved blocks (T2039, 040 and 041) in LeBleau Creek that contained old forest have been dropped from the plan. No other old is either approved or proposed for harvest. At the end of 2006, the amount of old will be 6.0%, 2.2% less than target. Approximately 1800 hectares of mature is available for recruitment.

**3. Boucher LU: SBSwk 2**

No old forest exists and no old forest planned for harvest.

**4. Burnt- LeMoray LU; ESSFwc 3**

3.5 hectares of old forest in CP issued blocks and 37 hectares in Category A Approved blocks is scheduled for harvest. No other old is either approved or proposed for harvest. At the end of 2006, the amount of old will be 10.3%, 3.9% less than target. Approximately 21,700 hectares of mature is available for recruitment.

**5. Burnt- LeMoray LU; SBSwk 2**

52 hectares of old forest in Category A Approved blocks are scheduled for harvest. No other old is either approved or proposed for harvest. At the end of 2006, the amount of old will be 6.4%, 0.3% less than target. Approximately 11,600 hectares of mature is available for recruitment.

**6. Carbon LU: SBSwk 2**

hectares of old forest in CP issued blocks are scheduled for harvest. No other old is either approved or proposed for harvest. At the end of 2006, the amount of old will be 4.9%, 1.8% less than target. Approximately 10,900 hectares of mature is available for recruitment.

The 2003 FDP amendment includes approximately 65 ha of old forest in block T2054. This area will be reserved from harvest during layout. Table 2 reflects that this SBSwk 2 old area is reserved from harvest.

### 7. Dunlevy LU; ESSFmv 4

No old forest planned for harvest. 756 hectare deficit in 2006. 3100 hectares of mature to recruit from in 2006.

### 8. East Pine LU; BWBSmw 1 – C

19 hectares of old forest in Category A Approved blocks is scheduled for harvest.11 hectares of old in T3018 and 10 hectares of old in T3019 will be reserved from harvest. No other old is either approved or proposed for harvest. At the end of 2006, the amount of old will be 3.2%, 5.0% less than target. Approximately 3,800 hectares of mature is available for recruitment.

### 9. Gething LU; ESSFmv 2

No old forest planned for harvest. 1341 hectare deficit in 2006. 16,900 hectares of mature to recruit from in 2006.

### 10. Gething LU; SBSwk 2

No old forest planned for harvest. 1166 hectare deficit in 2006. 13,200 hectares of mature to recruit from in 2006.

### 11. Highhat LU; ESSFmv 2

0.3 hectares of old forest in CP issued blocks, 28 hectares in Approved SBFEP blocks and 92 hectares in Category A Approved blocks is scheduled for harvest. No other old is either approved or proposed for harvest. At the end of 2006, the amount of old will be 3.2%, 6.5% less than target. Approximately 14,300 hectares of mature is available for recruitment.

### 12. Highhat LU; ESSFwk 2

30 hectares of old forest in Approved SBFEP blocks and 4 hectares in Category A Approved blocks is scheduled for harvest. No other old is either approved or proposed for harvest. At the end of 2006, the amount of old will be 3.8%, 10.4% less than target. Approximately 1,100 hectares of mature is available for recruitment.

### 13. Highhat LU; SBSwk 2

32 hectares of old forest in CP issued blocks, 5 hectares in Approved SBFEP blocks and 324 hectares in Category A Approved blocks is scheduled for harvest. 5 hectares in proposed block T4068 and 4 hectares in proposed block T4070 will be reserved from harvest. No other old is either approved or proposed for harvest. At the end of 2006, the amount of old will be 2.5%, 4.2% less than target. Approximately 19,700 hectares of mature is available for recruitment.

### 14. Martin Creek LU; ESSFmv 2

29 hectares of old forest in proposed block T4072 will be reserved from harvest. No other old is either approved or proposed for harvest. At the end of 2006, the amount of old will be 1.7%, 5.0% less than target. Approximately 7,200 hectares of mature is available for recruitment.

### 15. Wolverine LU; SBSwk 2

Approximately 2 hectares of old forest in Approved block T5003 is scheduled for harvest. No other old is either approved or proposed for harvest. At the end of 2006, the amount of old will be 4.9%, 1.8% less than target. Approximately 4,600 hectares of mature is available for recruitment.

The 2003 FDP amendment includes approximately 18 ha of SBSwk 2 old forest in block T5012. This area will be excluded from harvest during layout. Table 2 reflects that this area is reserved from harvest.

**REVISIONS**

There are no new revisions to this indicator in 2003.

In the 2000 annual report Canfor suggested that using the 1960 seral stage baseline as a target may not meet habitat objectives and community stability dependent upon steady harvest flows. Rather than continue with the Natural Disturbance/Fire Regime study for portions within the North and South Peace River Region as indicated in the 2000 Annual Report, Canfor has supported and provided data in support of the Ministry of Forests Prince George Region initiative to define Natural Disturbance Patterns for the PG Region (DeLong). This work will form the basis for establishing Natural Disturbance frequencies, patterns and sizes. Subsequent work will then be required to determine when mature and old attributes are present within stands in the northeast. These works will then be considered to establish targets for the TFL. It is anticipated that this work will take 3 to 5 years to complete.

Figure 3 shows the Natural Disturbance Units that are applicable to TFL 48.

Until revised targets are proposed Canfor will continue to monitor the performance of achieving seral stage distribution targets consistent with the TFL 48 base case Timber Supply Analysis in support of MP 3 at each Forest Development Plan submission. This will include updating the VRI to reflect current status and projecting the results of the proposed development.

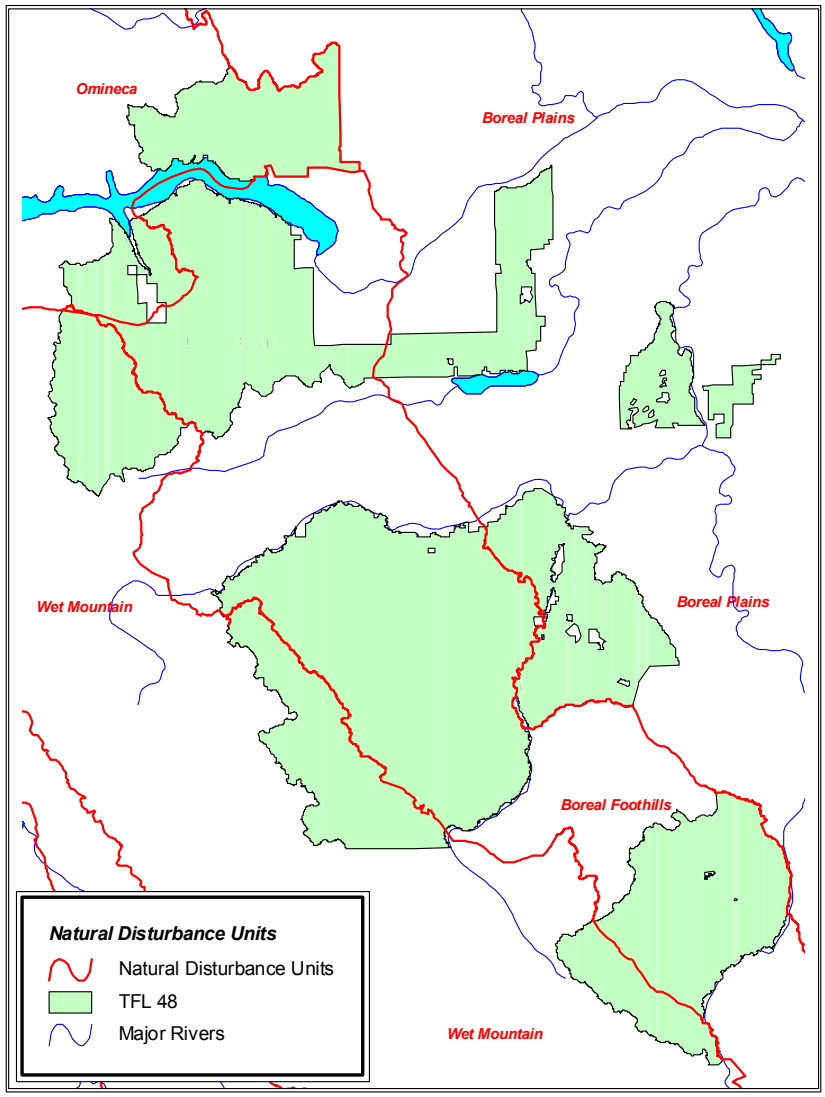



**Figure 3: Natural Disturbance Units**

## 2.2 PATCH SIZE DISTRIBUTION

| Indicator: | Objective: |
|---|---|
| **2.** Patch size distribution | We will maintain a patch size consistent with natural disturbance units. |

**STATUS AND COMMENTS**

The 2002 – 2007 Forest Development Plan has proposed to include larger patch sizes primarily through patch amalgamation. Generally smaller to mid-size early patches are over-represented on the TFL than naturally would have occurred. To ensure that we continue to have large mature and old patches now and in the future we must start creating large early patches.

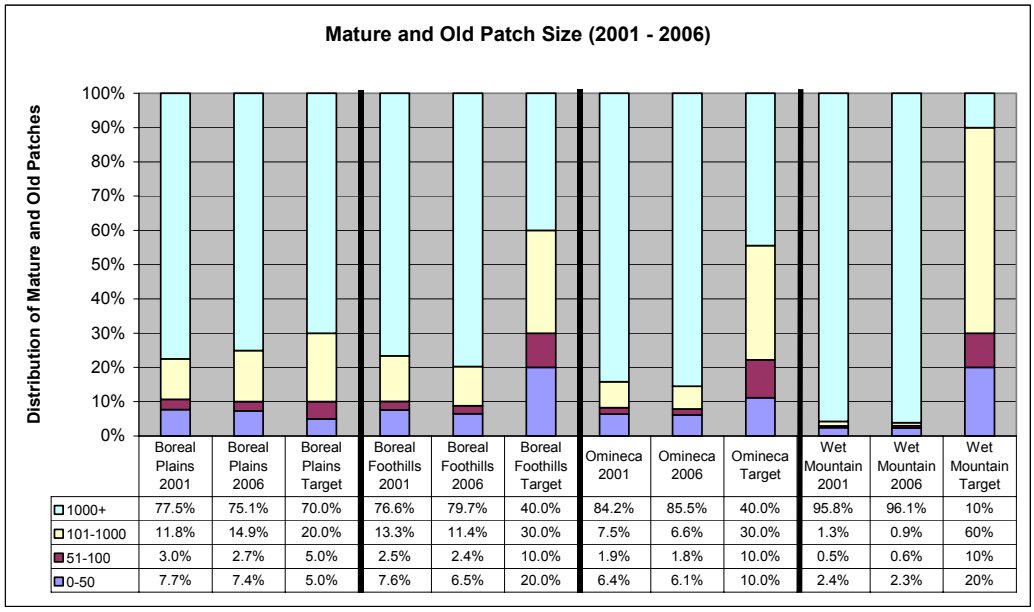
A major amendment was completed for the TFL in 2003. Blocks T2053 and T2054 were added to the Omineca NDU these blocks. T2053 is approximately 250 ha and will create an amalgamated early patch of approximately 492 ha. T2054 is approximately is approximately 380 ha and will create an amalgamated early patch of approximately 598 ha. There is currently a shortage of large early patches in this NDU and an abundance of large mature patches, this development will move block size towards the 101-1000 ha class. The intention is to again further amalgamate to achieve the >1000 ha early patches.

Blocks T5012 (75 ha), T5013 (104 ha) and T5014 (112 ha) will amalgamate with existing early patches and create an early patch of approximately 874 ha in the Wet Mountain NDU. There are currently no early patches >1000 ha in the Wet Mountain NDU. The intention is to again amalgamate these patches to create >1000 ha early patches.

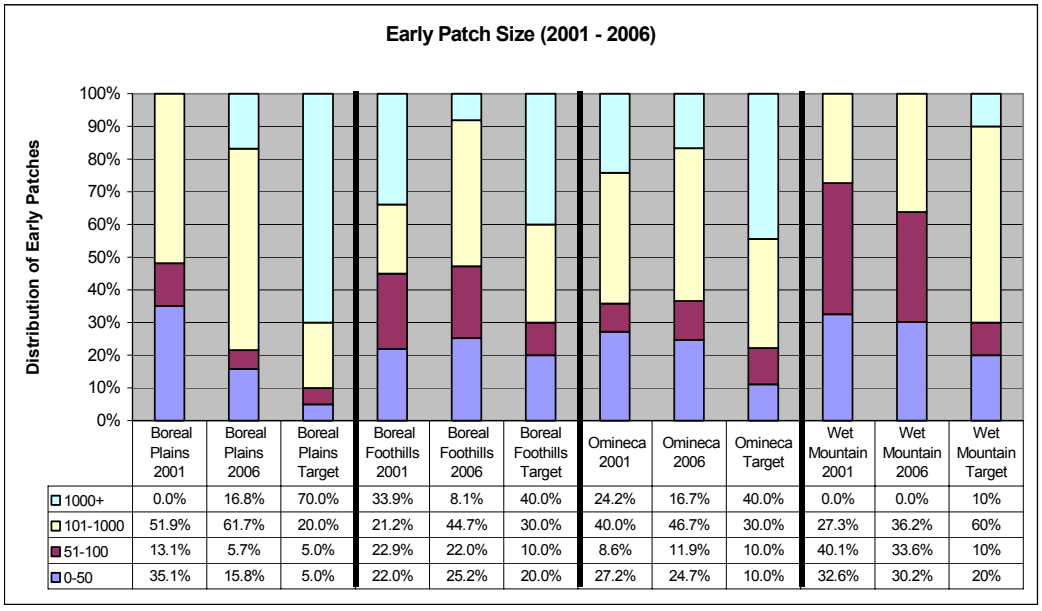
Table 3 and Figure 4 have not been updated to reflect the amendment to the 2002 FDP as these changes will not significantly affect the targets or patch size distributions.

**Table 3: Patch Size Distribution Status and Targets**

| NDU | Patch Size Class | Early Patches | | | | Mature and Old Patches | | | | Target |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Current – 2001 | | Post FDP – 2006 | | Current – 2001 | | Post FDP 2006 | | |
| | | Ha | % | Ha | % | Ha | % | Ha | % | |
| Boreal Plains | 0-50 | 3,331 | 35.1% | 2,758 | 15.8% | 4,638 | 7.7% | 4,339 | 7.4% | 5% |
| | 51-100 | 1,240 | 13.1% | 996 | 5.7% | 1,809 | 3.0% | 1,571 | 2.7% | 5% |
| | 101-1000 | 4,927 | 51.9% | 10,737 | 61.7% | 7,091 | 11.8% | 8,780 | 14.9% | 20% |
| | 1000+ | 0 | 0.0% | 2,918 | 16.8% | 46,583 | 77.5% | 44,275 | 75.1% | 70% |
| Boreal Plains Total | | 9,498 | 100.0% | 17,409 | 100.0% | 60,120 | 100.0% | 58,965 | 100.0% | |
| Boreal Foothills | 0-50 | 6,748 | 22.0% | 8,344 | 25.2% | 10,986 | 7.6% | 9,867 | 6.5% | 20% |
| | 51-100 | 7,034 | 22.9% | 7,278 | 22.0% | 3,637 | 2.5% | 3,606 | 2.4% | 10% |
| | 101-1000 | 6,493 | 21.2% | 14,810 | 44.7% | 19,309 | 13.3% | 17,442 | 11.4% | 30% |
| | 1000+ | 10,378 | 33.9% | 2,667 | 8.1% | 111,186 | 76.6% | 121,520 | 79.7% | 40% |
| Boreal Foothills Total | | 30,654 | 100.0% | 33,098 | 100.0% | 145,119 | 100.0% | 152,433 | 100.0% | |
| Omineca | 0-50 | 1,615 | 27.2% | 2,023 | 24.7% | 2,316 | 6.4% | 2,152 | 6.1% | 10% |
| | 51-100 | 513 | 8.6% | 974 | 11.9% | 671 | 1.9% | 617 | 1.8% | 10% |
| | 101-1000 | 2,371 | 40.0% | 3,827 | 46.7% | 2,711 | 7.5% | 2,296 | 6.6% | 30% |
| | 1000+ | 1,435 | 24.2% | 1,363 | 16.7% | 30,383 | 84.2% | 29,951 | 85.5% | 40% |
| Omineca Total | | 5,934 | 100.0% | 8,187 | 100.0% | 36,081 | 100.0% | 35,016 | 100.0% | |
| Wet Mountain | 0-50 | 1,759 | 32.6% | 2,263 | 30.2% | 2,009 | 2.4% | 1,920 | 2.3% | 20% |
| | 51-100 | 2,166 | 40.1% | 2,512 | 33.6% | 447 | 0.5% | 536 | 0.6% | 10% |
| | 101-1000 | 1,476 | 27.3% | 2,706 | 36.2% | 1,104 | 1.3% | 747 | 0.9% | 60% |
| | 1000+ | 0 | 0.0% | 0 | 0.0% | 80,291 | 95.8% | 79,294 | 96.1% | 40% |
| Wet Mountain Total | | 5,402 | 100.0% | 7,480 | 100.0% | 83,850 | 100.0% | 82,497 | 100.0% | |




| | Boreal Plains 2001 | Boreal Plains 2006 | Boreal Plains Target | Boreal Foothills 2001 | Boreal Foothills 2006 | Boreal Foothills Target | Omineca 2001 | Omineca 2006 | Omineca Target | Wet Mountain 2001 | Wet Mountain 2006 | Wet Mountain Target |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1000+ | 77.5% | 75.1% | 70.0% | 76.6% | 79.7% | 40.0% | 84.2% | 85.5% | 40.0% | 95.8% | 96.1% | 10% |
| 101-1000 | 11.8% | 14.9% | 20.0% | 13.3% | 11.4% | 30.0% | 7.5% | 6.6% | 30.0% | 1.3% | 0.9% | 60% |
| 51-100 | 3.0% | 2.7% | 5.0% | 2.5% | 2.4% | 10.0% | 1.9% | 1.8% | 10.0% | 0.5% | 0.6% | 10% |
| 0-50 | 7.7% | 7.4% | 5.0% | 7.6% | 6.5% | 20.0% | 6.4% | 6.1% | 10.0% | 2.4% | 2.3% | 20% |




| | Boreal Plains 2001 | Boreal Plains 2006 | Boreal Plains Target | Boreal Foothills 2001 | Boreal Foothills 2006 | Boreal Foothills Target | Omineca 2001 | Omineca 2006 | Omineca Target | Wet Mountain 2001 | Wet Mountain 2006 | Wet Mountain Target |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1000+ | 0.0% | 16.8% | 70.0% | 33.9% | 8.1% | 40.0% | 24.2% | 16.7% | 40.0% | 0.0% | 0.0% | 10% |
| 101-1000 | 51.9% | 61.7% | 20.0% | 21.2% | 44.7% | 30.0% | 40.0% | 46.7% | 30.0% | 27.3% | 36.2% | 60% |
| 51-100 | 13.1% | 5.7% | 5.0% | 22.9% | 22.0% | 10.0% | 8.6% | 11.9% | 10.0% | 40.1% | 33.6% | 10% |
| 0-50 | 35.1% | 15.8% | 5.0% | 22.0% | 25.2% | 20.0% | 27.2% | 24.7% | 10.0% | 32.6% | 30.2% | 20% |

**Figure 4: Patch Size Distribution by Natural Disturbance Unit (2001 - 2006)**

## REVISIONS

No changes or revisions are proposed for this indicator. Next reporting will take place with the next Forest Development Plan.

## 2.3 PROTECTED AREA BY SERAL STAGE

| Indicator: | Objective: |
|---|---|
| **3.** Protected area by seral stage | We will identify seral stage distribution in Protected Areas within the TFL. |

**STATUS AND COMMENTS**

Management Plan 3 shows that currently there are 260 ha of early, 6,637 ha of juvenile, 5,247 ha of mature and 1,590 ha of old forest in Protected Areas within the TFL boundaries (Table 4). A detailed summary of the seral stage distribution by Protected Areas is provided in Management Plan 3. No known new disturbances have occurred that would have influenced this analysis.

**Table 4: Current Status of Seral Stages within Protected Areas as of July 2000**

| | | Seral Stage of Vegetated Treed Areas | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Existing | | | | + 5 Years | | | | Total Area |
| Protected Area | BEC | Early | Juvenile | Mature | Old | Early | Juvenile | Mature | Old | |
| Bocock Peak | ESSF wc3 | - | 91 | 317 | 29 | - | 79 | 328 | 30 | 437 |
| | ESSF wk2 | - | 22 | 91 | 81 | - | 22 | 91 | 81 | 194 |
| Bocock Peak Total | | - | 113 | 408 | 110 | - | 101 | 419 | 111 | 631 |
| Butler Ridge | BWBS mw1 C | 3 | 128 | 480 | 98 | 3 | 128 | 480 | 98 | 709 |
| | BWBS mw1 D | 179 | 322 | 64 | 461 | 105 | 389 | 71 | 461 | 1,026 |
| | BWBS wk2 C | - | 156 | 279 | 21 | - | 156 | 279 | 21 | 456 |
| | BWBS wk2 D | - | 103 | 15 | 74 | - | 219 | 43 | 74 | 192 |
| | ESSF mv4 | 60 | 2,362 | 218 | - | 60 | 2,352 | 228 | - | 2,640 |
| Butler Ridge Total | | 242 | 3,071 | 1,056 | 654 | 168 | 3,244 | 1,101 | 654 | 5,023 |
| Gwillim Lake | BWBS mw1 C | - | - | 22 | 4 | - | - | 20 | 6 | 26 |
| | BWBS mw1 D | - | - | - | 5 | - | - | - | 5 | 5 |
| | BWBS wk1 C | - | 193 | 304 | 126 | - | 174 | 310 | 139 | 623 |
| | BWBS wk1 D | 11 | 27 | 52 | 27 | 11 | 13 | 65 | 28 | 117 |
| | ESSF mv2 | 7 | 880 | 660 | 94 | 7 | 784 | 756 | 94 | 1,641 |
| Gwillim Lake Total | | 18 | 1,100 | 1,038 | 256 | 18 | 971 | 1,151 | 272 | 2,412 |
| Klin Se Za | ESSF wc3 | - | 219 | 761 | 70 | - | 191 | 787 | 72 | 1,050 |
| | ESSF wk2 | - | 8 | 32 | 28 | - | 8 | 32 | 28 | 68 |
| Klin Se Za Total | | - | 227 | 793 | 98 | - | 199 | 819 | 100 | 1,118 |
| Peace Boudreau | BWBS mw1 C | - | 301 | 97 | 22 | - | 301 | 97 | 22 | 420 |
| | BWBS mw1 D | - | 1,190 | 442 | 47 | - | 1,190 | 442 | 47 | 1,679 |
| Peace Boudreau Total | | - | 1,491 | 539 | 69 | - | 1,491 | 539 | 69 | 2,099 |
| Pine – LeMoray | ESSF wc3 | - | 445 | 1,278 | 261 | - | 349 | 1,316 | 319 | 1,984 |
| | ESSF wk2 | - | 136 | 135 | 142 | - | 134 | 77 | 202 | 413 |
| | SBS wk2 | - | 54 | - | - | - | 1 | 53 | - | 54 |
| Pine – LeMoray Total | | - | 635 | 1,413 | 403 | - | 484 | 1,446 | 521 | 2,451 |
| **Grand Total** | | **260** | **6,637** | **5,247** | **1,590** | **186** | **6,490** | **5,475** | **1,727** | **13,734** |

The next review of seral stage distribution within protected areas will be done in conjunction with Management Plan 4. It will represent forest conditions as of March 31, 2005. This analysis will occur in the spring of 2005.

**REVISIONS**

No revisions are suggested for this indicator or objective.

## 2.4 SPECIES AT RISK

| Indicator: | Objective: |
|---|---|
| **4.** Number of forest dependent plant species, plant associations, fish and wildlife classified as threatened, endangered or vulnerable within the TFL | We will ensure no species is uplisted as a result of Canfor management activities within the TFL. |

**STATUS AND COMMENTS**

In June 2004 the Ministry of Water, Land and Air Protection released an updated Identified Wildlife Management Strategy (IWMS 2004). The 2004 version replaces the version published in 1999. As a result the following species have changed status in the 2004 IWMS in respect of the species on the TFL. Added to the IWMS 2004 list are: Wolverine and Northern Caribou. Dropping from the IWMS 2004 list are: Bull Trout, American Bittern, Trumpeter Swan, Northern Goshawk, Fisher, and Mountain Goat.

The majority of species at risk (Table 5 and Table 6) maintained their provincial and national (i.e. blue, red) status except the trumpeter swan, which was down-listed, and the fisher, which is no longer Identified Wildlife but was up-listed from blue to red.

The uplisting of fisher is due to a variety of factors occurring provincially including suspected habitat loss, but incidental harvesting from marten trapping is believed to be the major cause of fisher mortality. However, it is believed that fisher populations are declining provincially and therefore the species is considered imperilled provincially. Critical stand level habitat features for fisher include: cavities in snags, coarse woody debris, and large diameter cottonwood. Landscape level habitat features include connectivity of mature coniferous forest, large patches, and riparian forests connected to larger patches. Canfor currently has several management strategies in place to meet the habitat needs of fisher: forest types over time, seral stage over time, patch size distribution, protected area by seral stage, minimum harvest age, wildlife tree patches and coarse woody debris.

Although fisher populations have not been estimated for TFL 48, habitat models (see Indicator 2.5) show declining very good and good habitat from 1960-2006. As a result of the status of fisher and the habitat trend noted a review of the model was conducted. BWBS stands in the mid seral to mature forest were identified as having very high suitability. As the forest ages from mature into old forest the habitat class declines to high and moderate. During the period from 1960 to 2006 very high class declined approximately 16,000 ha while some area (approximately 6,000 ha) has shifted to early the majority of structural stage shift (over 32,000 ha) has been into old forest. The decrease in high and very high fisher habitat is primarily due to aging of the forest landscape. Please see Indicator 2.5 for additional information on the fisher model.

The northern caribou was downlisted from red to blue (but is now Identified Wildlife as above). Other significant changes include the northern goshawk and the mountain goat, which were previously Identified Wildlife and are now only yellow listed.

One plant association occurring in both the ESSFmv4(05) and ESSFmv2(06) site series was added to the provincial blue list. Combined, these sites occur on only 497 ha of the TFL (based on PEM), with 216 ha or 43% occurring on the non-harvesting land base. Canfor will ensure that this plant association is not uplisted by avoiding permanent losses due to access structures.

See glossary for definitions of species at risk terminology.

## Table 5: Species at Risk Listing

| TAXA | SCIENTIFIC NAME | COMMON NAME | STATUS 2002 | STATUS 2003 |
|---|---|---|---|---|
| Fish | *Salvelinus confluentus* | Bull Trout | BLUE, IDENTIFIED | BLUE |
| | *Thymallus arcticus* pop. 1 | Arctic Grayling (Williston pop.) | RED | RED |
| Birds | *Ammodramus leconteii* | Le Conte's Sparrow | BLUE | BLUE |
| | *Ammodramus nelsoni* | Nelson's Sharp-tailed Sparrow | RED | RED |
| | *Asio flammeus* | Short-eared Owl | BLUE, SPECIAL CONCERN | BLUE, IDENTIFIED, SPECIAL CONCERN |
| | *Botaurus lentiginosus* | American Bittern | BLUE, IDENTIFIED | BLUE |
| | *Buteo platypterus* | Broad-winged Hawk | BLUE | BLUE |
| | *Cygnus buccinator* | Trumpeter Swan | BLUE, IDENTIFIED | YELLOW |
| | *Dendroica tigrina* | Cape May Warbler | RED | RED |
| | *Dendroica virens* | Black-throated Green Warbler | BLUE | BLUE |
| | *Oporornis agilis* | Connecticut Warbler | RED | RED |
| | *Vireo philadelphicus* | Philadelphia Vireo | BLUE | BLUE |
| | *Wilsonia canadensis* | Canada Warbler | BLUE | BLUE |
| | *Grus canadensis* | Sandhill Crane | BLUE, IDENTIFIED | BLUE |
| | *Accipiter gentilis atricapillus* | Northern Goshawk | IDENTIFIED | YELLOW |
| Mammals | *Gulo gulo luscus* | Wolverine, *luscus* subspecies | BLUE | BLUE, IDENTIFIED, SPECIAL CONCERN |
| | *Martes pennanti* | Fisher | BLUE, IDENTIFIED | RED |
| | *Myotis septentrionalis* | Northern Long-eared Myotis | BLUE | BLUE |
| | *Oreamnos americanus* | Mountain goat | IDENTIFIED | |
| | *Rangifer tarandus* pop. 15 | Caribou (northern mountain population) | RED, SPECIAL CONCERN | BLUE, IDENTIFIED, SPECIAL CONCERN |
| | *Ursus arctos* | Grizzly Bear | BLUE, IDENTIFIED,SPECIAL CONCERN | BLUE, IDENTIFIED |
| Plants | *Cirsium drummondii* | Drummond's thistle | RED | RED |
| | *Utricularia ochroleuca* | Ochroleucous bladderwort | RED | RED |
| Plant Associations | *Pinus contorta - Vaccinium membranaceum - Cladina* | lodgepole pine / black huckleberry / reindeer lichens SBSwk2(02) | BLUE | BLUE |
| | *Abies lasiocarpa – Alnus spp. – Equisetum spp.* | subalpine fir / alder / horsetails ESSFmv4(05) ESSFmv2(06) | | BLUE |

## Table 6: Summary of Species at Risk by Taxa 1999-2003

| Taxa | 1999 | 2000 | 2001 | 2002 | 2003 |
|---|---|---|---|---|---|
| Mammals | 6 | 6 | 6 | 6 | 6 |
| Fish | 2 | 2 | 2 | 2 | 2 |
| Birds | 15 | 15 | 15 | 13 | 13 |
| Plants | 22 | 21 | 21 | 3 | 2 |
| Plant Associations | 4 | 2 | 2 | 1 | 2 |
| **Total** | **49** | **46** | **46** | **25** | **25** |

**REVISIONS**

No revisions are suggested for this indicator or objective.

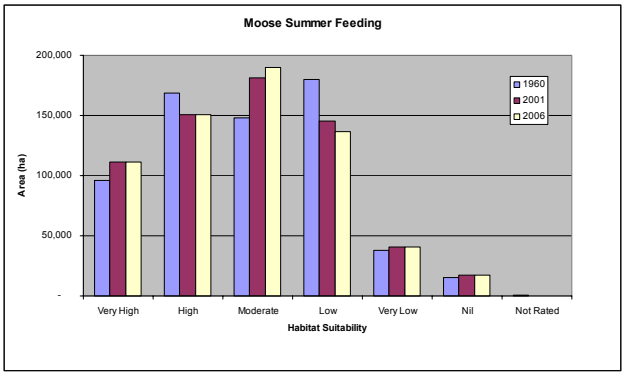
## 2.5 HABITAT SUPPLY FOR INDICATOR SPECIES

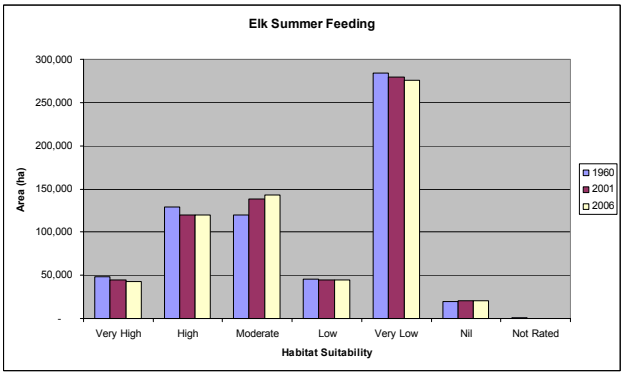
| Indicator: | Objective: |
|---|---|
| **5.** Habitat supply for indicator species | **5-1** We will ensure distribution of habitat for indicator species across the TFL.<br>**5-2** We will ensure sufficient furbearer habitat on a drainage-by-drainage basis exists to enable the maintenance of populations. |

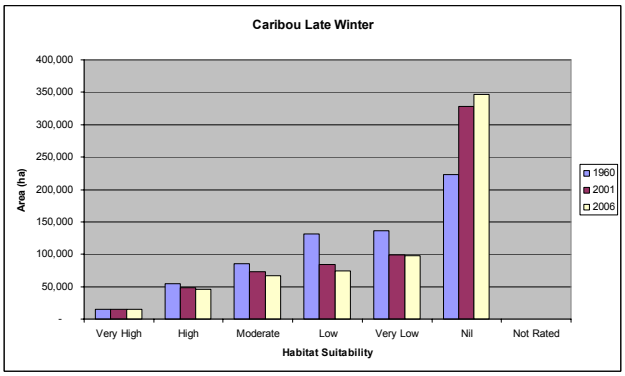
### 2.5-1 Wildlife Models

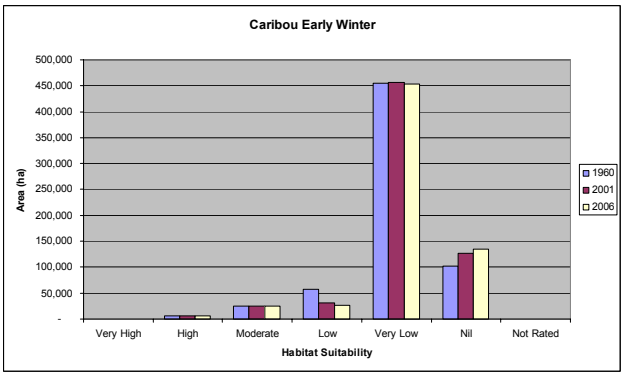
**STATUS AND COMMENTS**

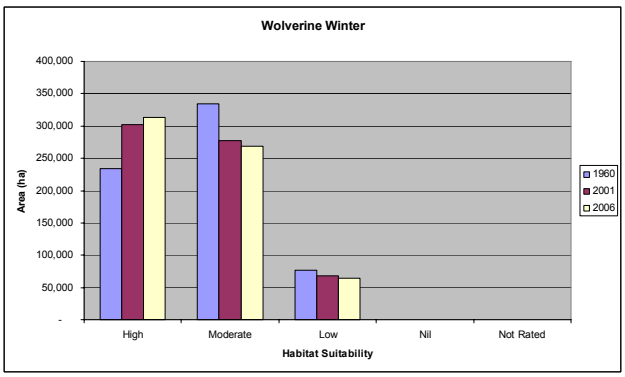
Habitat models for all 12 species have been completed for TFL 48. The following figures indicates the status of each of the 12 species at 3 points in time, 1960, 2001 and 2006 incorporating the proposed harvest areas identified in the 2002 FDP.

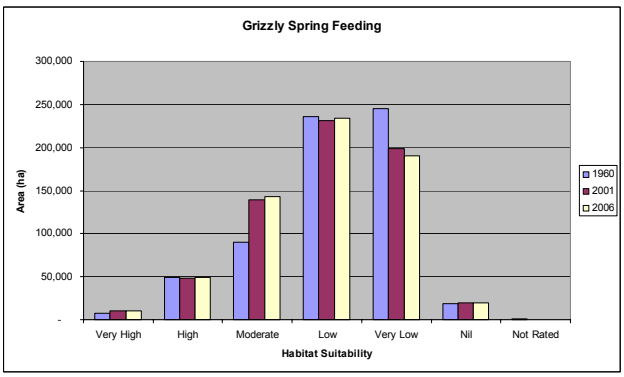


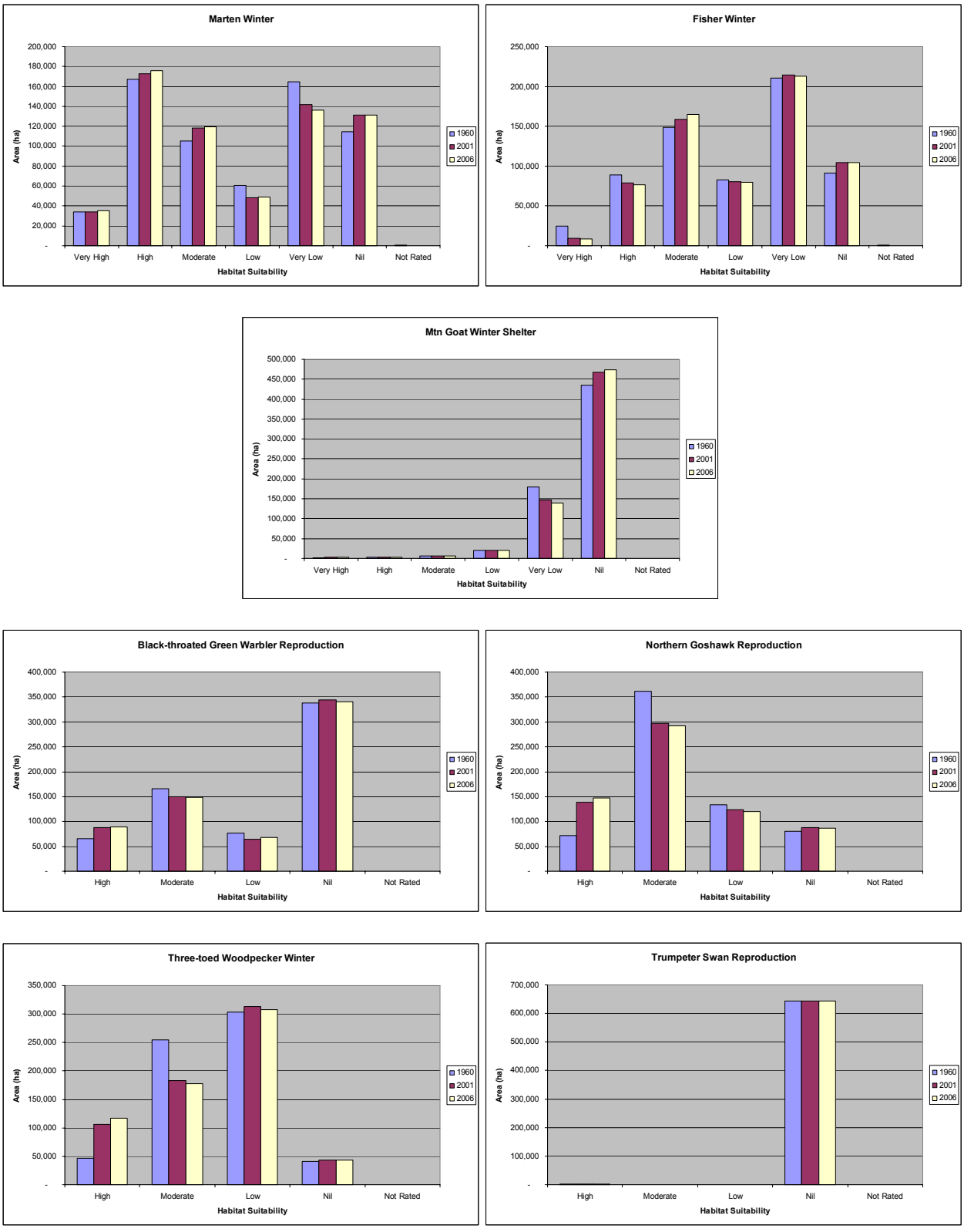



**Figure 5: Habitat Suitability for Indicator Species**

As initially reported in 2002 the life requisites shown in the above figures are thought to be the most limiting for each species. Habitat supply is shown to be relatively constant over the times shown. Those species that are more reliant on older forests have generally shown an increase in higher quality habitats since 1960. Fisher and elk are the only species that have seen a substantive decline in higher quality habitats since 1960. Further analysis was completed to identify the factors influencing this trend.

As a result of the status of fisher (See Indicator 2.4) and the habitat trend noted above, a review of the fisher model was conducted. BWBS stands on 01, 05 and 06 site series in the mid seral to mature forest structural stages were identified as having very high suitability. As the forest ages from mature into old forest the habitat class declines to high and moderate. During the period from 1960 to 2006 the very high class habitat declined approximately 16,000ha. While some of this area (approximately 6,000ha) has shifted to an early structural stage due to harvesting or other disturbance the majority of structural stage shift (over 32,000ha) has been into old forest. The decrease in high and very high fisher habitat is primarily due to aging of the forest landscape. During this review it was also noted that the model in the BWBSwk variant might not have represented some of the forest types correctly. The result of this could be that the amount of very high habitat may have been over estimated in 1960. Additional validation of the fisher model is ongoing and will be complete prior to the 2004 annual report.

The elk model was also reviewed and similar results were identified. Habitat within the very high class decreased approximately 5,500ha and habitat within the high class decreased approximately 11,700ha over the period of 1960 to 2006. Very high and high class habitat can be found over a range of site series and structural stages from early to mature forest in the BWBS and SBS zones. Over these same site series the proportion of old forest increased by over 19,000ha during this same period. Old forest is classed as moderate habitat for elk summer feeding. The aging of the landscape accounts for the decrease in elk habitat over the period of 1960 to 2006

**REVISIONS**

No additional revisions are suggested for this indicator or objective.

### 2.5-2 Furbearer Habitat Availability

**STATUS AND COMMENTS**

As shown above in Figure 5, and in the 2001 annual report, Marten all-winter habitat is forecast to remain relatively constant. High, moderately high, and moderate habitat classes remain at almost the same levels throughout the 200 year planning horizon. Fisher habitat model while completed remains to be modelled across the TFL over the long term planning horizon. Habitat is shown to be relatively constant over the term of the current FDP. Habitat over the full planning horizon will be modelled in conjunction with the analysis and forecasting conducted in support of MP 4.

**REVISIONS**

No additional revisions are suggested for this indicator or objective.

## 2.6 DISEASE TRANSMISSION TO SHEEP

| Indicator: | Objective: |
|---|---|
| **6.** Disease transmission from domestic sheep grazing activities | No disease transmission from domestic sheep to wild sheep populations from domestic sheep use in Canfor activities. |

**STATUS AND COMMENTS**

No sheep grazing occurred on the TFL during 2003.

**REVISIONS**

No revisions are suggested for this indicator or objective.

## 2.7 COLLECTION AND USE OF REGISTERED SEED

| Indicator: | Objective: |
|---|---|
| **7.** The number of seeds for coniferous species collected and seedlings planted in accordance with the regulations. | All coniferous seeds will be collected and seedlings will be planted in accordance with the regulations.. |

**STATUS AND COMMENTS**

All (100%) trees grown to be planted within the TFL are registered in accordance with the Tree Cone, Seed and Vegetative Material regulation. Table 7 shows all trees and their source that Canfor and SBFEP planted on the TFL in 2003.

**Table 7: Tree Seed Origin**

| Species | Seedlot | Number of Trees | Seed Class | Seed Worth | Seed Origin | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Latitude | Longitude | Seed Zone | Location |
| Pli | 30750[1] | 66,960 | B | | 552500 | 1202800 | HH | Oetata Ridge |
| Pli | 30756 | 180,450 | B3 | | 555100 | 1223800 | HH | Carbon River |
| Pli | 30759 | 1,150 | B2 | | 552500 | 1204500 | HH | Oetata Ridge |
| Pli | 30779 | 150,125 | B2 | | 554500 | 122000 | HH | Hulcross Creek - North |
| Pli | 45715 | 45,545 | B2 | | 553000 | 1224000 | HH | Link Creek |
| Pli | 45716 | 265,745 | B2 | | 550800 | 1210800 | HH | Wolverine River |
| Sx | 01520 | 985,595 | B | | 555800 | 1215500 | HH | Maurice Creek |
| Sx | 01822[1] | 2,700 | B | | 544500 | 1210000 | HH | Kinuseo Valley |
| Sx | 01839 | 332,010 | B2 | | 555000 | 1214000 | HH | Moberly Lake |
| Sx | 04140 | 84,440 | B2 | | 560100 | 1221900 | HH | Gaylard Creek |
| Sx | 08782[1] | 13,040 | B2 | | 554000 | 1210500 | HH | Coldstream / Murray River |
| Sx | 08791[1] | 30,020 | B | | 544000 | 1203500 | HH | Wapiti Watershed |
| Sx | 08799[1] | 21,620 | B | | 545800 | 1213600 | HH | Upper Sukunka River |
| Sx | 31310 | 739,515 | B3 | | 562800 | 1222900 | HH | Colt Creek CP 64 |
| Sx | 33269 | 339,375 | B2 | | 561300 | 1220000 | HH | Farrell Creek |
| Sx | 39432[1] | 14,250 | B | | 552200 | 1230700 | FIN | Emerslund Lakes |
| Sx | 39501 | 46,545 | B3 | | 554000 | 1220500 | HH | Hulcross Creek - South |
| Sx | 40225 | 22,356 | B | | 553000 | 1223500 | HH | Calazon Creek |
| Sx | 44273 | 393,880 | B2 | | 552800 | 1215100 | HH | Upper Highhat |
| Sx | 44274 | 123,720 | B2 | | 553100 | 1221200 | HH | Falling Creek |
| Sx | 60116[2] | 85,320 | A | 19 | 531600 | 1221300 | PG | Vernon Seed Orchard |
| Sx | 60119[2] | 22,140 | A | 18 | 530900 | 1221100 | PG | Vernon Seed Orchard |
| Sx | 61038[2] | 335,880 | A | 19 | 530900 | 1221100 | PG | Vernon Seed Orchard |
| **Total Trees Planted** | | **4,302,381** | | | | | | |

[1] Areas highlighted above were planted by the SBFEP.

[2] Seedlots 60116, 60119 and 61035 are class A seedlots produced by the Vernon Seed Orchard Company (VSOC). Parent trees from across the Prince George Region were selected and seedlings produced from these parents were outplanted in various progeny tests across the region. The results from the progeny tests allowed tree breeders to select the best growing parents for the PG seed-planning zone. The selected parents were then planted at the VSOC, which now produce seedlots such as 60116, 60119 and 61035.

In 2003, there were areas planted by Canfor outside of the seedling transfer guidelines:

- Canfor planted approximately 1 ha with 1,500 seedlings of seedlot 45716 on block 042-T4001 at an elevation up to 1222 m when the maximum limit for this seedlot was 1200m. This information was forwarded to the Ministry of Forests and will be monitored to ensure that the seedlings perform to an acceptable standard.

- Canfor planted approximately 4,500 seedlings from seedlot 45716 on 3.0 ha of block 677-T4012 at an elevation down to 767 m when the minimum limits for the seedlot is 800 m. This information was forwarded to the Ministry of Forests and will be monitored to ensure that the seedlings perform to an acceptable standard

Based on records provided by BCTS there was on area planted by SBFEP outside of the seedling transfer guidelines in 2003.

- BCTS planted approximately 2,700 seedlings of seedlot 01822 on block A58765-003 at an elevation up to 1338m when the maximum limit for this seedlot was 1253m. A variance request has been submitted to the District Manager. The area will be monitored to ensure that the seedlings perform to an acceptable standard.

As this is the second year that a small non-conformance was detected during the annual reporting a review of the Genus database will be conducted to ensure that the correct elevations are recorded for each block prior to allocating seedlots to planting areas.

**REVISIONS**

There are no revisions proposed for this indicator.

## 2.8 INCIDENCE OF FIRE, WINDFALL INSECTS AND DISEASE

| Indicator: | Objective: |
|---|---|
| **8.** Area and severity of incidence of fire, windfall, insects and disease | **8-1** We will minimize Non-Recoverable Losses to less than 10% of AAC based on a 10 year rolling average.<br>**8-2** We will salvage 90% of merchantable timber volumes within the THLB damaged by fire, windfall, insects and disease within 18 months of occurrence. |

### 2.8-1 Minimize Non-Recoverable Losses

**STATUS AND COMMENTS**

During 2003 the following incidence of fire, windfall, insects or disease have been noted on TFL 48. Table 8 summarizes the incidence of forest health issues and associated actions.

**Table 8: Forest Health Incidence**

| Forest Health Factor | Incidence | Action |
|---|---|---|
| Fire | One fire was noted on the TFL in 2003 near Moberly Lake. Fire was estimated at 38 ha and did not burn any forested areas. | • N/A |
| Insect | | |
| Balsam Bark Beetle | Incidence very light in mountain areas. No formal surveys required. | • N/A |
| Spruce Budworm | None | • N/A |
| Spruce Bark Beetle | None | • N/A |
| Forest Tent Caterpillar | None | • N/A |
| Blowdown | CP 236-001 ~75m3 | • Small internal WTP blowdown. Leave for CWD, quantify as unsalvaged losses. |
| | CP 239-001 ~40m$^3$ | • No action planned due to small amount, quantify as unsalvaged and monitor. |
| | CP 238-T2001 ~200m$^3$ | • Pine blowdown dispersed throughout retention strips mostly in south half of block. Winds are coming from southwest. No action at this time - continue to monitor. Cannot salvage dispersed stems without damaging seedlings. If it continues, may amend the SP and accelerate the second and third entries and turn the susceptible portions into clearcut. Quantify as unsalvaged losses |
| | CP 644-002 ~500m$^3$ | • Fringe blowdown - approx 1.5ha total (500m3), Appears to have stabilized. Portions have reached smaller type behind. Blowdown has occurred over last 3 yrs since last salvage and approx half is dry and checked. Recommend no action, continue to monitor |
| | CP 280-T2055~1020m$^3$ | • 3.3 ha adjacent to CP237-002. CP Area identified in 2003 and CP issued in March 2004. Scheduled for harvest in 2004. |
| | CP 329-004 ~1200m3 | Blowdown within partial cut and outside of block boundary. Area to be assessed in 2004. |
| Environmental | None noted in 2003 | N/A |
| Disease | None – Disease is typically slow to develop over a long period of time. Hence it is difficult to identify until stand level prescriptions are developed. | • Continue to monitor and prescribe appropriate silviculture strategies at stand level. |

**REVISIONS**

No revisions are suggested for this indicator or objective.

### 2.8-2 Salvage of Merchantable Timber Volumes

**STATUS AND COMMENTS**

**Table 9: Summary of Salvage**

| Year | Total Losses ($m^3$) | Salvage Completed ($m^3$) Recovered | | Salvage Planned ($m^3$) | | No Salvage Proposed ($m^3$) Non-Recovered | | Salvage Remaining to be Assessed ($m^3$) | |
|---|---|---|---|---|---|---|---|---|---|
| 2000 | 3,370 | | | | | | | | |
| 2001 | 0 | 100 | | | | 210 | | | |
| 2002 | 60 | 1,800 | | | | 620 | | | |
| 2003 | 3,035 | | | 1,020 | | 1,515 | | 1,200 | |
| **Totals** | **6,465** | **1,900** | **29%** | **1,020** | **16%** | **2,345** | **36%** | **1,200** | **19%** |

The 700$m^3$ of proposed salvage (644-015) has exceeded the 18 month objective. This is due to the location of the salvage on the Dowling Creek Rd. Four bridges are required to be reinstalled to provide access to this area. Due to length of time since damage and difficult access area has been moved to non-salvage status.

The objective for salvage has been exceeded as 36% of the areas identified since 2000 have been left as non-recovered losses. While not meeting the objective of salvaging 90% this minor amount (2,345$m^3$) is well within the objective for 28-1 of minimizing losses to less than 10% of the AAC for TFL 48 or about 0.11% of the allowable AAC over this period.

**REVISIONS**

No revisions are suggested for this indicator or objective.

## 2.9 PERCENT OF A HARVESTED AREA REFORESTED

| Indicator: | Objective: |
|---|---|
| **9.** Percent of a harvested area that is reforested | We will reforest 100% of the net area to be reforested within 2 years of harvest on average. |

**STATUS AND COMMENTS**

A review of silviculture records was completed for Management Plan 3. This review indicated that since January 1, 1995 the area weighted regeneration delay was 0.6 years.

The next review of regeneration delay will be done for Management Plan 4 in 2005 and will be based on performance through 2004.

**REVISIONS**

No revisions are suggested for this indicator or objective.

## 2.10 MINIMUM HARVEST AGE

| Indicator: | Objective: |
|---|---|
| **10.** Minimum harvest age (as a surrogate for nutrient cycling) | Minimum harvest ages in years will be: Aspen 61, Cottonwood 61, Pine 81, Subalpine fir 81, Spruce 121 (based on leading species and average stand age). |

**STATUS AND COMMENTS**

Table 10 shows the average age of proposed category A cutblocks in the most recent Forest Development Plan for TFL 48 submitted in January 2002. As well a major amendment was made to the Forest Development Plan in 2003. These new blocks are shown and highlighted at the end of Table 10. All ages are consistent with the objective.

**Table 10: Average Harvest Age for Proposed Category A Blocks**

| LICENCE | CUT BLOCK # | GROSS CUTBLOCK AREA, HA | FDP STATUS | Average Age | Spruce % | Pine % | Balsam % | Aspen % | Cottonwood % | Birch % |
|---|---|---|---|---|---|---|---|---|---|---|
| TFL48 | T4075 | 248 | PA | 76 | 5% | 9% | | 81% | 3% | 2% |
| TFL48 | T2042 | 140.6 | PA | 91 | 15% | 0% | 9% | 21% | 55% | 0% |
| TFL48 | T4076 | 127.3 | PA | 100 | 2% | 29% | | 61% | 6% | 2% |
| TFL48 | T5009 | 93.4 | PA | 100 | 4% | 51% | | 27% | 18% | |
| TFL48 | T2046 | 85.9 | PA | 103 | 13% | 15% | | 64% | 5% | 3% |
| TFL48 | T1025 | 692 | PA | 105 | 24% | 6% | | 36% | 34% | 0% |
| TFL48 | T3017 | 251.5 | PA | 106 | 26% | 4% | | 25% | 45% | 0% |
| TFL48 | T4066 | 161.3 | PA | 107 | 26% | 0% | | 45% | 21% | 8% |
| TFL48 | T4071 | 65.5 | PA | 108 | 13% | 30% | | 45% | 9% | 3% |
| TFL48 | T5010 | 79.5 | PA | 112 | 12% | 74% | 0% | 7% | 6% | |
| TFL48 | T3016 | 318.4 | PA | 113 | 15% | 1% | | 60% | 24% | 0% |
| TFL48 | T2044 | 485.2 | PA | 115 | 17% | 20% | | 50% | 11% | 3% |
| TFL48 | T1024 | 381.1 | PA | 119 | 31% | 6% | | 42% | 20% | |
| TFL48 | T5006 | 44.2 | PA | 119 | 21% | 73% | 0% | | 6% | |
| TFL48 | T4074 | 366.4 | PA | 120 | 34% | 39% | 2% | 18% | 6% | |
| TFL48 | T3018 | 553.6 | PA | 121 | 41% | 2% | | 48% | 9% | |
| TFL48 | T4073 | 294.8 | PA | 123 | 60% | 30% | 9% | 1% | 1% | 0% |
| TFL48 | T5008 | 184.1 | PA | 127 | 41% | 33% | 0% | 14% | 12% | |
| TFL48 | T4067 | 217.2 | PA | 133 | 60% | 16% | 22% | 1% | 0% | |
| TFL48 | T4064 | 348.3 | PA | 135 | 54% | 31% | 13% | 1% | | |
| TFL48 | T4062 | 731.5 | PA | 137 | 26% | 67% | 0% | 2% | 6% | 0% |
| TFL48 | T5004 | 318.2 | PA | 137 | 46% | 41% | 2% | 3% | 9% | 0% |
| TFL48 | T4070 | 486.6 | PA | 139 | 36% | 62% | 1% | 0% | 1% | |
| TFL48 | T4063 | 233 | PA | 140 | 11% | 78% | 0% | 6% | 5% | |
| TFL48 | T1005 | 32.3 | PA | 141 | 71% | 26% | 3% | | | |
| TFL48 | T2045 | 266.4 | PA | 141 | 28% | 67% | 4% | 1% | 0% | |
| TFL48 | T4069 | 68.5 | PA | 144 | 20% | 74% | 0% | 1% | 4% | |
| TFL48 | T4065 | 430.2 | PA | 145 | 41% | 49% | 9% | 0% | 0% | |
| TFL48 | T4068 | 268.5 | PA | 146 | 34% | 64% | 1% | 0% | 0% | |
| TFL48 | T5007 | 877.8 | PA | 146 | 45% | 45% | 3% | 1% | 6% | |
| TFL48 | T4077 | 274.1 | PA | 147 | 46% | 45% | 8% | 1% | 0% | |

| LICENCE | CUT BLOCK # | GROSS CUTBLOCK AREA, HA | FDP STATUS | Average Age | Spruce % | Pine % | Balsam % | Aspen % | Cottonwood % | Birch % |
|---|---|---|---|---|---|---|---|---|---|---|
| TFL48 | T5005 | 157.7 | PA | 147 | 57% | 32% | 3% | 1% | 7% | |
| TFL48 | T1003 | 62.8 | PA | 149 | 77% | 14% | 9% | | | |
| TFL48 | T2043 | 219.5 | PA | 152 | 40% | 54% | 4% | 1% | 0% | |
| TFL48 | T4078 | 264.8 | PA | 155 | 62% | 27% | 11% | 0% | 0% | |
| TFL48 | T4072 | 280.6 | PA | 156 | 42% | 41% | 13% | 1% | 2% | |
| TFL48 | T2051 | 264.1 | PA | 157 | 40% | 38% | 14% | 0% | 7% | |
| TFL48 | T2047 | 74 | PA | 159 | 45% | 23% | 18% | | 15% | 0% |
| TFL48 | T1004 | 30.4 | PA | 162 | 67% | 18% | 16% | | | |
| TFL48 | T2049 | 53.5 | PA | 181 | 38% | 61% | 1% | 0% | 0% | |
| TFL48 | T2048 | 71.9 | PA | 182 | 54% | 44% | 2% | 0% | 0% | |
| TFL48 | T2050 | 35.9 | PA | 203 | 69% | 26% | 0% | 0% | 5% | |
| TFL48 | T5011 | 69.3 | PA | 213 | 83% | | 17% | | | |
| TFL48 | T2053* | 250 | PA | 178 | 53% | 38% | 8% | | 1% | |
| TFL48 | T2054* | 380 | PA | 124 | 51% | 36% | 9% | | 3% | |
| TFL48 | T5012* | 75 | PA | 238 | 77% | 2% | 21% | | | |
| TFL48 | T5013* | 104 | PA | 277 | 75% | 0% | 25% | | | |
| TFL48 | T5014* | 112 | PA | 318 | 76% | 0% | 24% | | | |

* Indicates blocks added in 2003 Major Amendment to 2002 FDP

**REVISIONS**

No revisions are suggested for this indicator or objective.

## 2.11 WILDLIFE TREE PATCHES

| Indicator: | Objective: |
|---|---|
| **11.** Wildlife tree patches | Wildlife tree patches will not be less than 8% of the harvested area, on average. |

**STATUS AND COMMENTS**

In the draft Management Plan 3 it was reported that blocks harvested since 1995 retained, on average, 17.6% in Wildlife Tree Patches (WTP). The current status of all areas harvested with WTP's is 12%, and 12% including planned and harvested blocks. This is the third reporting at the Landscape Unit by BEC variant level. It will take some time as new harvesting is conducted and planned to balance the WTP distribution by Landscape Unit and BEC variant. Some permits may have more than the required amount of WTP's however when examined in relation to the BEC variant some variants may be under represented.

The information provided in Table 11 will be used to guide future WTP placement to ensure representative distribution of WTP's.

## Table 11: Wildlife Tree Patch by Landscape Unit and BEC Variant

| LU | BEC / Variant | Total Forest Area | THLB | % Available for Harvest | Harvested with no WTR | % THLB Harvested with no WTR | Harvested with WTR | % THLB Harvested with WTR | Area WTR | % WTP of Area Harvested with WTR | Planned Harvest | WTP Planned Harvest | % WTP of Area Harvested or Planned with WTR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Boucher | BWBSmw1 | 27,381 | 18,411 | 73% | 1,043 | 6% | 0 | 0% | 0 | 0% | 795 | 31 | 4% |
| | BWBSwk1 | 7,074 | 5,867 | 83% | 299 | 5% | 0 | 0% | 0 | 0% | 0 | 0 | 0% |
| | SBS wk2 | 953 | 702 | 74% | 0 | 0% | 0 | 0% | 0 | 0% | 0 | 0 | 0% |
| Burnt-LeMoray | BWBSmw1 | 51 | 22 | 43% | 0 | 0% | 0 | 0% | 0 | 0% | 0 | 0 | 0% |
| | ESSF wc3 | 41,606 | 9,386 | 23% | 370 | 4% | 215 | 2% | 2 | 1% | 180 | 17 | 5% |
| | ESSF wk2 | 39,064 | 24,546 | 63% | 3,259 | 13% | 2,066 | 8% | 178 | 9% | 441 | 37 | 9% |
| | SBS wk2 | 23,027 | 14,090 | 61% | 1,966 | 14% | 701 | 5% | 122 | 17% | 92 | 4 | 16% |
| Carbon | BWBSmw1 | 27 | 1 | 4% | 0 | 0% | 0 | 0% | 0 | 0% | 0 | 0 | 0% |
| | ESSF mv2 | 46,164 | 17,750 | 38% | 687 | 4% | 1,507 | 8% | 143 | 10% | 650 | 101 | 11% |
| | ESSF wc3 | 9,696 | 2,202 | 23% | 153 | 7% | 0 | 0% | 0 | 0% | 153 | 37 | 24% |
| | ESSF wk2 | 4,371 | 2,418 | 55% | 6 | 0% | 176 | 7% | 29 | 16% | 129 | 51 | 26% |
| | SBS wk2 | 15,192 | 10,155 | 67% | 1,977 | 19% | 1,142 | 11% | 304 | 21% | 94 | 20 | 21% |
| Dunlevy | BWBSmw1 | 19,541 | 9,420 | 48% | 225 | 2% | 389 | 4% | 58 | 15% | 25 | 0 | 14% |
| | BWBSwk2 | 12,526 | 7,602 | 61% | 113 | 1% | 147 | 2% | 12 | 8% | 0 | 0 | 8% |
| | ESSF mv4 | 11,743 | 5,426 | 46% | 66 | 1% | 112 | 2% | 1 | 1% | 0 | 0 | 1% |
| East Pine | BWBSmw1 | 21,327 | 16,683 | 78% | 657 | 4% | 4,725 | 28% | 756 | 16% | 477 | 41 | 15% |
| Gething | BWBSmw1 | 11,590 | 7,812 | 67% | 2,584 | 33% | 512 | 7% | 108 | 21% | 0 | 0 | 21% |
| | ESSF mv2 | 24,039 | 14,503 | 60% | 1,353 | 9% | 1,697 | 12% | 196 | 12% | 313 | 38 | 12% |
| | SBS wk2 | 20,133 | 15,053 | 75% | 3,964 | 26% | 1,550 | 10% | 155 | 10% | 324 | 56 | 11% |
| Highhat | BWBSmw1 | 16,204 | 10,703 | 66% | 217 | 2% | 170 | 2% | 18 | 11% | 79 | 7 | 10% |
| | BWBSwk1 | 10 | 7 | 65% | 1 | 14% | 1 | 14% | 0 | 0% | 0 | 0 | 0% |
| | ESSF mv2 | 31,308 | 20,794 | 66% | 1,385 | 7% | 1,419 | 6% | 89 | 6% | 756 | 89 | 8% |
| | ESSF wc3 | 8 | 2 | 29% | 0 | 0% | 0 | 0% | 0 | 0% | 0 | 0 | 0% |
| | ESSF wk2 | 2,544 | 1,759 | 69% | 0 | 0% | 129 | 7% | 28 | 22% | 26 | 2 | 19% |
| | SBS wk2 | 37,462 | 26,946 | 72% | 1,357 | 5% | 1,754 | 7% | 192 | 11% | 459 | 53 | 11% |
| Martin Creek | BWBSmw1 | 23,145 | 15,562 | 67% | 1,876 | 12% | 735 | 5% | 55 | 8% | 726 | 90 | 10% |
| | BWBSwk1 | 20,877 | 16,360 | 78% | 1,562 | 10% | 416 | 3% | 48 | 11% | 296 | 59 | 15% |
| | ESSF mv2 | 13,476 | 7,197 | 53% | 22 | 0% | 491 | 7% | 50 | 10% | 0 | 0 | 10% |
| Wolverine | BWBSmw1 | 5,542 | 3,718 | 67% | 387 | 10% | 260 | 7% | 33 | 13% | 30 | 3 | 10% |
| | BWBSwk1 | 6,684 | 4,508 | 67% | 416 | 9% | 42 | 1% | 6 | 15% | 326 | 80 | 24% |
| | ESSF mv2 | 34,319 | 17,829 | 52% | 1,138 | 6% | 988 | 6% | 17 | 2% | 111 | 18 | 3% |
| | ESSF wc3 | 5,588 | 1,757 | 31% | 53 | 3% | 254 | 14% | 5 | 2% | 0 | 0 | 2% |
| | ESSF wk2 | 6,760 | 3,840 | 57% | 399 | 10% | 1,154 | 30% | 74 | 6% | 82 | 20 | 8% |
| | SBS wk2 | 13,097 | 8,547 | 65% | 406 | 5% | 249 | 3% | 9 | 4% | 284 | 132 | 26% |
| Total | | 565,790 | 321,576 | 57% | 28,241 | 9% | 23,300 | 7% | 2,689 | 12% | 6,848 | 989 | 12% |
| Sub Total by Variant | SBS wk2 | 109,865 | 75,494 | 69% | 9,670 | 13% | 5,696 | 8% | 781 | 14% | 1,252 | 265 | 15% |
| | ESSF wk2 | 52,738 | 32,563 | 62% | 3,663 | 11% | 3,525 | 11% | 308 | 9% | 678 | 110 | 10% |
| | ESSF mv2 | 149,307 | 78,074 | 52% | 4,584 | 6% | 6,101 | 8% | 495 | 8% | 1,829 | 247 | 9% |
| | ESSF wc3 | 56,899 | 13,347 | 23% | 576 | 4% | 469 | 4% | 8 | 2% | 334 | 54 | 8% |
| | BWBSmw1 | 111,735 | 74,041 | 66% | 6,264 | 8% | 6,791 | 9% | 1,029 | 15% | 2,132 | 173 | 13% |
| | BWBSwk1 | 34,646 | 26,741 | 77% | 2,278 | 9% | 459 | 2% | 54 | 12% | 622 | 140 | 22% |

**REVISIONS**

No new revisions are suggested for this indicator or objective.

## 2.12 OLD GROWTH MANAGEMENT AREAS

| Indicator: | Objective: |
|---|---|
| **12.** Old growth management areas | We will sustain old growth habitat values within the TFL. |

**STATUS AND COMMENTS**

Canfor has identified interim conservation areas that may also achieve old growth targets as well. DeLong (2002) recommends that landscapes with a fire return interval <150 years utilize a system of rotating reserves. These reserve areas may be harvested when a suitable area of relatively equivalent size is identified to replace them. The intent would be to have some large reserves of forest that are old but not so old as to be unnatural and highly susceptible to stand replacement forest insect or disease outbreaks. This would apply to the Boreal Plains and the Boreal Foothills Valley NDU's. See Figure 6 below for location of interim conservation areas and NDU's.

In landscapes where large fires were common but the disturbance cycle was 150 to 300 years a strategy of irregularly dispersed large permanent/semi-permanent reserves is recommended (DeLong 2002). Some watersheds would have a large amount of old forest reserve but the adjacent may have much less. This would apply to the Boreal Foothills Mountain and Omineca NDU's.

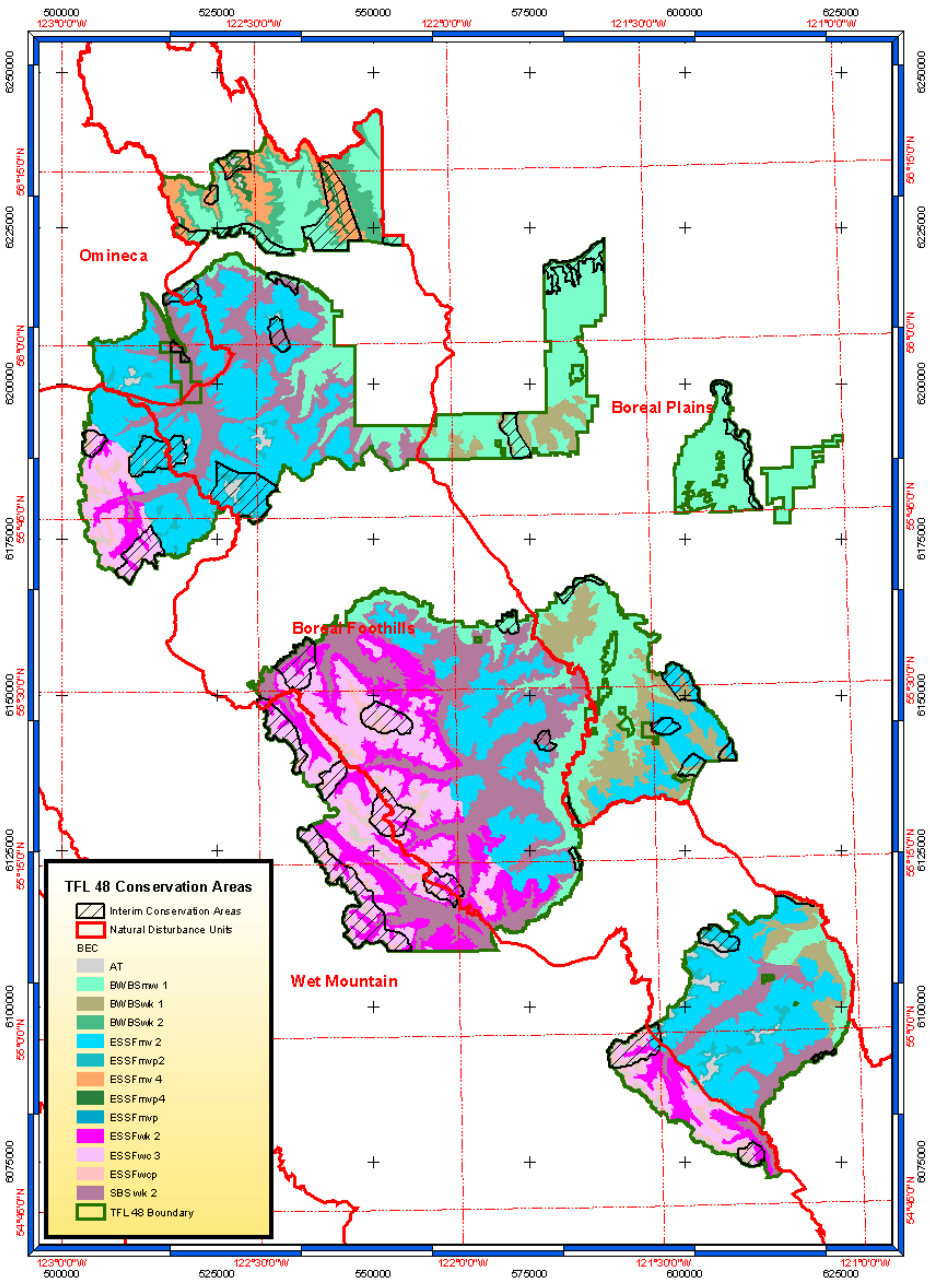



**Figure 6: Interim Conservation Areas**

Lastly in landscapes where large fires were rare (fire cycle > 300 years) and old uneven-aged forests dominated the landscape a strategy of regularly dispersed reserves are recommended (DeLong 2002). This would apply to the Wet Mountains NDU.

The intent of these areas is to avoid development in these areas as an interim strategy while a more comprehensive strategy can be developed. This will be developed in conjunction with MP 4 where detailed forecasting can take place and trade offs and alternative strategies can be identified and modeled. The above identified areas are subject to change and adjustment as further information or insights become available. As well ecosystem representation analysis conducted by UBC as part of indicator 2.51-3 Best Available Science can be used as guidance as to those areas which are at higher risk and should receive a higher conservation effort.

**REVISIONS**

No revisions are suggested for this indicator or objective at this time.

## 2.13 COARSE WOODY DEBRIS

| Indicator: | Objective: |
|---|---|
| **13.** Coarse woody debris | We will maintain natural levels of coarse woody debris (CWD) across the TFL. |

**STATUS AND COMMENTS**

Coarse woody debris is used by rodents, small carnivores and amphibians for cover, nesting, denning and foraging. Woody debris also provides substrate for nonvertebrates, lichen and fungi, and influences such ecosystem processes as nutrient cycling, water retention and stream morphology (Bunnell et al. 2003). Important attributes of downed woody debris include size, decay state and density or distribution (Bunnell et al. 2003). Large pieces of CWD persist longer, providing shelter to larger vertebrates and breeding substrates for amphibians. A range of decay states is essential to support the succession of organisms that require different decay levels. Variability in CWD density and distribution provides subnivean rest sites for mammals in the winter and foraging sites for species preferring low volumes of CWD, and supports fungi and bryophytes that favour high volumes of downed wood. Managing and monitoring for these attributes is critical, as downed wood is the most likely habitat element to appear abundant initially after harvest, but become limiting through time (Bunnell et al. 2003).

Canfor is proposing targets for CWD management based on analysis of VRI Phase 2 data (see below) completed during 2003.

Based on 131 phase 2 VRI plots located in natural stands from four biogeoclimatic (BEC) zones (BWBS, SBS, ESSF wet and ESSF moist) average CWD accumulations are 92.6 $m^3$/ha (SE $\pm$18.6 $m^3$/ha @ 99%). Actual CWD accumulations ranged from a low of 0 $m^3$/ha to 379.3 $m^3$/ha. See Figure 7 below for a scatter plot of all CWD samples from natural stands within TFL 48. The figure illustrates that CWD is highly variable and there is not a strong relationship between volume of CWD detected and age of the forest stand or BEC zone.

There appeared to be compilation errors in the data summaries provided by MSRM. The summaries presented above are based upon Canfor recompilations and these may be adjusted once a review is completed by MSRM or other analysis experts.

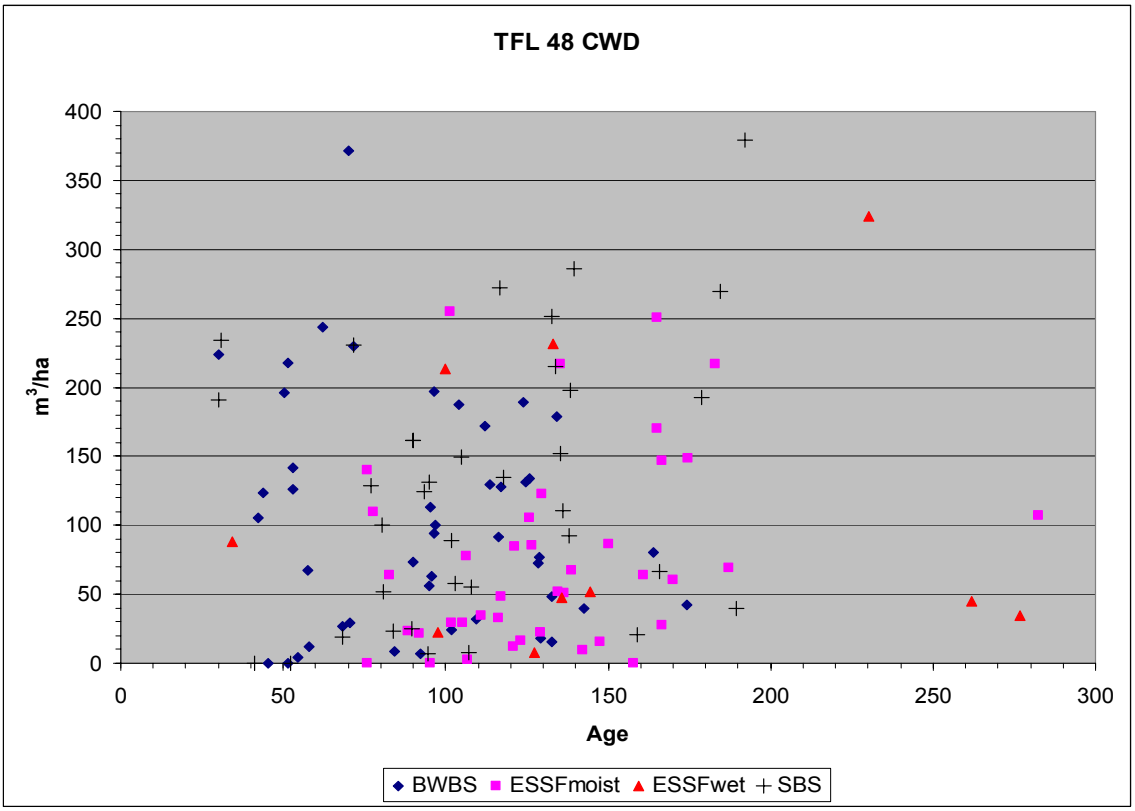



**Figure 7: Range of CWD Accumulations (volume/ha) Over Age**

**Data based on 131 VRI phase 2 plots in natural stands across four biogeoclimatic groups.**

**REVISIONS**

As a result of this analysis Canfor proposes the following changes to the indicator and objective:

Indicator: Average Coarse Woody Debris size and $m^3$/ha on blocks harvested on the TFL.

Objective: Average retention level over the TFL will be at least 92 $m^3$/ha of which a minimum of 46 $m^3$/ha will be greater than 17.5 cm in diameter.

Acceptable Variance: No less than 74 $m^3$/ha for average vol/ha over the TFL and no less than 28 $m^3$/ha will be greater than 17.5 cm in diameter.

A monitoring strategy for the CWD objective will be established in conjunction with the development of MP 4 to capture efficiencies for monitoring multiple attributes.

## 2.14 HABITAT CONNECTIVITY

| Indicator: | Objective: |
|---|---|
| **14.** Habitat connectivity | Maintain an adequate level of habitat connectivity at landscape and stand levels with an emphasis on species dependent on mature forest or forest types (e.g., caribou and marten) recognizing that habitat connectivity may shift across the landscape. |

**STATUS AND COMMENTS**

This indicator is linked to patch size and distribution (Indicator 2.2) and habitat supply for indicator species (Indicator 2.5); please see Indicators 2.2 and 2.5 for progress to date.

Reporting on habitat connectivity is due by December 15, 2003. This will be included in the 2003 annual report.

**REVISIONS**

Canfor proposes that this indicator reporting and analysis be postponed so that it will be completed in conjunction the analysis and forecasting conducted in support of MP 4 and aligned with the completion of indicator 2.5 Habitat Supply for Indicator Species.

## 2.15 AREA OF THE TFL OCCUPIED BY PERMANENT ACCESS CORRIDORS

| Indicator: | Objective: |
|---|---|
| **15.** Area of the TFL occupied by permanent access corridors associated with forest management activities | We will limit impacts on the landbase due to the presence of permanent access corridors to less than 3.5% of the gross landbase of the TFL. |

**STATUS AND COMMENTS**

In Management Plan 3 Canfor committed that rehabilitated roads and landings recorded on hardcopy maps would be entered into its Forest Road Management System. This was completed and as of April 2002 there are 166 km of temporary road that are or will be rehabilitated.

The next review of this indicator will be done in conjunction with Management Plan 4. It will represent road conditions up to the end of 2004. The analysis will occur in the spring of 2005.

**REVISIONS**

No revisions are suggested for this indicator or objective.

## 2.16 NUMBER OF REPORTABLE SPILLS

| Indicator: | Objective: |
|---|---|
| **16.** Number of reportable spills entered into Incident Tracking System | We will minimize the number of reportable spills. |

**STATUS AND COMMENTS**

In 1999, 2000 and 2001 there were no reportable spills entered into the Incident Tracking System.

In 2002 there was one spill reported to regulatory authorities. This was 13 litres of engine coolant that was comprised of approximately 35% antifreeze. Although the total amount of active agent was less than the regulatory reporting amount Canfor has decided to report all antifreeze spills greater than 5 litres, regardless of dilution.

In 2003 there were no reportable spills entered into the Incident Tracking System.

The performance target is zero spills reportable to regulatory authorities.

**REVISIONS**

No revisions are suggested for this indicator or objective.

## 2.17 USE OF ENVIRONMENTALLY FRIENDLY LUBRICANTS

| Indicator: | Objective: |
|---|---|
| **17.** Use of environmentally friendly lubricants | We will research and identify environmentally friendly lubricants biannually |

**STATUS AND COMMENTS**

Research on environmentally friendly lubricants will be conducted for the 2004 annual report.

**REVISIONS**

No revisions are suggested for this indicator or objective.

## 2.18 SOIL PRODUCTIVITY MEASURES

| Indicator: | Objective: |
|---|---|
| **18.** Soil productivity measures | We will use site index measures based on BEC zone to confirm the predicted long-term soil productivity. |

**STATUS AND COMMENTS**

The current status for site index measures at free growing is shown in Table 12. The site index (SI) reported is the area weighted site index for each species by site series. The area declared free growing has increased to 7,561 ha in 2003. The majority of this area is attributable to backlog areas within the TFL; however the increase in 2003 is due to an additional 872 ha of Canfor obligation areas and 232 ha of BC Timber Sales obligation areas.

During an internal audit of the TFL 48 SFMP an inconsistency in how this indicator is reported was identified. Not all free growing stands have trees large enough to accurately measure a site index, in these situations the predicted site index is used for the free growing survey. In these cases the reported actual site index will be the same as the predicted. To remove this bias from the analysis only stands that have an actual measured site index are used in the reporting. This reduced the free growing population from 7,516 possible ha to 2,015 ha.

All sites that have an actual site index measurement are at least 90% of the predicted site index. Across all site series alpine fir, spruce and pine SI is 55%, 26% and 36% higher than the predicted SI respectively.

## Table 12: Average Site Index by Leading Species

| Area Wtd Average Site Index (BHA 50) | | Species | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Alpine Fir | | | Spruce | | | Pine | | |
| BEC | Site Series | Ha | Actual SI | Predicted | Ha | Actual SI | Predicted | Ha | Actual SI | Predicted |
| BWBSmw1 | 01 | 2.1 | 22.0 | N/A | 109.7 | 20.8 | 17.8 | 35.9 | 27.7 | 18.0 |
| | 02 | 3.9 | 22.0 | N/A | 8.0 | 21.9 | 9.0 | 0.0 | 0.0 | 12.0 |
| | 03 | 1.5 | 22.0 | N/A | 13.5 | 21.6 | 17.0 | 0.1 | 24.8 | 18.0 |
| | 04 | 0.0 | 0.0 | N/A | 23.1 | 24.4 | 12.0 | 0.1 | 28.0 | 15.0 |
| | 05 | 0.3 | 22.0 | N/A | 14.8 | 23.2 | 18.0 | 19.2 | 26.1 | 18.0 |
| | 06 | 0.0 | 0.0 | N/A | 0.0 | 22.0 | 17.9 | 0.0 | 0.0 | 18.0 |
| | 07 | 0.0 | 0.0 | N/A | 0.1 | 22.0 | 18.0 | 0.0 | 0.0 | 18.0 |
| **BWBSmw1 Total** | | **7.7** | **22.0** | **N/A** | **169.3** | **21.6** | **16.5** | **55.4** | **27.2** | **18.0** |
| BWBSwk1 | 01 | 0.0 | 0.0 | N/A | 102.3 | 20.9 | 12.0 | 58.0 | 19.0 | 15.0 |
| | 02 | 0.0 | 0.0 | N/A | 15.3 | 20.0 | 9.0 | 10.3 | 16.3 | 12.0 |
| | 03 | 0.0 | 0.0 | N/A | 17.7 | 17.8 | 9.0 | 1.4 | 21.0 | 12.0 |
| | 04 | 0.0 | 0.0 | N/A | 0.0 | 0.0 | 12.0 | 0.5 | 16.0 | 15.0 |
| | 05 | 0.0 | 0.0 | N/A | 0.0 | 20.0 | 15.0 | 0.0 | 21.0 | 15.0 |
| | 06 | 0.0 | 0.0 | N/A | 0.0 | 21.0 | 15.0 | 0.0 | 0.0 | 15.0 |
| **BWBSwk1 Total** | | | **0.0** | **N/A** | **135.3** | **20.4** | **11.3** | **70.3** | **18.6** | **14.5** |
| BWBSwk2 | 01 | 0.0 | 0.0 | N/A | 0.0 | 0.0 | 12.0 | 0.0 | 0.0 | 15.0 |
| | 02 | 0.0 | 0.0 | N/A | 0.0 | 0.0 | 9.0 | 0.0 | 0.0 | 12.0 |
| | 03 | 0.0 | 0.0 | N/A | 0.0 | 0.0 | 12.0 | 0.0 | 0.0 | 15.0 |
| | 04 | 0.0 | 0.0 | N/A | 0.0 | 0.0 | 9.0 | 0.0 | 0.0 | 12.0 |
| | 05 | 0.0 | 0.0 | N/A | 0.0 | 0.0 | 15.0 | 0.0 | 0.0 | 15.0 |
| **BWBSwk2 Total** | | **0.0** | **0.0** | **N/A** | **0.0** | **0.0** | **0.0** | **0.0** | **0.0** | **0.0** |
| ESSFmv2 | 01 | 45.2 | 20.8 | 12.0 | 370.7 | 17.7 | 15.0 | 82.8 | 23.5 | 15.0 |
| | 02 | 0.4 | 22.0 | 9.0 | 12.1 | 18.4 | 9.0 | 2.7 | 21.9 | 12.0 |
| | 03 | 0.7 | 19.8 | 6.0 | 16.9 | 17.0 | 6.0 | 18.6 | 23.2 | 9.0 |
| | 04 | 0.2 | 19.0 | 15.0 | 70.7 | 21.2 | 15.0 | 2.1 | 16.4 | 18.0 |
| | 05 | 0.0 | 0.0 | 15.0 | 0.1 | 20.0 | 15.0 | 0.4 | 22.0 | 15.0 |
| | 06 | 0.0 | 0.0 | 15.0 | 0.8 | 19.8 | 15.0 | 0.0 | 24.0 | 15.0 |
| **ESSFmv2 Total** | | **46.4** | **20.7** | **11.9** | **471.4** | **18.3** | **14.5** | **106.6** | **23.3** | **13.9** |
| ESSFmv4 | 01 | 0.0 | 0.0 | 12.0 | 0.0 | 0.0 | 15.0 | 0.0 | 0.0 | 15.0 |
| | 02 | 0.0 | 0.0 | 9.0 | 0.0 | 0.0 | 9.0 | 0.0 | 0.0 | 12.0 |
| | 03 | 0.0 | 0.0 | 6.0 | 0.0 | 0.0 | 6.0 | 0.0 | 0.0 | 9.0 |
| | 04 | 0.0 | 0.0 | 15.0 | 0.0 | 0.0 | 15.0 | 0.0 | 0.0 | 18.0 |
| **ESSFmv4 Total** | | **0.0** | **0.0** | **0.0** | **0.0** | **0.0** | **0.0** | **0.0** | **0.0** | **0.0** |
| ESSFwk2 | 01 | 18.6 | 15.0 | 15.0 | 58.9 | 15.8 | 15.0 | 0.0 | 0.0 | N/A |
| | 02 | 0.8 | 15.0 | 9.0 | 15.0 | 17.0 | 9.0 | 0.0 | 0.0 | N/A |
| | 03 | 0.0 | 0.0 | 12.0 | 0.8 | 15.0 | 12.0 | 0.0 | 0.0 | 15.0 |
| | 04 | 0.0 | 0.0 | 15.0 | 0.0 | 15.3 | 15.0 | 0.0 | 0.0 | N/A |
| | 05 | 0.0 | 0.0 | 15.0 | 0.0 | 15.0 | 15.0 | 0.0 | 0.0 | N/A |
| **ESSFwk2 Total** | | **19.4** | **15.0** | **14.8** | **74.7** | **16.1** | **13.8** | **0.0** | **0.0** | **0.0** |
| SBSwk2 | 01 | 26.6 | 22.9 | 15.0 | 329.1 | 21.5 | 18.0 | 48.8 | 22.1 | 21.0 |
| | 02 | 6.4 | 22.5 | 12.0 | 14.3 | 19.6 | 15.0 | 0.0 | 0.0 | 15.0 |
| | 03 | 24.9 | 21.6 | 12.0 | 212.3 | 20.5 | 18.0 | 47.6 | 18.4 | 18.0 |
| | 04 | 20.4 | 21.6 | N/A | 17.7 | 19.9 | 15.0 | 1.1 | 20.2 | 18.0 |
| | 05 | 41.7 | 25.6 | 18.0 | 36.4 | 20.5 | 21.0 | 0.0 | 0.0 | 21.0 |
| | 06 | 6.3 | 27.0 | 18.0 | 3.4 | 19.0 | 24.0 | 0.0 | 0.0 | 21.0 |
| | 07 | 4.6 | 20.0 | N/A | 10.3 | 18.9 | N/A | 6.5 | 15.0 | N/A |
| **SBSwk2 Total** | | **131.0** | **23.4** | **12.5** | **623.5** | **21.0** | **17.8** | **103.9** | **20.0** | **18.3** |
| **Grand Total** | | **204.6** | **22.0** | **12.1** | **1,474.1** | **19.9** | **15.8** | **336.2** | **21.9** | **16.1** |

**REVISIONS**

No revisions are suggested for this indicator or objective.

## 2.19 SOIL DEGRADATION

| Indicator: | Objective: |
|---|---|
| **19.** Soil degradation | We will not exceed site degradation guidelines. |

**STATUS AND COMMENTS**

All areas assessed in 2003 were within the prescribed allowable limits for site degradation (Table 13).

**Table 13: Conformance To Site Degradation Guidelines**

| Licence | Cut Block | Silviculture Prescription within Site Degradation Guidelines | Harvesting Consistent with Silviculture Prescription Site Degradation Limits |
|---|---|---|---|
| TFL 48 | 236-002 | Yes | Yes |
| TFL 48 | 327-001 | Yes | Yes |
| TFL 48 | 327-005 | Yes | Yes |
| TFL 48 | 329-001 | Yes | Yes |
| TFL 48 | 726-003 | Yes | Yes |
| TFL 48 | 726-004 | Yes | Yes |
| TFL 48 | 726-006 | Yes | Yes |
| TFL 48 | 726-007 | Yes | Yes |
| TFL 48 | 726-009 | Yes | Yes |
| TFL 48 | T2016 | Yes | Yes |
| TFL 48 | T2018 | Yes | Yes |
| TFL 48 | T2019 | Yes | Yes |
| TFL 48 | T4002 | Yes | Yes |
| TFL 48 | T4004 | Yes | Yes |
| TFL 48 | T4005 | Yes | Yes |
| TFL 48 | T4006 | Yes | Yes |
| TFL 48 | T4008 | Yes | Yes |
| TFL 48 | T4009 | Yes | Yes |
| TFL 48 | T4010 | Yes | Yes |
| TFL 48 | T4024 | Yes | Yes |
| TFL 48 | T4063 | Yes | Yes |
| A64393 | 1 | Yes | Yes |
| A64393 | 2 | Yes | Yes |
| A64393 | 3 | Yes | Yes |
| A64393 | 4 | Yes | Yes |
| A64393 | 5 | Yes | Yes |
| A64393 | 6 | Yes | Yes |
| A64393 | 9 | Yes | Yes |
| A64393 | 10 | Yes | Yes |
| A64393 | 11 | Yes | Yes |

**REVISIONS**

No revisions are suggested for this indicator or objective.

## 2.20 SEEDLING GROWTH OR ESTABLISHMENT

| Indicator: | Objective: |
|---|---|
| **20.** Seedling growth or establishment | We will meet Free Growing requirements within Silviculture Prescriptions. |

**STATUS AND COMMENTS**

The current status of free growing stands is shown in Table 14. No areas are past the Free Growing deadline.

**Table 14: Free Growing Status as of April 2003**

| | Licence | | | | |
|---|---|---|---|---|---|
| | Backlog Areas (Pre 1987) | TFL48 (1987- 2003) | BCTS (1985 -2003) | PA13 (1990-2003) | Grand Total |
| Avg. Logged (ha/yr) | N/A | 1,337 | 182 | 42 | 1,561 |
| Total Area Logged to Date | 22,100 | 21,389 | 3,283 | 543 | 47,315 |
| Area NSR (ha)[1] | 1,143[2] | 510 | 575 | 186 | 2,414 |
| Area Not FG | 16,511 | 20,200 | 2,680 | 543 | 39,934 |
| Area FG | 5,589 | 1,369 | 603 | 0 | 7,561 |
| Area Past FG Date | N/A | 0 | 0 | 0 | 0 |

Source: Canfor Genus Report (June 2004) – Genus queries and Genus spatial data for SBFEP and PA 13

[1] Reporting of NSR changed to capture NSR greater than 1 year old. (NSR reported for all areas where harvest completion was before May 31, 2002.)
[2] Area increased due to inclusion of the Rice Property into Licence IO-TFL48 in Genus.

**REVISIONS**

No revisions are suggested for this indicator or objective.

## 2.21 SOIL DISTURBANCE SURVEYS

| Indicator: | Objective: |
|---|---|
| **21.** Soil disturbance surveys | We will not exceed soil disturbance limits within cutblocks. |

**STATUS AND COMMENTS**

Harvesting and silviculture activities completed in 2003 complied with allowable soil disturbance limits. See list of blocks referenced in Indicator 2.19.

**REVISIONS**

No revisions are suggested for this indicator or objective.

## 2.22 AREA IN CUTBLOCK MANAGED AS RRZ OR RMZ

| Indicator: | Objective: |
|---|---|
| **22.** Area in cutblock managed as Riparian Reserve Zone or Riparian Management Zone by appropriate stream, lake or wetland classification | We will meet or exceed appropriate riparian measures as recommended by the Forest Practices Code Riparian Guidebook. |

**STATUS AND COMMENTS**

Management Plan 3 describes a comprehensive approach for accounting for riparian net downs across the landbase. The Annual Reports provide updates for riparian reserve (RRZ) and management (RMZ) zones for rivers, streams, lakes and wetlands each year (Table 15). In 2000, 2001, 2002 and 2003 no blocks were harvested adjacent to wetlands or lakes, only near rivers and streams.

The Forest and Range Practices Act has maintained the same Riparian Area Management standards as those under the Forest Practices Code. In 2003, all regulatory riparian management requirements were met (Table 15).

**Table 15: Summary of Riparian Reserve and Management Zones in 2000 - 2003**

| Year | Stream, Wetland or Lake Class | Total Stream Length (m)[b] | RRZ – Required | | RRZ–Actual | | RMZ Required | | RMZ – Actual | | Total RMA | | RMZ Percent Retention (Area Weighted) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Width (m)[c] | Area (ha)[d] | Width (m)[c] | Area (ha)[d] | Width (m)[c] | Area (ha)[d] | Width (m)[c] | Area (ha)[d] | Required (m) | Actual (m) | |
| 2000 | S1[a] (n=0) | 0 | 50 | N/A | N/A | N/A | 20 | N/A | N/A | N/A | 70 | N/A | N/A |
| | S2 (n=2) | 2,200 | 30 | 6.6 | 30 | 6.6 | 20 | 4.4 | 50 | 11.0 | 50 | 80 | 81% |
| | S3 (n=1) | 350 | 20 | 0.7 | 20 | 0.7 | 20 | 0.7 | 60 | 2.1 | 40 | 80 | 100% |
| | S4 (n=1) | 1,700 | 0 | 0 | 0 | 0 | 30 | 5.1 | 30 | 5.1 | 30 | 30 | 20% |
| | S5 (n=0) | 0 | 0 | 0 | N/A | N/A | 30 | N/A | N/A | N/A | 30 | N/A | 0 |
| | S6 (n=19) | 13,750 | 0 | 0 | 0 | N/A | 20 | 27.5 | 32 | 44.0 | 20 | 32 | 14% |
| | | | | | | | | | | | | | |
| 2001 | S1[a] (n=1) | 800 | 50 | 4 | 78.7 | 6.3 | 20 | 1.6 | 0 | 0 | 70 | 78.7 | 0 |
| | S2 (n=0) | 0 | 30 | N/A | N/A | N/A | 20 | N/A | N/A | N/A | 50 | N/A | N/A |
| | S3 (n=0) | 0 | 20 | N/A | N/A | N/A | 20 | N/A | N/A | N/A | 40 | N/A | N/A |
| | S4 (n=0) | 0 | 0 | 0 | N/A | N/A | 30 | N/A | N/A | N/A | 30 | N/A | N/A |
| | S5 (n=7) | 6,680 | 0 | 0 | 46.3 | 30.9 | 30 | 20 | 4.8 | 3.2 | 30 | 51.1 | 0 |
| | S6 (n=83) | 36,985 | 0 | 0 | 9.1 | 33.6 | 20 | 74.0 | 15.3 | 56.5 | 20 | 24.4 | 2% |
| | | | | | | | | | | | | | |
| 2002 | S1[a] (n=0) | 0 | 50 | N/A | N/A | N/A | 20 | N/A | N/A | N/A | 70 | N/A | N/A |
| | S2 (n=0) | 0 | 30 | N/A | N/A | N/A | 20 | N/A | N/A | N/A | 50 | N/A | N/A |
| | S3 (n=4) | 5,100 | 20 | 10.2 | 61.4 | 31.9 | 20 | 10.2 | 5 | 1.3 | 40 | 66.4 | 99% |
| | S4 (n=3) | 2,400 | 0 | 0 | 0 | 0 | 30 | 7.2 | 30 | 7.2 | 30 | 30 | 13% |
| | S5 (n=9) | 6,050 | 0 | 0 | 0 | 0 | 30 | 18.2 | 34.2 | 20.7 | 30 | 34.2 | 83% |
| | S6 (n=42) | 40,590 | 0 | 0 | 0 | 0 | 20 | 81.2 | 26.7 | 108.4 | 20 | 26.7 | 49% |
| | | | | | | | | | | | | | |
| 2003 | S1[a] (n=7) | 3,000 | 50 | 15 | 50 | 15 | 20 | 6 | 20 | 6 | 70 | 70 | 20% |
| | S2 (n=6) | 2,150 | 30 | 6.5 | 30 | 13.8 | 20 | 4.3 | 20 | 2.2 | 50 | 74.4 | 20% |
| | S3 (n=10) | 4,830 | 20 | 9.7 | 61.8 | 29.9 | 20 | 9.7 | 3.6 | 1.8 | 40 | 65.5 | 17% |
| | S4 (n=10) | 4,185 | 0 | N/A | 6.7 | 2.8 | 30 | 12.6 | 30 | 27.5 | 30 | 34.2 | 3% |
| | S5 (n=5) | 615 | 0 | N/A | 0 | N/A | 30 | 1.9 | 30 | 1.9 | 30 | 30 | 11.1% |
| | S6 (n=73) | 33,070 | 0 | N/A | 1.6 | 5.15 | 20 | 66.1 | 18.7 | 62.0 | 20 | 20.3 | 15% |

| Year | Stream, Wetland or Lake Class | Total Stream Length (m)[b] | RRZ – Required | | RRZ–Actual | | RMZ Required | | RMZ – Actual | | Total RMA | | RMZ Percent Retention (Area Weighted) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Width (m)[c] | Area (ha)[d] | Width (m)[c] | Area (ha)[d] | Width (m)[c] | Area (ha)[d] | Width (m)[c] | Area (ha)[d] | Required (m) | Actual (m) | |
| Average | S1 | 3,800 | 50 | 19 | 56.1 | 21.3 | 20 | 7.6 | 20 | 7.6 | 70 | 76.1 | 20% |
| | S2 | 4,350 | 30 | 13.1 | 46.9 | 20.4 | 20 | 8.7 | 30.3 | 13.2 | 50 | 77.2 | 56.2% |
| | S3 | 10,280 | 20 | 20.6 | 60.8 | 62.5 | 20 | 20.6 | 5.0 | 5.1 | 40 | 65.8 | 64.3% |
| | S4 | 8,285 | 0 | 0 | 3.4 | 2.8 | 30 | 24.9 | 30.0 | 24.9 | 30 | 33.0 | 5.5% |
| | S5 | 13,345 | 0 | 0 | 23.2 | 31.0 | 30 | 40.0 | 19.3 | 25.8 | 30 | 42.5 | 36.2% |
| | S6 | 124,395 | 0 | 0 | 3.1 | 38.6 | 20 | 248.8 | 21.8 | 271.2 | 20 | 24.9 | 8.7% |

[a] Channel widths for S1 streams are >20m, <100m. [b] Streams that flow through, rather than adjacent to a block have had their lengths doubled to account for the application of RMA's to both sides. Therefore true stream length is less than reported in this table. [c] RRZ and RMZ widths are applied to a single side of a stream. If stream flows through the block the length has been doubled (see footnote b) but the widths are not doubled. [d] Areas are equal to the length of stream as reported on the table multiplied by the reserve width.

**REVISIONS**

Canfor proposes to change the indicator statement to: **Width** in cutblock managed as Riparian Reserve Zone or Riparian Management Zone by appropriate stream, lake or wetland classification.

## 2.23 AREA OF A STREAM AFFECTED BY HARVESTING AND ROAD CONSTRUCTION

| Indicator: | Objective: |
|---|---|
| **23.** Area of a stream affected by timber harvesting and road construction | **23-1** We will identify hazard indices through watershed assessment procedures as necessary.<br>**23-2** We will identify watercourses and hazards to watercourses as they arise. |

### 2.23-1 Hazard Indices

**STATUS AND COMMENTS**

Objective 23-1 is no longer being monitored.

**REVISIONS**

No revisions are proposed for this objective.

### 2.23-2 Watercourses and Hazards to Watercourses

**STATUS AND COMMENTS**

Objective 23-2 is no longer being monitored.

**REVISIONS**

No revisions are proposed for this objective.

## 2.24 STREAM CROSSING QUALITY INDEX

| Indicator: | Objective: |
|---|---|
| **24.** Stream Crossing Quality Index | 24-1) We will conduct a sampling of stream crossing quality assessments and ensure that the watershed level SCQI score does not exceed 0.40<br><br>24-2) We will visit all crossings with a High Water Quality Concern Rating (WQCR) within one year of detection and prepare an action plan to reduce the WQCR. Priority for remedial projects shall be in the following order: streams used for domestic water supply, fish bearing streams, and others. |

**STATUS AND COMMENTS**

A) Continuous Monitoring

The Meadow Creek Water Quality Monitoring Program is a long term (2 – 5 year), continuous watershed monitoring project designed to investigate point-source and cumulative impacts of forest management on sediment levels, discharge and temperature. The study area is within the Fort St. John TSA, but the control site is located on a tributary of Aylard Creek that is within TFL 48. The goals of this project are to identify and quantify the effect of forest management on sediment generation, to field test the Stream Crossing Quality Index (explained below), and to provide information on erosion and sediment delivery to streams (Beaudry $2002_a$). The third year of pre-harvest baseline data was collected on the Meadow Creek Program in 2003.

B) Stream Crossing Quality Index

The method chosen for monitoring stream crossings is known as the Stream Crossing Quality Index (SCQI). The SCQI is a refinement of the stream crossing density index (SCDI) that has traditionally been used to determine the impact that stream crossings have on the aquatic resources within a watershed. The advantage of the SCQI approach is that it assesses impacts of individual stream crossings on water quality and the cumulative effect of the individual crossings on the watershed. The SCQI can be used to inform of specific crossing problems as well as monitor watershed level impacts of forest management.

SCQI scores for individual crossings range between 0 and 1, depending on the impact the crossing is having on water quality. A score of 1 indicates that the crossing has a substantial impact on water quality. As the impact is reduced the score decreases until it eventually reaches 0. Watershed level SCQI's are calculated by adding the individual crossing scores and dividing this value by the watershed area. Time, sediment control, erosion control and drainage control techniques can improve a crossing's SCQI score which provides an incentive to implement appropriate construction and deactivation techniques.

**Example Calculation of SCQI (Table 16):**

Watershed name: Bogus watershed

Watershed size: 30 $km^2$

**Table 16: Stream Crossing Inventory for Bogus Watershed**

| Culvert ID | Field Comments | Score | Sum of Score |
|---|---|---|---|
| #1 | Not checked | 1 | |
| #2 | No erosion | 0 | |
| #3 | Severe erosion | 1 | |
| #4 | Mild erosion | 0.2 | |
| #5 | Not checked | 1 | |
| #6 | De-activated and stable | 0 | |
| #7 | Not checked | 1 | |
| #8 | Moderate erosion | 0.5 | |
| #9 | Not checked | 1.0 | |
| #10 | Severe erosion | 1.0 | |
| **Equivalent Stream Crossing Number =** | | | **6.7** |

Stream crossing density = 10/30 km2 = 0.33 crossings/$km^2$

The SCQI score for the Bogus watershed = 6.7/30 $km^2$ = 0.22 crossings/$km^2$

2002 High WQCR Follow-up

A total of 124 streams with high WQCR's identified from the 2002 SCQI field sampling were inspected in 2003 by Canfor. Action plans were completed for all 124 streams and these action plans are recorded in Genus. In some cases the action plans involved remedial activities including grass seeding, waterbar reconstruction, armoring banks etc. In other cases no remedial action was required.

Hasler SCQI Review with Hydrologist

Canfor reviewed 28 crossings with a high WQCR in the Hasler watershed with Pierre Beaudry (hydrologist). The objective of these field inspections was to review best practices for road construction, deactivation and erosion control with Canfor staff and contractors and to develop action plans to reduce sediment delivery to streams. Works undertaken in 2003 include grass seeding and stabilization, permanent deactivation, rehabilitation and road upgrades.

2003 Sampling

Six sub-basins and two areas immediately east and west of the Carbon reach of Williston Reservoir were sampled in 2003 (Table 17). It should be noted that the majority of the Hasler and Brazion sub-basins were sampled in 2001 and 2002 and a few crossings in the Seven Mile and Lower Carbon sub-basins were surveyed in 2002. A total of 223 crossings were surveyed in the 2003 field season, however previous surveys are incorporated into this report to illustrate total watershed condition.

Five of the sub-basins had an SCQI hazard rating of very low or low, but the Hasler sub-basin was moderate. For the Hasler sub-basin the moderate score was due to high density stream crossings, as well as individual stream crossings where erosion was a problem. These high densities increase the importance of using effective erosion and sediment control measures at stream crossings to reduce the potential for downstream negative impacts caused by increased sedimentation.

Water Quality Concern Ratings (WQCR) of None, Low, Medium, or High were assigned to each crossing based on their individual crossing scores. A large proportion of the crossings surveyed in 2003 within TFL #48 had WQCR's of low or none (i.e., 70%). Approximately 11% or 25 crossings surveyed in 2003 received WQCR's of high and will be visited during the 2004 field

season to develop an action plan reduce the WQCR. The remaining 28% of the crossings have WQCR's of medium. The majority of these crossings were associated with small streams, i.e. less than 1.5 meters in width.

**Table 17: SCQI and Water Quality Concerns for Three Sub-Basins within TFL 48 – Sampling Completed During 2003**

| Watershed Name | *n* | Erosion Indices | | | Water Quality Concern Ratings | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Stream Crossing Density Index | Sum of Stream Crossing Quality Scores | Stream Crossing Quality Index | Stream Width Class[1] | None[2] % (#streams/ #streams sampled) | Low[3] % (#streams/ #streams sampled) | Medium[4] % (#streams/ #streams sampled) | High[5] % (#streams/ #streams sampled) |
| Hasler | 119 | 0.63 | 71.23 | 0.37 | 1 | 0 | 0 | 0 | 0 |
| | | | | | 2 | 0 | 66.7 | 33.3 | 0 |
| | | | | | 3 | 5.9 | 17.7 | 29.4 | 47.1 |
| | | | | | 4 | 3.3 | 26.7 | 26.7 | 43.3 |
| | | | | | 5 | 0 | 29.7 | 35.1 | 35.1 |
| Brazion | 90 | 0.28 | 31.26 | 0.1 | 1 | 0 | 0 | 0 | 0 |
| | | | | | 2 | 20.0 | 40.0 | 0 | 40.0 |
| | | | | | 3 | 5.9 | 41.2 | 23.5 | 29.4 |
| | | | | | 4 | 27.1 | 45.8 | 18.8 | 8.3 |
| | | | | | 5 | 20.0 | 50.0 | 20.0 | 10.0 |
| Highhat | 43 | 0.27 | 14.98 | 0.09 | 1 | 0 | 0 | 0 | 0 |
| | | | | | 2 | 0 | 0 | 100.0 | 0 |
| | | | | | 3 | 25.0 | 50.0 | 0 | 25.0 |
| | | | | | 4 | 0 | 63.6 | 13.6 | 22.7 |
| | | | | | 5 | 16.7 | 50.0 | 33.3 | 0.0 |
| Lower Carbon | 61 | 0.46 | 23.32 | 0.17 | 1 | 0 | 100.0 | 0 | 0 |
| | | | | | 2 | 100.0 | 0 | 0 | 0 |
| | | | | | 3 | 16.7 | 25.0 | 33.3 | 25.0 |
| | | | | | 4 | 13.8 | 44.8 | 37.9 | 3.5 |
| | | | | | 5 | 11.1 | 33.3 | 38.9 | 16.7 |
| Seven Mile | 28 | 0.36 | 15.1 | 0.19 | 1 | 0 | 0 | 0 | 0 |
| | | | | | 2 | 100.0 | 0 | 0 | 0 |
| | | | | | 3 | 0 | 100.0 | 0 | 0 |
| | | | | | 4 | 0 | 27.8 | 38.9 | 33.3 |
| | | | | | 5 | 0 | 80.0 | 20.0 | 0 |
| Eleven Mile | 37 | 0.17 | 5.31 | 0.02 | 1 | 0 | 0 | 0 | 0 |
| | | | | | 2 | 33.3 | 66.7 | 0 | 0 |
| | | | | | 3 | 42.9 | 57.1 | 0 | 0 |
| | | | | | 4 | 35.0 | 55.0 | 10.0 | 0 |
| | | | | | 5 | 14.3 | 57.1 | 28.6 | 0 |
| East and West Carbon | 39 | N/A[6] | N/A[6] | N/A[6] | 1 | 0 | 0 | 0 | 0 |
| | | | | | 2 | 0 | 0 | 0 | 0 |
| | | | | | 3 | 0 | 50.0 | 37.5 | 12.5 |
| | | | | | 4 | 0 | 32.0 | 48.0 | 20.0 |
| | | | | | 5 | 0 | 66.7 | 33.3 | 0 |

1. 1 = greater than 20m, 2 = 5 to 20m, 3 = 1.5 to 5m, 4 = 0.5 to 1.5m, 5 = less than 0.5m
2. SCQI scores of 0.00
3. SCQI scores between 0.01 and 0.39
4. SCQI scores between 0.40 and 0.79
5. SCQI scores greater than 0.80
6. Erosion indices cannot be calculated because these areas are not true watersheds.

## REVISIONS

There are no revisions suggested for this indicator.

## 2.25 PEAK FLOW INDEX

| Indicator: | Objective: |
|---|---|
| **25.** Peak flow index | We will design forest management activities so those Peak Flow Indices (PFI) thresholds in designated sub-basins are not exceeded. (See Tables 20 and 21) |

**STATUS AND COMMENTS**

Monitoring of this indicator will be once every 5 years in conjunction with the Management Plan, unless a sub-basin is approaching the threshold target. Where sub-basins are approaching the threshold targets proposed, harvesting will be assessed to ensure the target is not exceeded. Currently none of the blocks of TFL 48 have any concerns for increased peak flows (Table 18 and Table 19).

Next reporting of Peak Flow Indices (PFI) will be in conjunction with Management Plan 4 and will be reported in the 2005 annual report. Below is a summary of PFI values and thresholds for the TFL (Table 18 and Table 19) included in the 2001, 2002 Annual Reports. Note that all TFL drainages have been evaluated except the Carbon sub-drainages because they are too small to act as functional watersheds and have any impact on water quantity in Williston Reservoir.

Methodology

Peak Flow Index (PFI) is a tool used to ensure that forest management practices do not increase stream flows beyond a level that a given watershed can withstand. The tool assumes that harvesting and other disturbances increase snowpack accumulation in openings during the winter and increase the rate of melt in the spring, causing larger quantities of water to flow through the streams. This increase could potentially damage the watershed or destroy fish habitat and should be avoided. Also of importance is that the technique assumes that disturbance and harvesting occurring at higher elevations contribute more to the potential for damage due to even higher snowpack accumulations. A current and threshold PFI value is calculated for each watershed. The current PFI represents the current impact of disturbance in a watershed. The threshold is the amount of disturbance a watershed could reasonably absorb with out any undesirable changes to water quantity.

The PFI is based on the Equivalent Clearcut Area principle (i.e. the percentage of a watershed that is or will be disturbed) and the amount of disturbance occurring at higher elevations. Equivalent clear-cut area (ECA) is the amount of a watershed that has been disturbed, reduced by a factor that accounts for the hydrological recovery due to the growth in height of a regenerating forest. The recovery factors are obtained from the Coastal and Interior Watershed Assessment Procedure Guidebook (BC Government 1999) and heights can be obtained from forest inventory data or predicted using site index. The PFI index also acknowledges that disturbance occurring in higher elevations has a greater effect on stream flows than disturbance at lower elevations. Therefore the ECA is weighted an additional 50% when harvesting takes place at higher elevations. (Example: an ECA of 100 ha, half of which is at low elevations and the other half at high elevations would have a PFI of 125. 50 ha* 1.5 + 50ha = 125.)

**Table 18: Peak Flow Index (Current and Target) and Watershed Characteristics for Block 1 and Block 2**

| Block | Watershed Name | Current ECA (%) | Current PFI | Amount of Lakes and Swamps | Mainstream Gradient | Dominant Topography | Mainstream Channel Type | Mainstream Stability | Peak Flow Sensitivity | Threshold ECA | Threshold PFI |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Block 1 - Dunlevy Area | Adams | 0.0 | 0.0 | Low | Moderate | 3 | RPc | Stable | 3 | 35 | 43 |
| | Aylard | 0.0 | 0.0 | Low | Moderate | 3 | SPc | Localized instability | 4 | 30 | 37 |
| | Dunlevy | 0.8 | 1.1 | Low | Low | 3 | SPc | Generally unstable | 5 | 25 | 31 |
| | North Peace | 0.0 | 0.0 | Low | N/A | 2 | N/A | Stable | 2 | 40 | 50 |
| | Ruddy | 1.1 | 1.1 | Low | Low | 2 | RPc | Generally unstable | 5 | 25 | 31 |
| | Beany | 0.0 | 0.0 | Low | Moderate | 2 | RPc | Generally unstable | 4 | 30 | 37 |
| | Basin 862 | 6.1 | 8.4 | Low | Low | 1 | RPg | Localized instability | 3 | 35 | 43 |
| Block 2 - Gething Area | Seven Mile | 1.9 | 2.5 | Low | Moderate | 2 | RPg | Stable | 3 | 35 | 43 |
| | Lower Carbon | 9.5 | 11 | Low | Low | 3 | RPg | Stable | 2 | 40 | 50 |
| | Eleven Mile | 3.2 | 3.2 | Low | Moderate | 3 | RPg | Localized instability | 3 | 35 | 43 |
| | Upper Carbon | 3.6 | 3.6 | Low | Low | 3 | RPc | Localized instability | 4 | 30 | 37 |
| | Lower Peace | 16.3 | 19.9 | Low | N/A | 2 | N/A | Stable | 2 | 40 | 50 |
| | Gaylard | 11.7 | 13.5 | Low | Low | 3 | RPc | Generally unstable | 5 | 25 | 31 |
| | Gething | 10.8 | 12.7 | Low | Low | 3 | RPc | Generally unstable | 5 | 25 | 31 |
| | Johnson | 12.9 | 18 | Low | Moderate | 2 | RPc | Localized instability | 4 | 30 | 37 |
| | *Cameron | 0.0 | 0.0 | Numerous | Moderate | 2 | CPc | Stable | 2 | 40 | 50 |
| | *LeBleau | 0.0 | 0.0 | None | Low | 2 | CPc | Stable | 2 | 40 | 50 |
| | *Medicine Woman | 0.0 | 0.0 | None | Low | 2 | CPc | Localized instability | 3 | 35 | 35 |

**Table 19: Peak Flow Index (Current and Target) and Watershed Characteristics for Block 4 and Block 5**

| Block | Watershed Name | Current ECA (%) | Current PFI | Amount of Lakes and Swamps | Mainstream Gradient | Dominant Topography | Mainstream Channel Type | Mainstream Stability | Peak Flow Sensitivity | Threshold ECA | Threshold PFI |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Block 4 – Hasler Area | Lower Pine | 4.2 | 6.4 | Low | N/A | 2 | N/A | Stable | 3 | 35 | 43 |
| | Highhat | 10.2 | 13.1 | Low | Low | 2 | RPc | Localized instability | 3 | 35 | 43 |
| | Lower Sukunka | 6 | 7.6 | Low | Low | 3 | RPg | Localized instability | 3 | 35 | 43 |
| | Hasler | 8.5 | 11.2 | Low | Low | 3 | N/A | Localized instability | 4 | 30 | 37 |
| | Brazion | 13.3 | 16 | Low | Low | 3 | RPc | Localized instability | 4 | 30 | 37 |
| | Burnt Creek | 9.8 | 11.6 | Low | Low | 3 | RPc | Localized instability | 4 | 30 | 37 |
| | Upper Pine | 2.3 | 2.8 | Low | N/A | 3 | N/A | Localized instability | 4 | 30 | 37 |
| | LeMoray | 5.1 | 5.1 | Low | Moderate | 3 | CPc | Localized instability | 4 | 30 | 37 |
| | *Gwillim | 3.0 | 4.0 | Low | Low | 3 | RPc | Stable | 3 | 35 | 43 |
| | *Trapper | 0.0 | 0.0 | Low | Low | 3 | RPc | Very Unstable | 4 | 30 | 37 |
| Block 5 – Wolverine Area | Lower Wolverine | 6.9 | 8.4 | Low | Low | 3 | RPc | Localized instability | 4 | 30 | 37 |
| | Middle Wolverine | 20.9 | 29.3 | Low | Low | 3 | RPc | Stable | 3 | 35 | 43 |
| | Upper Wolverine | 5.7 | 6.4 | Low | Low | 3 | RPc | Localized instability | 4 | 30 | 37 |
| | Lower Murray | 0.2 | 0.3 | Low | Low | 3 | RPc | Localized instability | 4 | 30 | 37 |
| | Upper Murray | 5.7 | 6.7 | Low | Low | 3 | RPc | Localized instability | 4 | 30 | 37 |

1. Topography classes: 1= Gently rolling, 2= Hilly, gentle mountains, 3= Mountainous with localized steepness, 4= Generally steep
2. Peak flow sensitivity classes: 1= least sensitive, 2=mildly sensitive, 3=moderately sensitive, 4=sensitive, 5=very sensitive
3. Mainstem gradient definitions: Low = less than 2%, Moderate = 2-6%, High = 6- 12%, very High = greater than 12%
4. Mainstem channel types: RPg = Riffle-pool-gravel, RPc= Riffle-pool cobble, CPc=Cascade-pool-cobble, CPb=Cascade-pool-boulder, SPb=Step-pool-boulder, SPr=Step-pool-rock

**REVISIONS**

No revisions are suggested for this indicator or objective.

## 2.26 FOREST HEALTH

| Indicator: | Objective: |
|---|---|
| **26.** Forest health | We will minimize Non-Recoverable Losses to less than 10% of AAC based on a 10 year rolling average. |

**STATUS AND COMMENTS**

See Indicator 2.8.

This indicator is a complete duplication of Indicator 2.8. In the 2000 Annual Report Canfor proposed to delete Indicator 26 and continue to track Indicator 2.8. The PAC accepted this recommendation.

**REVISIONS**

No revisions are suggested for this indicator or objective.

## 2.27 ALLOWABLE ANNUAL CUT

| Indicator: | Objective: |
|---|---|
| **27.** Allowable Annual Cut | We will ensure that the allowable annual cut will not adversely impact Long Term Harvest Level. |

**STATUS AND COMMENTS**

On September 20, 2001 the British Columbia Deputy Chief Forester determined the allowable annual cut will be 580,000 cubic metres, a 66,000 cubic metre increase from the last determination in 1996. Of the total allowable annual cut, 525,000 cubic metres are to come from coniferous stands and 55,000 cubic metres from deciduous stands. This AAC will not adversely impact the Long Term Harvest Level.

**REVISIONS**

No revisions are suggested for this indicator or objective.

## 2.28 SAWMILL LRF, CRF AND SHIPMENT OF MINI-CHIPS

| Indicator: | Objective: |
|---|---|
| **28.** Sawmill Lumber Recovery Factor, Chip Recovery Factor and shipment of mini-chips | We will target an annual range of 246 - 252 fbm/$m^3$, 0.15 BDU/$m^3$ and 60,000 tonnes/year respectively. |

**STATUS AND COMMENTS**

Sawmill Lumber Recovery performance in 2003 exceeded the target.

Canfor now reports chip recovery and mini-chip shipments in Oven Dry Tonnes (ODt).

**Bone Dry Unit:** A measure of wood chips volume equal to 2400 pounds of dry chips from which all the moisture has been removed.

**Oven Dry Tonne:** A measure of wood chips volume equal to 2204.6 pounds (1 tonne) of dry chips from which all the moisture has been removed.

**Conversion**: 1 ODt = 0.91858 BDU, or 1 BDU = 1.08863 ODt.

Chip Recovery in 2003 narrowly missed the target and the difference is negligible.

Mini-chip shipments for 2003 exceeded the target.

**Table 20: Summary of Sawmill LRF, CRF and Shipment of Mini-Chips**

| Measure (Target) | 1999 | 2000 | 2001 | 2002 | 2003 |
|---|---|---|---|---|---|
| **Lumber Recovery Factor:**<br>1999 to 2001 – (247-252 fbm/$m^3$)<br>2002 - (260 – 270 fbm/$m^3$)<br>2003 - (275 fbm/$m^3$ minimum) | 250 fbm/$m^3$ | 248 fbm/$m^3$ | 264 fbm/$m^3$ | 280 fbm/$m^3$ | 279 fbm/$m^3$ |
| **Chip Recovery:**<br>1999 to 2002 - (0.145-0.155 BDU/$m^3$)<br>2003 - (0.140 ODt/$m^3$ minimum) | 0.150 BDU/$m^3$ | 0.160 BDU/$m^3$ | 0.148 BDU/$m^3$ | 0.134 BDU/$m^3$<br>0.146 ODt/ $m^3$ | 0.138 ODt/ $m^3$ |
| **Minichip shipments:**<br>1999 to 2002 - (50-70,000 tonnes)<br>2003 - (40,000 ODt minimum) | 60,000 tonnes | 33,000 tonnes | 31,064 ODt | 49,940 ODt | 47,066 ODt |

**REVISIONS**

No revisions are suggested for this indicator or objective.

## 2.29 HARVEST LEVELS/VOLUMES

| Indicator: | Objective: |
|---|---|
| **29.** Harvest levels/volumes | We will achieve periodic cut control within 10% of target, over 5 years. |

**STATUS AND COMMENTS**

Volumes harvested by year since 1987 are summarized in Table 21. The actual cut was 92.5% of allowable during 2003, with three years remaining in the cut control period. Recent changes to the Forest Act cut control provisions will not affect Canfor's objective for this indicator.

**Table 21: Actual Recorded and Allowable Annual Cut Summary**

| Year | Allowable Annual Cut ($m^3$) | Adjustment ($m^3$) | Actual Recorded Cut ($m^3$) | Cut Control (%) |
|---|---|---|---|---|
| 1987 | 348,500.0 | | 319,871.0 | 91.8 |
| 1988 | 348,500.0 | | 277,930.0 | 79.8 |
| 1989 | 348,500.0 | | 183,330.0 | 52.6 |
| 1990 | 348,500.0 | | 456,600.0 | 131.0 |
| 1991 | 348,500.0 | | 555,001.0 | 159.3 |
| **Subtotal** | **1,742,500.0** | | **1,787,732.0** | **102.6** |
| 1992 | 348,500.0 | -8,315.0 | 280,820.0 | 82.5 |
| 1993 | 348,500.0 | -8,315.0 | 389,447.9 | 114.5 |
| 1994 | 348,500.0 | -8,314.0 | 284,526.6 | 83.6 |
| 1995 | 348,500.0 | -8,314.0 | 313,409.0 | 92.1 |
| 1996 | 348,500.0 | -8,314.0 | 391,717.0 | 115.1 |
| **Subtotal** | **1,742,500.0** | **-41,572.0** | **1,659,920.5** | **97.6** |
| 1997 | 401,370.0 | 16,516.0 | 343,587.6 | 82.2 |
| 1998 | 401,370.0 | 16,516.0 | 435,088.2 | 104.1 |
| 1999 | 401,370.0 | 16,516.0 | 532,574.3 | 127.4 |
| 2000 | 401,370.0 | 16,516.0 | 302,668.0 | 72.4 |
| 2001 | 419,713.0 | 16,516.0 | 339,306.1 | 77.8 |
| **Subtotal** | **2,025,193.0** | **82,580.0** | **1,953,224.2** | **92.7** |
| 2002 | 466,370.0 | 14,393.76 | 499,000.0 | 103.8 |
| 2003 | 466,370.0 | 14,393.76 | 320,971.0[1] | 66.8 |

Source: MoF Annual Cut Control Letters (1987-2003)

[1] Note that this value represents the Ministries official billed volume. However based on Canfor's records the volume delivered to Canfor's scale was 431,324 m3 or 89.7% of the AAC. The difference is due to some problems with the Ministry's billing of stumpage at the end of the cut control annual period. This volume will be reported by the MoF in 2004.

**REVISIONS**

No revisions are suggested for this indicator or objective.

## 2.30 WASTE

| Indicator: | Objective: |
|---|---|
| **30.** Waste | We will assess all waste volumes for harvested blocks and report annually. |

**STATUS AND COMMENTS**

In 2003 all areas harvested by Canfor and SBFEP were within the MOF benchmarks (Table 22).

**Table 22: Summary of Waste and Residue**

| YEAR | BEC | Total Net Area (ha) | Average Waste (mandatory utilization) $m^3$ per ha | Average of MOF Benchmark |
|---|---|---|---|---|
| 2002 | BWBS | 246 | 1.59 | 4.0 |
| | ESSF | 1253 | 2.28 | 20.0 |
| | SBS | 261 | 2.98 | 10.0 |
| 2002 Total | | 1719 | 2.60 | |
| 2003 | BWBS | 159 | 1.82 | 4.0 |
| | ESSF | 830 | 2.50 | 20.0 |
| | SBS | 369 | 2.25 | 10.0 |
| 2003 Total | | 1358 | 2.36 | |

**REVISIONS**

No revisions are suggested for this indicator or objective.

## 2.31 TIMBER HARVESTING UTILIZATION STANDARDS

| Indicator: | Objective: |
|---|---|
| **31.** Timber harvesting utilization standards | We will meet or exceed timber utilization standards of 1999 (i.e., 4 inch tops). |

**STATUS AND COMMENTS**

In 2003, during a periodic assessment, KPMG found that changing economic circumstances, logging practices (use of cut to length systems), and mill log quality specifications have led to the objective in relation to Timber Harvesting Utilization Standards (#31) not being met for a second year. KPMG suggested that there is a clear opportunity to reconsider the specific nature of the objective in relation to Timber Harvesting Utilization Standards (#31) to reflect revised expectations of operations in this regard.

In 2003 our Log Quality Management System was fully implemented. The LQMS specifies log quality and length requirements. The specifications permit a top size diameter limit of 4 inches, however, the LQMS focuses on suitable log lengths and quality to meet mill requirements. Top size is categorized as “variable top size”, where 4 inches in diameter is the first target, provided a preferred or acceptable 2 foot multiple is attained.

From May 1, 2003 to April 30, 2004 approximately 10.9% of the total log volumes were delivered as optional grades of timber. Optional grades of timber accounted for approximately 10.8% in 2003, 7.6% in 2002 and 8.4% in 2001.

**REVISIONS**

In consideration of changing economic circumstances, logging practices (use of cut to length systems) and mill log quality specifications; Canfor proposes to discontinue this indicator.

Obligatory utilization specifications, as defined by the Ministry of Forests, remain a requirement of the TFL. Volumes that meet these obligatory utilization specifications and that are not fully utilized are charged as harvest volumes for stumpage and cut control.

## 2.32 AREA OF FORESTED LAND

| Indicator: | Objective: |
|---|---|
| **32.** Area of forested land | **32-1** We will track, monitor and project losses to other uses and incorporate these losses in to AAC calculations every 5 years. |

### 2.32-1 Track and Project Losses

**STATUS AND COMMENTS**

The next review of area of forested land will be done in conjunction with Management Plan 4. It will represent forest conditions as of March 31, 2005. This analysis will occur in the spring of 2005.

**REVISIONS**

No revisions are suggested for this indicator or objective.

## 2.33 INVESTMENT IN NEW TECHNOLOGY, CAPITAL MAINTENANCE AND CONSTRUCTION

| Indicator: | Objective: |
|---|---|
| **33.** Average investment in new technology, capital maintenance and construction at Canfor operations in Chetwynd | We will invest $2.5 million annually based on a 10 year rolling average, in new technology, capital maintenance and construction. |

**STATUS AND COMMENTS**

Average investment for the last 5 reporting periods has been higher than the $2.5 MM target (Table 23).

**Table 23: Annual Average Investment**

| 10 Year Period (Rolling) | Average Annual Investment |
|---|---|
| 1990-1999 | $4.0 MM |
| 1991-2000 | $4.3 MM |
| 1992-2001 | $4.4 MM |
| 1993-2002 | $4.4[1] MM |
| 1994-2003 | $4.3 MM |

**REVISIONS**

No revisions are suggested for this indicator or objective.

[1] The 1993-2002 average was incorrectly reported as $4.5MM in the 2002 annual report.

## 2.34 ECONOMIC CONTRIBUTION TO LOCAL COMMUNITIES AND CONTRACTORS

| Indicator: | Objective: |
|---|---|
| **34.** The economic contribution that Canfor Chetwynd makes to local communities and contractors | **34-1** We will report annually on the economic indices that reflect Canfor's contribution to local communities and contractors, and jobs per cubic metre.<br>**34-2** We will provide contracting opportunities that support local employment where the skills exist. |

### 2.34-1 Local Economic Indices

**STATUS AND COMMENTS**

Canfor's contribution to the local economy is shown in Table 24. The number of "Jobs/1000 $m^3$" was 1.55/1000$m^3$ for 2003. The provincial average employment produced in the forest industry is approximately 1.4 jobs/1000$m^3$ based on 1997 data (COFI 1998).

Contract services to local contractors was $26.4 million for 2003. In this case, local contractors are defined as those having a business mailing address in the previous Dawson Creek Forest District, with the exception of Load'Em Up Contracting, which has a mailing address in Prince George but maintains a business in Chetwynd. Community donations were $0 in 2003, however donations are now being administered through Canfor's corporate offices.

**Table 24: Canfor's Contribution to Local Communities**

| Index | Amount ($MM) 2000 | Amount ($MM) 2001 | Amount ($MM) 2002 | Amount ($MM) 2003 |
|---|---|---|---|---|
| Property Taxes | 0.3 | 0.4 | 0.43 | 0.32 |
| Salary Wages and Benefits | 13.8 | 11.5 | 14.2 | 14.2 |
| Contract Services (Local) | 16.7 | 16.9 | 19.7 | 26.4 |
| Contract Services (Non-local) | 6.4 | 9.25 | 14.9 | 4.1 |
| Supplies | 1.7 | 1.6 | 1.9 | 2.6 |
| Community Donations | 0.10 | 0.002 | 0 | 0 |
| Jobs/$m^3$ | 1.82/1000 $m^3$ | 1.66/1000 $m^3$ | 1.34/1000$m^3$ | 1.55/1000$m^3$ |

The number of jobs/$m^3$ is calculated as follows:

(Total Wages/Average Provincial Wage)/Actual Recorded Cut

*Where*:

Total wages = Salaries, Wages and Benefits + Local Contractors + Non-local Contractors

Average Provincial Wage = This is based on Pricewaterhouse Coopers Annual Report on the Forest Industry in British Columbia. In 1999 the provincial average forest industry employee earned $67,042.

Actual Recorded Cut = Indicator 2.29

**REVISIONS**

No revisions are suggested for this indicator or objective.

### 2.34-2 Local Contractors

**STATUS AND COMMENTS**

To be consistent with prior years reporting "local" contractors are those found in the Fort St. John and Dawson Creek Forest Districts. The EMS contractor database is used to provide the total number of contractors. The percentage of local contractors in Canfor's EMS database was 47% in 2003. This compares to 71%, 68%, 61%, and 66% during 1999, 2000, 2001 and 2002, respectively. The drop in the percentage of local contractors was not due to a reduction of local contractors on the list but rather an increase in the total number of contractors on the list (there were 221 local contractors in the list in 2002 and 2003).

To be consistent with Indicator 2.34-1 reporting, there were 92 contractors in the database that have business mailing addresses in the South Peace or previous Dawson Creek Forest District.

**REVISIONS**

No revisions are suggested for this indicator or objective.

## 2.35 ANIMAL UNIT MONTHS

| Indicator: | Objective: |
|---|---|
| **35.** Animal unit months | We will maintain an annual average of 1000 Animal Unit Months (excludes brush control by sheep). |

**STATUS AND COMMENTS**

Table 25 shows the animal unit months (AUM) of range tenures that were issued on the TFL for 2003. Some of these tenures overlap the TFL and are not totally contained within the TFL. The methodology to derive this was to simply prorate by area the number of AUM's attributable to the TFL.

The total number of AUM's has increased by 47 from 2,503 in 2000 to 2,550 in 2001 and an additional 107 AUM's to 2,657 in 2002. There was no change to the amount of AUM's on the TFL in 2003 although approximately 1,084 AUM's will removed from the TFL as part of a land trade for the field portion of the Rice property for forested land near Stewart Lake.

**Table 25: Animal Unit Months on TFL 48 for 2001**

| Range Tenure | Total AUM's | % Area TFL | AUM's on TFL |
|---|---|---|---|
| Grazing Lease | 10 | 100.0% | 10 |
| RAN075680 | 268 | 98.8% | 265 |
| RAN075491 | 263 | 11.3% | 30 |
| RAN075991 | 148 | 99.6% | 147 |
| RAN072876 | 30 | 100.0% | 30 |
| RAN072880 | 20 | 95.9% | 19 |
| RAN073021 | 944 | 58.2% | 549 |
| RAN073876 | 1,080 | 34.8% | 376 |
| RAN074239 | 50 | 100.0% | 50 |
| RAN074307 | 240 | 40.3% | 97 |

| Range Tenure | Total AUM's | % Area TFL | AUM's on TFL |
|---|---|---|---|
| RAN075673[1] | 204 | 100.0% | 204 |
| RAN075676[1] | 120 | 100.0% | 120 |
| RAN075675[1] | 280 | 100.0% | 280 |
| RAN075674[1] | 480 | 100.0% | 480 |
| **Total** | | | **2657** |

[1] Highlighted tenures indicates areas that are scheduled to be removed from the TFL in 2004 as part of the Rice property negotiations.

**REVISIONS**

No revisions are suggested for this indicator or objective.

## 2.36 VISUAL LANDSCAPE INVENTORY

| Indicator: | Objective: |
|---|---|
| **36.** Visual Landscape Inventory | We will maintain and update an approved visual landscape inventory. |

**STATUS AND COMMENTS**

A new Visual Landscape Inventory (VLI) was completed in 2000. Canfor submitted recommended Visual Quality Objectives for the VLI completed in 2000 on March 4, 2002. The Ministry of Forests has responded with comments and questions. Canfor has not provided requested data at this time. This will be completed in time for inclusion in MP4.

**REVISIONS**

No revisions are suggested for this indicator or objective.

## 2.37 LEVEL OF PUBLIC ACCEPTANCE

| Indicator: | Objective: |
|---|---|
| **37.** Level of public acceptance of Visual Landscape inventory | **37-1** We will include public input in reviewing and updating the visual landscape inventory.<br>**37-2** We will propose and manage harvesting cutblocks consistent with Visual Sensitivity Classes. |

### 2.37-1 Visual Landscape Inventory Public Input

**STATUS AND COMMENTS**

There were no public comments received during 2003 concerning visual impacts or designs.

**REVISIONS**

No revisions are suggested for this indicator or objective.

## 2.37-2 Visual Impact Assessments

**STATUS AND COMMENTS**

Requirements for landscape design and perspective modeling is identified at each forest development plan.

The following table, Table 26, shows the status of blocks that were harvested in 2001 but still had outstanding post harvest assessments required. All permits associated with 2001 have now been completed and post harvest assessments are scheduled for the 2003 and 2004 field season. The post harvest assessments were completed for those accessible by road, however those post harvest assessments visible from Williston Lake were not completed in 2003. These will be completed in 2004.

**Table 26: Blocks Harvested in 2001 with Post Harvest Assessments Required**

| Licence | Cut Block | Visual Impact Assessment | Harvesting Consistent with VIA |
|---|---|---|---|
| TFL48 | 080-002 | Done | Yes |
| TFL48 | 236-006 | Done | Not Visible; confirmed |
| TFL48 | 275-002 | Done | Yes |
| TFL48 | 275-007 | Done | Yes |
| TFL48 | 276-003 | Done | Yes |
| TFL48 | 330-001 | Done | CP complete assessment to be completed summer 2004 (boat) |
| TFL48 | 330-002 | Done | CP complete assessment to be completed summer 2004 (boat) |
| TFL48 | 330-003 | Done | CP complete assessment to be completed summer 2004 (boat) |
| TFL48 | 640-001 | Done | Yes |
| TFL48 | T2012 | Done | Not Visible; confirmed |

Harvested blocks were compared with the 1995 Visual Landscape Inventory (VLI) and the 2000 Visual Landscape Inventory. Table 27 shows all blocks where harvesting was completed in 2002. Those highlighted fall within either the 1995 or 2000 VLI. All blocks in a visual area have had visual impact assessments completed. Some blocks have had VIA completed that were outside of the defined visual areas.

All blocks in visual areas have post harvest visual assessments scheduled to ensure that the plans have achieved the desired results.

**Table 27: Blocks Harvested in 2002 with VIA Requirements**

| Licence | Cut Block | Visual Impact Assessment | Harvesting Consistent with VIA |
|---|---|---|---|
| IO-TFL48 | T3B003 | Not Required | |
| IO-TFL48 | T3B004 | Not Required | |
| SBFEP-TFL | A57974-001 | Not Required | |
| SBFEP-TFL | A57974-004 | Not Required | |
| SBFEP-TFL | A57974-005 | Not Required | |
| SBFEP-TFL | A58810-001 | Done | |
| TFL48 | 080-001 | Done | Yes |
| TFL48 | 080-002 | Done | Yes |
| TFL48 | 237-002 | Done | Yes |
| TFL48 | 237-004 | Done | CP complete assessment to be completed summer 2004 (boat) |
| TFL48 | 247-006 | Not Required | |

| Licence | Cut Block | Visual Impact Assessment | Harvesting Consistent with VIA |
|---|---|---|---|
| TFL48 | 275-001 | Done | Yes |
| TFL48 | 275-005 | Done | Yes |
| TFL48 | 276-004 | Done | Yes |
| TFL48 | 276-006 | Done | Yes |
| TFL48 | 327-004 | Done | CP complete assessment to be completed summer 2004 (boat) |
| TFL48 | 329-002 | Done | CP complete assessment to be completed summer 2004 (boat) |
| TFL48 | 329-003 | Done | CP complete assessment to be completed summer 2004 (boat) |
| TFL48 | 329-004 | Done | CP complete assessment to be completed summer 2004 (boat) |
| TFL48 | 366-001 | Not Required | |
| TFL48 | 366-002 | Not Required | |
| TFL48 | 366-003 | Not Required | |
| TFL48 | 366-004 | Not Required | |
| TFL48 | 612-002 | Not Required | |
| TFL48 | 612-004 | Not Required | |
| TFL48 | 619-006 | Not Required | |
| TFL48 | 619-007 | Not Required | |
| TFL48 | 624-004 | Not Required | |
| TFL48 | 624-005 | Not Required | |
| TFL48 | 631-001 | Not Required | |
| TFL48 | 631-002 | Not Required | |
| TFL48 | 635-001 | Not Required | |
| TFL48 | 635-002 | Not Required | |
| TFL48 | 635-004 | Not Required | |
| TFL48 | 635-006 | Not Required | |
| TFL48 | 636-001 | Not Required | |
| TFL48 | 636-002 | Not Required | |
| TFL48 | 636-003 | Not Required | |
| TFL48 | 636-004 | Not Required | |
| TFL48 | 638-004 | Not Required | |
| TFL48 | 638-005 | Not Required | |
| TFL48 | 722-001 | Not Required | |
| TFL48 | 722-002 | Not Required | |
| TFL48 | 726-004 | Not Required | |
| TFL48 | T2001 | Done | Yes |
| TFL48 | T2011 | Done | CP complete assessment to be completed summer 2004 (boat) |
| TFL48 | T2052 | Done | CP complete assessment to be completed summer 2004 (boat) |
| TFL48 | T4003 | Not Required | |

The following table, Table 28, outlines all blocks that had harvesting completed in 2003. These blocks were compared to both the 1995 VLI and the 2000 VLI. Blocks highlighted are within the areas covered by the VLI's. Some blocks have had VIA's completed that are outside of the defined visual areas.

Block E04-001 was harvested in 2003 and is within the 1995 scenic area. This block did not have a VIA completed prior to harvest. An assessment will be made in 2004 to determine if the resulting area is still consistent with the visual objectives.

### Table 28: Blocks Harvested in 2003 with VIA Requirements

| Licence | Cut Block | Visual Impact Assessment | Harvesting Consistent with VIA |
|---|---|---|---|
| A64393 | E01-001 | Not Required | |
| A64393 | E02-001 | Not Required | |
| A64393 | E03-001 | Not Required | |
| A64393 | E04-001 | Not completed | No visual impact assessment completed |
| A64393 | E05-001 | Not Required | |
| A64393 | E06-001 | Not Required | |
| A64393 | E09-001 | Not Required | |
| A64393 | E10-001 | Not Required | |
| A64393 | E11-001 | Not Required | |
| TFL48 | 236-002 | Done | Yes |
| TFL48 | 327-001 | Done | CP complete assessment to be completed summer 2004 (boat) |
| TFL48 | 327-005 | Done | CP complete assessment to be completed summer 2004 (boat) |
| TFL48 | 329-001 | Done | CP complete assessment to be completed summer 2004 (boat) |
| TFL48 | 726-003 | Not Required | |
| TFL48 | 726-006 | Not Required | |
| TFL48 | 726-007 | Not Required | |
| TFL48 | 726-009 | Not Required | |
| TFL48 | T2016 | Not Required | |
| TFL48 | T2018 | Not Required | |
| TFL48 | T2019 | Not Required | |
| TFL48 | T2047 | Not Required | |
| TFL48 | T4002 | Not Required | |
| TFL48 | T4004 | Not Required | |
| TFL48 | T4005 | Not Required | |
| TFL48 | T4006 | Not Required | |
| TFL48 | T4008 | Not Required | |
| TFL48 | T4009 | Not Required | |
| TFL48 | T4010 | Done | |
| TFL48 | T4012 | Not Required | |
| TFL48 | T4013 | Not Required | |
| TFL48 | T4014 | Not Required | |
| TFL48 | T4015 | Not Required | |
| TFL48 | T4024 | Not Required | |
| TFL48 | T4063 | Done | Yes |

**REVISIONS**

No revisions are suggested for this indicator or objective.

## 2.38 BACK COUNTRY CONDITION

| Indicator: | Objective: |
|---|---|
| **38.** Back country condition | We will maintain or increase backcountry condition in Klin Se Za, Bocock, Butler Ridge, Pine LeMoray, Peace Boudreau, and Elephant Ridge/Gwillim Protected Areas and manage special management zones (Klin Se Za, North Burnt, Dunlevy) as per LRMP. |

**STATUS AND COMMENTS**

In 2003, Canfor had silviculture and road deactivation activities within the Dunlevy and harvesting, silviculture and road deactivation activities in the North Burnt SMZ. These activities are shown in Table 29 and Table 30.

**Table 29: Canfor Road Activity within Backcountry Areas in 2002**

| PAS / SMZ | Road Name | Length (km) | Activity |
|---|---|---|---|
| Dunlevy SMZ | 27606.100 | 9.3 | Gate maintained at ~0.5 km to control access. Semi-permanent deactivation to end of road. |
| | 27606.110 | 0.8 | Semi-permanent deactivation. |
| Dunlevy Total | | 10.1 | |
| North Burnt SMZ | 72609.100 | 11.5 | Permanent deactivation conducted. Bridges pulled and road re-contoured from 5.3 to 6.1 km. |
| North Burnt Total | | 12.3 | |

**Table 30: Canfor Harvest/Silviculture Activity within Backcountry Areas in 2002**

| PAS / SMZ | Block | Area (ha) | Activity |
|---|---|---|---|
| Dunlevy SMZ | 275-001 | 20.6 | Planting completed 2003. |
| | 276-005 | 44.4 | Planting completed 2003. |
| | 276-006 | 80.9 | Planting completed 2003. |
| Dunlevy Total | | 145.9 | |
| North Burnt SMZ | 726-003 | 25.3 | Harvest Started and completed 2003. Planting completed 2003. |
| | 726-004 | 12.5 | Harvest Started and completed Dec 2002. Planting completed 2003. |
| | 726-006 | 8.6 | Harvest Started and completed spring 2003. Planting completed 2003. |
| | 726-007 | 103.0 | Harvest Started and completed spring 2003 Planting completed in 2003. |
| North Burnt Total | | 149.4 | |

The Dunlevy Management Plan has been accepted and was approved by government on January 30, 2002. This indicator will be further reviewed and revised if necessary to ensure consistency with the Dunlevy Management Plan. Operations conducted in 2003 were consistent with the Dunlevy Management Plan.

The following Table 31 is as per the Management Plan 3 and shows the ROS for the Backcountry areas. During 2000 the roaded areas were further investigated and all existing motorized access was identified. Maps and Table 32 were presented to the PAC at the December 6, 2001 meeting. For the purposes of tracking forest industry impacts to the ROS in the Dunlevy SMZ and the Butler Ridge Protected Area Table 32 will be considered the baseline condition.

**Table 31: Area of ROS Class by PAS and SMZ's from MP 3**

| PAS / SMZ | Recreation Opportunity Spectrum | | | |
|---|---|---|---|---|
| | Roaded (ha) | Semi-Primitive Motorized (ha) | Semi-Primitive Non Motorized (ha) | Grand Total (ha) |
| Bocock | | | 988 | 988 |
| Butler Ridge | 1,479 | | 5,035 | 6,513 |
| Dunlevy SMZ | 3,619 | 8,672 | 18,871 | 31,162 |
| Elephant Ridge/Gwillim | 25 | | 2,890 | 2,915 |
| Klin Se Za | | | 2,668 | 2,668 |
| North Burnt SMZ | 6,305 | | 10,574 | 16,879 |
| Peace River/Boudreau | 2,089 | | | 2,089 |
| Pine/LeMoray | 1,017 | 1 | 2,262 | 3,280 |
| Klin Se Za Mountain SMZ | 1,709 | | 7,364 | 9,073 |
| Klin Se Za Headwaters SMZ | 7,146 | 140 | 10,419 | 17,704 |
| **Total** | **23,388** | **8,813** | **61,071** | **93,272** |

**Table 32: Revised Baseline Area of ROS Class for Butler Ridge and Dunlevy**

| PAS / SMZ | Recreation Opportunity Spectrum | | | |
|---|---|---|---|---|
| | Roaded (ha) | Semi-Primitive Motorized (ha) | Semi-Primitive Non Motorized (ha) | Grand Total (ha) |
| Butler Ridge | 1,133 | 1,309 | 4,150 | 6,591 |
| Dunlevy SMZ | 5,283 | 4,589 | 21,976 | 31,848 |
| **Total** | **6,415** | **5,897** | **26,126** | **38,439** |

**REVISIONS**

No revisions are suggested for this indicator or objective.

## 2.39 BOTANICAL FOREST PRODUCTS

| Indicator: | Objective: |
|---|---|
| **39.** Habitat supply for botanical forest products | We will investigate local uses of botanical forest products to determine habitat requirements. |

**STATUS AND COMMENTS**

Canfor proposes to revise this indicator.

**REVISIONS**

It is suggested that the current objective of investigating local uses of botanical forest products is not linked very well to the Criteria, Value, Goal and Indicator statements in the matrix:

**Criteria and Critical Elements**: Multiple benefits to society – forests provide a mix of market and non-market goods and services.

**Value**: Economic diversity.

**Goal**: We will sustain acceptable levels of habitat to provide botanical forest products.

**Indicator**: Habitat supply for botanical forest products.

**Objective**: We will investigate local uses of botanical forest products to determine habitat requirements.

The rationale for revising the objective is that conducting an inventory of botanical forest products does not guarantee that the goal of sustaining acceptable levels of habitat to provide botanical forest products will be achieved. Canfor proposes that the indicator may be better addressed through the ecological representation approach and that this indicator and objective be reworked when the CSA 2002 standard is developed during the next year.

## 2.40 PUBLIC ADVISORY COMMITTEE

| Indicator: | Objective: |
|---|---|
| **40.** Public Advisory Committee | **40-1** We will establish and maintain a Public Advisory Committee and hold at least two meetings annually.<br>**40-2** We will hold an annual open house to review SFM plan performance. |

### 2.40-1 Public Advisory Committee

**STATUS AND COMMENTS**

Canfor held one meeting with the Public Advisory Committee in 2003 (Table 33). A field trip was also planned but was not held due to scheduling conflicts. The non-conformance to this objective was discussed with the PAC on January 29, 2004.

**Table 33: Summary of Meeting Dates, Committee, Advisors and Public Attendance**

| Meeting # | Date | # of Committee Members | Quorum | # of Advisors | # of Public |
|---|---|---|---|---|---|
| 1 | June 12, 2003 | 5 | Y | 11 | 1 |

**REVISIONS**

No revisions are suggested for this indicator or objective.

### 2.40-2 Annual Open House

**STATUS AND COMMENTS**

An open house was held on June 17, 2003 in conjunction with Canfor's contractors' conference. This annual conference is attended by Canfor's primary logging contractors and their employees. The open house was set up in the same facility as the contractors' conference, and Canfor displayed the forest development plan, the notification for intent to treat, and the SFM plan.

**REVISIONS**

No revisions are suggested for this indicator or objective.

## 2.41 PARTICIPATION IN LRMP

| Indicator: | Objective: |
|---|---|
| **41.** Participation in LRMP | We will attend meetings, and provide information as required, for LRMP functions. |

**STATUS AND COMMENTS**

There were no LRMP meetings held in 2003.

**REVISIONS**

No revisions are suggested for this indicator or objective.

## 2.42 LRMP AND LAND USE PLANS

| Indicator: | Objective: |
|---|---|
| **42.** LRMP and land use plans | We will manage operations to the spirit and intent of the Dawson Creek LRMP. |

**STATUS AND COMMENTS**

Indicator 42 has been discontinued.

**REVISIONS**

No revisions are suggested for this indicator or objective.

## 2.43 PROACTIVE CONSULTATION PROCESS

| Indicator: | Objective: |
|---|---|
| **43.** Proactive consultation process for significant activities such as proposed timber harvesting | Forest Development Plan will be referred to Saulteau and West Moberly First Nations. |

**STATUS AND COMMENTS**

Amendments to the 2002 – 2007 Forest Development Plan were to referred to West Moberly First Nation, Saulteau First Nation and McLeod Lake Indian Band on February 13 and December 15, 2003. Summaries of concerns are presented in Indicator 2.48.

**REVISIONS**

No revisions are suggested for this indicator or objective.

## 2.44 ARCHAEOLOGICAL IMPACT ASSESSMENTS

| Indicator: | Objective: |
|---|---|
| **44.** Archaeological impact assessments on proposed harvest blocks | We will conduct archaeological impact assessments as indicated through archaeological overviews or inventory. |

**STATUS AND COMMENTS**

Canfor completed pre-impact archaeological impact assessments in the Seven Mile Creek watershed in 2003. The consultant (Landsong Heritage Consultants) did not find any archaeological concerns and no special actions were required. AIA's will continue to be conducted as required.

**REVISIONS**

No revisions are suggested for this indicator or objective.

## 2.45 ABORIGINAL LIAISON

| Indicator: | Objective: |
|---|---|
| **45.** Aboriginal liaison | We will increase the level of aboriginal input to forest management by meeting with band councils, representatives, contractors and/or individuals as issues and opportunities arise. |

**STATUS AND COMMENTS**

One formal meeting was held with Saulteau First Nations on June 9th, 2003 regarding the 2003 Pesticide Management Plan. Letters/faxes, phone calls and face-to-face conversations are documented under Indicators 2.48 and 2.49.

**Table 34: Number of Meetings Held with First Nations Annually**

| First Nation | 1999 | 2000 | 2001 | 2002 | 2003 |
|---|---|---|---|---|---|
| Saulteau | 1 | 1* | 3 | 3 | 1 |
| West Moberly | 2 | 1 | 4 | 1 | 0 |
| McLeod Lake Indian Band | N/A | N/A | N/A | 2 | 0 |

* Chief and Council did not attend a meeting on Nov. 30, 2000 but trappers from Saulteau did.

**REVISIONS**

No revisions are suggested for this indicator or objective.

## 2.46 INCORPORATE OBJECTIVES OF KLIN SE ZA INTO FDP AND MP

| Indicator: | Objective: |
|---|---|
| **46.** Incorporate objectives of Klin Se Za into FDP and MP | We will maintain or increase backcountry condition in Klin Se Za, Bocock, Butler Ridge, Pine LeMoray, Peace Boudreau, and Elephant Ridge/Gwillim Protected Areas and manage special management zones (Klin Se Za, North Burnt, Dunlevy) as per LRMP. |

**STATUS AND COMMENTS**

See Indicator 2.38.

**REVISIONS**

No revisions are suggested for this indicator or objective.

## 2.47 ABORIGINAL EMPLOYMENT

| Indicator: | Objective: |
|---|---|
| **47.** Aboriginal employment | We will budget $100,000 annually for aboriginal contractors. |

**STATUS AND COMMENTS**

Aboriginal Contractors conducted $57,988 of forestry related work in 2003. Payments were $43,839 in 2002, $99,358 in 2001, $447,988 in 2000 and $465,000 in 1999.

**REVISIONS**

No revisions are suggested for this indicator or objective.

## 2.48 FDP, PMP AND MP

| Indicator: | Objective: |
|---|---|
| **48.** FDP, PMP AND MP | We will advertise and refer plans to all parties in a proactive manner (public, agencies and other licence holders). |

**STATUS AND COMMENTS**

Plan referrals and advertisements during 2003 were as follows (Table 35).

**Table 35: Summary of Plan Referrals in 2003**

| Plan Type | Date | Location/Group |
|---|---|---|
| MP | N/A | • No Management Plan Prepared in 2003 |
| FDP (Major Amendment) | November 10, 2003 | • James Rhymer, Walter Peever, Hale Hinton, Armand Didier, Franz Kirshbaum, Dan Stobbe, McLeod Lake Indian Band, Saulteau First Nation, West Moberly First Nation, Halfway River First Nation, MoF, MWLAP, MSRM, OGC, District of Hudson's Hope, District of Tumbler Ridge, |
| | November 25, 2003 | • Chetwynd Echo |
| | November 30, 2003 | • Tumbler Ridge Observer |
| | December 16, 2003 | • Chetwynd Echo |
| | December 21, 2003 | • Tumbler Ridge Observer |
| PMP | February 18, 2003 | • Chetwynd Echo, All Trappers and Guides |
| | February 24, 2003 (NIT) | • WLAP, West Moberly First Nations, Saulteau First Nations, Treaty Eight Tribal Association, Kelly Lake First Nations Society, McLeod Lake Indian Band, MoF, Tumbler Ridge Communicator, |
| | March 12, 2003 (Revised NIT map) | • WLAP, West Moberly First Nation, Saulteau First Nation, McLeod Lake Indian Band |

**REVISIONS**

No revisions are suggested for this indicator or objective.

## 2.49 PUBLIC ENQUIRY FORMS

| Indicator: | Objective: |
|---|---|
| **49.** Public enquiry forms | We will respond to public inquiries on our practices (in addition to normal planning processes) within 1 month of receipt, and maintain and track forms as per the Environmental Management System. |

**STATUS AND COMMENTS**

Canfor received 16 public inquiries in 2003 (Table 36). Generally public inquiries documented from 1999 – 2003 have been easy to resolve by providing information to the concerned parties.

**Table 36: Summary of Public Enquiries Received in Relation to TFL 48 in 2003**

| Person | Date | Concern | Canfor Response |
|---|---|---|---|
| Saulteau First Nation | Feb 5, 2003 | Road building in Cameron Lakes. | Plan was approved and work was already underway. |
| James Rhymer | Feb 6, 2003 | Harvesting occurring in Dunlevy. | No harvesting was occurring. |
| Les Parsons | Feb 19, 2003 | Blocks in Gething providing vehicle access and access to hunters. | Will avoid harvest conflicts with outfitter during hunting season. |
| George Kalischuk | Feb 21, 2003 | Opposed to large block harvesting. | Ongoing discussion about advantages of large blocks. Issue still unresolved. |

| Person | Date | Concern | Canfor Response |
|---|---|---|---|
| Hale Hillton | Feb 28, 2003 | Does not agree with aerial herbicides. | Provided detailed information on herbicide and site assessments. |
| James Vince | March 7, 2003 | Herbicide treatment on trapline. | Only one block was being treated. |
| Saulteau First Nation | Mar 11, 2003 | Requested map of herbicide activities in Boucher Lakes area. | Map and letter submitted. |
| Hale Hillton | Mar 18, 2003 | Requested that Canfor use manual brushing instead of aerial herbicide. | Discussion on decision to use aerial herbicides. |
| James Rhymer | Mar 24, 2003 | Request for more information on aerial herbicides on specific blocks | Letter sent with copies of DSA's. |
| Tumbler Ridge Council | April 23, 2003 | Murray Ridge road maintenance request. | Canfor maintains roads when harvest operations in an area are active. |
| West Moberly First Nation | June 1, 2003 | Concerns over proposed herbicide treatments north of Moberly Lake | Canfor proposed meeting. Invitation for meeting was not acted upon. |
| Vic Gouldie | July 20, 2003 | Was not being used as a contractor. | Not available during scheduled road building. Issue unresolved. |
| Saulteau First Nation | July 25, 2003 | Cease harvesting operations in Boucher Lakes. | No harvesting operations were underway. |
| Les Parsons | Aug 18, 2003 | Concerned about the timing of harvesting. | Canfor to avoid harvesting in area to avoid conflict with hunting. |
| Joan | Nov 10, 2003 | Saw red trees (mountain pine beetle). | Site inspection did not reveal any mountain pine beetle. |
| Saulteau First Nation | Jan 1 – Aug 5 | Series of discussions regarding harvesting in the Boucher Lakes areas. | Harvesting deferred, issues still unresolved. |

**REVISIONS**

No revisions are suggested for this indicator or objective.

## 2.50 LEVEL OF PUBLIC COMMENTS

| Indicator: | Objective: |
|---|---|
| **50.** Level of public comments | We will provide feedback to concerned individuals and the PAC on how concerns were addressed. |

**STATUS AND COMMENTS**

As per the May 17th, 2001 PAC meeting and the 2000 Annual Report, this objective for this indicator is reported as part of Indicator 2.49.

**REVISIONS**

No revisions are suggested for this indicator or objective.

## 2.51 SPATIAL AND TEMPORAL MODELS

| Indicator: | Objective: |
|---|---|
| **51.** Spatial and temporal models | **51-1** We will use leading edge modelling systems to develop rotation length plans.<br>**51-2** We will use up-to-date vegetation inventory.<br>**51-3** We will use the best available science to develop an understanding of ecological response. |

### 2.51-1 Modelling Systems

**STATUS AND COMMENTS**

A three-year research partnership between Canfor, the Canadian Forest Service and Natural Science and Engineering Research Council (NSERC) was approved in November 2000 and has provided funding for the University of British Columbia to develop and refine an ecosystem-based modelling framework.

A presentation detailing the results of the 3 year study was given to the PAC on January 29, 2004.

This research will be integrated into MP 4. Development of MP 4 is expected to start in the fall of 2004.

**REVISIONS**

No revisions are suggested for this indicator or objective.

### 2.51-2 Vegetation Inventory

**STATUS AND COMMENTS**

There is no new information for 2003 concerning the VRI for TFL 48.

The VRI has been updated to October 2001. Current status and post development plan analysis was completed in support of the 2002-2007 FDP. The next scheduled update of the VRI for disturbance will be conducted in support of the next proposed developments.

Phase II sampling was completed in 2002. An analysis and report (JS Thrower 2003) was completed which provides the Phase I (unadjusted inventory data), Phase II (ground plot data), and the adjusted inventory statistics for this VRI. The target population for VRI statistical adjustment was the Vegetated Treed (VT) areas $\geq$ 30 years old.

After statistical adjustment, site index increased 8% and net merchantable volume increased approximately 30%. In high priority areas (likely the timber harvesting land base: 269,069 ha), net merchantable volume increased approximately 13%. Adjusted volume estimates were not corrected for taper and hidden decay bias with Net Volume Adjustment Factor (NVAF) sampling. Therefore, the volume increase is slightly overstated.

The management impacts of these inventory changes are:

- The overall upward adjustment of approximately 13% for standing volume in the high priority areas may have an upward pressure in the allowable annual cut for the TFL.
- There may be an increase in the land base classified as VT moderate priority if the adjusted database is re-classified by land type.

**REVISIONS**

No revisions are suggested for this indicator or objective.

### 2.51-3 Best Available Science

**STATUS AND COMMENTS**

See 2.51-1 for status and comments.

**REVISIONS**

No revisions are suggested for this indicator or objective.

## 2.52 NUMBER OF RECREATIONAL TRAILS AND CAMPSITES

| Indicator: | Objective: |
|---|---|
| **52.** Number of recreational trails and campsites | We will provide and/or maintain a minimum of one trail and three recreation sites on the TFL. |

**STATUS AND COMMENTS**

Carbon, Gething, and Wright Lake recreation sites had inspections conducted in 2003.

Snag falling was conducted at Carbon, and Gething. Additional maintenance is scheduled for 2004.

**REVISIONS**

No revisions are suggested for this indicator or objective.

# 3 LITERATURE CITED

BC Ministry of Forests. 2001. Watershed Assessment Procedure Guidebook. 2nd ed., Version 2.1. Forest Practices Branch, Ministry of Forests, Victoria, BC. Forest Practices Code of British Columbia Guidebook.

Beaudry, P.G. 2001. Peak Flow Index (PFI) Targets for TFL#48 DFA Canadian Forest Products, Chetwynd Division. P. Beaudry and Associates Ltd. Watershed Management Services. 7700 St. Mark Crescent, Prince George, BC.

Beaudry, P.G., and Floyd, B.C. 2002. Stream Crossing Quality Index, TFL#48, Canfor Chetwynd. P. Beaudry and Associates Ltd. Watershed Management Services. 7700 St. Mark Crescent, Prince George, BC.

Beaudry, P. G., and Rex, J. 2002. Meadow Creek Water Quality Monitoring Program. P. Beaudry and Associates Ltd. Watershed Management Services. 7700 St. Mark Crescent, Prince George, BC.

Bunnell F.L., B.G. Dunsworth, D.J. Huggard, and L.L. Kremsater. 2003. Learning to sustain biological diversity on Weyerhaeuser's coastal tenure. Weyerhaeuser, Nanaimo, BC. http://cacr.forestry.ubc.ca/forest_strategy/am/framework.htm

Canadian Forest Products Ltd., 2000. Draft Management Plan 3 for Tree Farm Licence 48. Canadian Forest Products Ltd. Peace Region, Chetwynd Operation. 108 pp. + Appendices.

DeLong, S.C. 2002. Natural Disturbance Units of the Prince George Region. Unpublished Report. Ministry of Forests, Prince George Region, Prince George, BC (available on web FTP site at prgftp.env.gov.bc.ca/pub/outgoing/srm/planning/landscape_level/NDU_documentation)

Douglas, G.W., D.V. Meidinger, J.L. Penny. 2002. Rare Native Vascular Plants of British Columbia 2nd. ed. BC Ministry of Sustainable Resource Management and BC Ministry of Forests, Victoria, BC. 359pp.

Grindal, S.D., de Vries, A., and A. Stockwell. 2000. Rationale for Species Consideration in Management Plans for TFL #48. Axys Environmental Consulting.

J.S Thrower & Associates Ltd., 2003. Tree Farm Licence 48 Vegetation Resources Inventory Statistical Adjustment, Project CFC-007, Prepared for Canadian Forest Products Ltd., 14 pp

Landsong Heritage Consulting, 2001. Archaeological Impact Assessment, Permit 2000-287. Prepared for Canadian Forest Products Ltd., 54 pp.

Landsong Heritage Consulting, 2001. Archaeological Impact Assessment, Permit 2000-272. Prepared for Canadian Forest Products Ltd., 44 pp.

MacKinnon, A., DeLong, C., and Meidinger, D., 2000. Draft Field Guide Insert for Site Identification and Interpretation for the Northwest Portion of the Prince George Forest Region. Land Management Handbook #21. British Columbia Ministry of Forests.

# Appendix 1. Glossary of Acronyms and Terms

# GLOSSARY OF TERMS

**AAC (Allowable Annual Cut)**

The annual rate of timber harvesting specified for an area of land by the chief forester of the BC Ministry of Forests. The chief forester sets AACs for timber supply areas (TSAs) and Tree Farm Licences (TFLs) in accordance with Section 8 of the *Forest Act*.

**Abiotic**

Not of biological origin (see biotic). e.g., windthrow, forest fires, flooding.

**Active Access**

Active access is defined as those roads that have not been deactivated to a level that restricts motorized access.

**Adaptive Management**

A learning approach to management that incorporates the experience gained from the results of previous actions into decisions. It is a continuous process requiring constant monitoring and analysis of the results of past actions that are used to update current plans and strategies.

**Anthropogenic**

Influenced by the impact of man on nature.

**BEC (Biogeoclimatic Ecosystem Classification)**

A hierarchical classification scheme having three levels of integration; regional, local and chronological; and combining climatic, vegetation and site factors. The hierarchical classification includes Biogeoclimatic Zone⇒ sub-zone ⇒ variant⇒ site series.

**Biogeoclimatic Zone**

A geographic area having similar patterns of energy flow, vegetation, and soils as a result of a broadly homogenous macroclimate. British Columbia has 14 biogeoclimatic zones, of which the AT (Alpine Tundra), ESSF (Englemann Spruce Subalpine fir), SBS (Subboreal Spruce), BWBS (Boreal White and Black Spruce) are found in TFL 48.

**Biogeoclimatic Variant**

A subdivision of a biogeoclimatic subzone. Variants reflect further differences in regional climate and are generally recognised for areas slightly drier, wetter, snowier, warmer or colder than other areas in the subzone. For example, the BWBSmw1 is warmer than the BWBSwk1.

**Biodiversity (or Biological Diversity)**

The variability among living organisms from all sources including terrestrial, marine, and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems.

**Biotic**

Relating to living beings, or of biological origin (see abiotic). e.g., insect outbreak, disease.

**Blue-listed Species**

In British Columbia, the designation of an indigenous species, sub-species, or population as being vulnerable or at risk because of low or declining numbers or presence in vulnerable habitats. Included in this classification are populations generally suspected of being vulnerable, but for which information is too limited to allow designation in another category.

**Botanical Forest Products**

Non-timber based products gathered from forest and range land. There are seven recognised categories: wild edible mushrooms, floral greenery, medicinal products, fruits and berries, herbs and vegetables, landscaping products, and craft products.

**CDC (Conservation Data Centre)**

The British Columbia Conservation Data Centre (CDC) (see Blue-listed and Red-listed Species). The staff specialists at the CDC, in co-operation with scientists and specialists throughout the province, have identified those vertebrate animals, vascular plants and plant associations in the province which have become most vulnerable. Each of these rare and endangered species and plant associations has been assigned a global and provincial rarity rank according to an objective set of criteria established by The Nature Conservancy of the United States, and a status on the provincial Red or Blue lists.

**CITES (Convention on International Trade in Endangered Species)**

Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) is an international agreement which regulates trade in a number of species of animals and plants, their parts and derivatives, and any articles made form them. The Convention is applied in Canada in accordance with the Wild Animal and Plant Trade Regulations made under the Wild Animal and Plant Protection and Regulation of International and Interprovincial Trade Act (WAPPRIITA).

Appendix I animals and plants are rare or endangered, and people are not allowed to trade them, or their parts or derivatives for commercial purposes. Animals and plants listed on Appendix II are there for one of two reasons: 1) Their trade is being controlled because, if left unregulated, there is a risk that they will become rare or endangered, or 2) the species are similar to a rare or endangered Appendix I species. Appendix III animals and plant are being carefully managed by the country which has asked to have them added to the CITES control list.

**COSEWIC**

The Committee on the Status of Endangered Wildlife In Canada (COSEWIC) determines the national status of wild Canadian species, sub-species and separate populations suspected of being in danger. It bases its decisions on the best up-to-date scientific information available.

**COSEWIC Ranks**

Each COSEWIC (Committee On the Status of Endangered Species In Canada) rank is followed by the date that the rank was last reviewed.

Ranks have the following meanings:

XX = EXTINCT: A species that no longer exists.

XT = EXTIRPATED: A species that no longer exists in the wild in Canada, but occurring elsewhere.

E = ENDANGERED: A species facing imminent extirpation or extinction.

T = THREATENED: A species that is likely to become endangered if limiting factors are not reversed.

SC = SPECIAL CONCERN:A species of special concern because of characteristics that make it is particularly sensitive to human activities or natural events.

NAR = NOT AT RISK: A species that has been evaluated and found to be not at risk.

DD = DATA DEFICIENT: A species for which there is insufficient scientific information to support status designation.

**DFA (Defined Forest Area)**

A specific area of land, forest and water delineated for the purposes of registration of a Sustainable Forest Management system (i.e., TFL 48).

**CMT (Culturally Modified Tree)**

A culturally modified tree (CMT) is a tree that has been altered by native people as part of their traditional use of the forest. Non-native people also have altered trees, and it is sometimes difficult to determine if an alteration (modification) is of native or non-native origin. There are no reasons why the term "CMT" could not be applied to a tree altered by non-native people. However, the term is commonly used to refer to trees modified by native people in the course of traditional tree utilization.

**ECA (Equivalent Clearcut Area)**

Equivalent clearcut area (ECA) is the area that has been harvested, cleared or burned, with consideration given to the silvicultural system, regeneration growth, and location within the watershed. ECA and road density are the two primary factors considered in an evaluation of the potential effect of past and proposed forest harvesting on peak flows.[10]

**Ecosystem**

A dynamic complex of plants, animals, and micro-organisms and their non-living environment interacting as a functioning unit. The term “ecosystem” can describe small-scale units, such as a drop of water, as well as large-scale units, such as the biosphere. Ecosystems are commonly described according to the major type of vegetation, for example, forest ecosystem, old growth ecosystem, or range ecosystem.

**EMS (Environmental Management System)**

An Environmental Management System is a set of standards established by the International Organization for Standardization (ISO 14001). This process includes commitment, public participation, preparation, planning, implementation, measuring and assessing performance, and review and improvement of a management system. The incorporation of feedback loops into the process allows for ongoing enhancement of the integrity and performance of the management system, and is designed to lead to continual improvement.

**FDP (Forest Development Plan)**

An operational plan guided by the principles of integrated resource management (the consideration of timber and non-timber values), which details the logistics of timber development over a period of usually five years. Methods, schedules, and responsibilities for accessing, harvesting, renewing, and protecting the resource are set out to enable site-specific operations to proceed.

**FPC (Forest Practices Code)**

The Code is a term commonly used to refer to the Forest Practices Code of BC Act, the regulations made by Cabinet under the act and the standards established by the chief forester. The term may sometimes be used to refer to field guides as well. It should be remembered that unlike the act, the regulations and standards, field guides are not legally enforceable.

**Free Growing**

Young trees that are as high or higher than competing brush vegetation with one metre of free-growing space surrounding their leaders. As defined by legislation, a free growing crop means a crop of trees, the growth of which is not impeded by competition from plants, shrubs or other trees. Silviculture regulations further define the exact parameters that a crop of trees must meet, such as species, density and size, to be considered free growing.

**GIS (Geographic Information System)**

Computer systems designed to allow users to collect, manage, and analyse large volumes of spatially referenced information and associated attribute data.

**Greened-up**

A cutblock that supports a stand of trees that has attained the green-up height specified in a higher level plan for the area, or in the absence of a higher level plan for the area, has attained a height that is 3 m or greater. Also, if under a silviculture prescription, meets the stocking requirements of that prescription, or if not under a silviculture prescription, meets the stocking specifications for that biogeoclimatic ecosystem classification specified by the regional manager.

**Harvested Area**

The area that was actually harvested. Differs from NAR in that it excludes every area that did not have a commercial crop of trees harvested. Also excludes areas harvested under a different cutting authority i.e. road permit areas within cutblocks. See also Net Area to be Reforested.

**Incident Tracking System (ITS)**

A database maintained by Canfor to track regulatory incidents.

**Indicator Species**

Species chosen for their ecological, social and economic attributes to monitor habitat supply over time. Based on the LRMP, provincial and federal endangered species lists, the Identified Wildlife Guide and input from the PAC Canfor has selected the following indicator species: grizzly bear, marten, fisher, wolverine, moose, elk, caribou, mountain goat, Blackthroated Green Warbler, Northern Goshawk, Trumpeter Swan and Three-toed Woodpecker.

Or, in a silvicultural prescription, species of plants used to predict site quality and characteristics.

**Identified Wildlife**

Species and plant communities at risk designated by the Deputy Minister of Water, Land and Air Protection as requiring special management attention under the *Forest and Range Practices Act*.

For a full discussion of the Identified Wildlife Program, visit the Identified Wildlife Strategy site.

**Long Run Sustained Yield (LRSY)**

The maximum biological capacity of the land base with no recognition of items such as Non Recoverable Losses.

**Long-term**

At a minimum, twice the period in years of the average life expectancy of the predominant tree species up to a maximum of 300 years.

**Long Term Harvest Level (LTHL)**

The level at which harvest can occur given management assumptions and rate of harvest. In contrast to LRSY, LTHL takes into account Non Recoverable Losses.

**Lumber Recovery Factor (LRF)**

The volume of lumber recovered in board feet per cubic metre of log processed (fbm/$m^3$).

**LU (Landscape Units)**

An area of land and water used for long-term planning of resource management activities. It is important for designing strategies and patterns for landscape level biodiversity and for managing other forest resources. A landscape unit may be used by the District Manager (DM) to establish objectives for any propose permitted under section 2 of the *Forest Practices Code of British Columbia Act.*

**Mean Annual Increment (MAI)**

The average annual increase in volume of individual trees or stands up to the specified point in time. The MAI changes with different growth phases in a tree's life, being highest in the middle years and then slowly decreasing with age. The point at which the MAI peaks is commonly used to identify the biological maturity of the stand and its readiness for harvesting.

**MELP (Ministry of Environment, Lands and Parks)**

Provincial government ministry.

**MoF (Ministry of Forests)**

Provincial government ministry responsible for the management and protection of the province's forest and range resources for the best balance of economic, social, and environmental benefits to British Columbia.

**Monitor**

Repeated observation, through time, of selected objects and values in the ecosystem to determine the state of the system. In particular, it entails the comparison of objects (e.g., organisms) and processes (e.g., streamflow) before and after management actions to determine the effect of those actions upon the ecosystem.

**NAR (Net Area to be Reforested)**

The area under a Silviculture Prescription that will be reforested. This excludes areas occupied by permanent roads, areas incapable of growing a stand of trees (rock, wetland etc.), and reserves. This may include areas that did not contain a commercial stand of trees, but because it is capable of growing a stand of trees, will be reforested. See also Harvested Area.

**Non Recoverable Losses (NRLs)**

Losses of timber due to fire, insects or windfall that are either too small or too inaccessible to be retrieved for lumber production.

**OGMA (Old Growth Management Area)**

Defined in the *Forest Practices Code of British Columbia Act* Operational Planning Regulation as an area established under a higher level plan which contains or is managed to replace structural old growth attributes.

Old growth forests on BC's coast are characterised by the following:

1. Two or more tree species of variable sizes and spacing;
2. Large live trees;
3. Patchy understory;
4. A deep, multi-layered crown canopy with gaps;
5. Standing dead trees (snags) and coarse woody debris of variable sizes.

**OPR (Operational Planning Regulations, Operational Plans)**

Within the context of area-specific management guidelines, operational plans detail the logistics for development. Methods, schedules, and responsibilities for accessing, harvesting, renewing, and protecting the resource are set out to enable site-specific operations to proceed. Operational plans include a forest development plan, logging plan, access management plan, range use plan, silviculture prescription, stand management prescription and 5 year silviculture plan.

**PAC (Public Advisory Committee)**

A public group comprised of a variety of interests, which provides input to Canfor on local Values, Goals, Indicators and Objectives.

**Permanent Access Corridors**

Permanent Access Corridors are defined as those access corridors that are not planned to be returned to a forested state. Some of these roads or corridors may be managed to meet access strategies but are still classed as a permanent reduction in forest area

**Preferred and Acceptable Species**

Preferred and acceptable tree species are those commercial tree species that are suited to the growing conditions of the site, and are identified in the Silviculture Prescription.

**Red-listed Species**

In British Columbia, the designation of an indigenous species, sub-species, or population as endangered or threatened because of its low abundance and consequent danger of extirpation or extinction. Endangered species are any indigenous species threatened with imminent extinction or extirpation throughout all or a significant portion of their range in BC. Threatened species are any indigenous species that are likely to become endangered in BC if factors affecting that vulnerability are not reversed.

**Regeneration Delay**

The maximum time allowed in a prescription, between the start of harvesting in the area to which the prescription applies, and the earliest date by which the prescription requires a minimum number of acceptable well-spaced trees per hectare to be growing in that area.

**Registered Seed**

Seeds which are tested to standards for germination and quality, from a healthy source and ensures the uses of local seed sources.

**Reportable Spills**

Reportable level spill as defined in Canfor-Chetwynd's Emergency Preparedness and Response Plan (2000). The following is adapted from that document:

| | | Reportable Levels | |
|---|---|---|---|
| **Material** | | **Canfor** | **MOE** |
| a) | Antifreeze | 5 / | 5 kg |
| b) | Diesel Fuel | 20 / | 100 / |
| c) | Gasoline (auto & chainsaw) | 20 / | 100 / |
| d) | Greases | 20 / | 100 / |
| e) | Hydraulic Oil | 20 / | 100 / |
| f) | Lubricating Oils | 20 / | 100 / |
| g) | Methyl Hydrate | 10 / | 5 kg |
| h) | Paints & Paint Thinners | 10 / | 100 / |
| i) | Solvents | 10 / | 100 / |
| j) | Pesticides | Any | 1 kg |
| k) | Explosives | Any | Any |

**ROS (Recreation Opportunity Spectrum)**

A recreation opportunity is the availability of choice for someone to participate in a preferred recreation activity within a preferred setting and enjoy the desired experience.

**Rotation**

The planned number of years between the formation and regeneration of a tree crop or stand and its final cutting at a specified stage of maturity.

**Sawmill Lumber Recovery Factor**

See ‘Lumber Recovery Factor (LRF)’.

**Selection Silviculture System**

A silviculture system that removes mature timber either as single scattered individuals or in small groups at relatively short intervals repeated indefinitely, where the continual establishment of regeneration is encouraged and an uneven-aged stand is maintained. As defined in the Code's Operation Planning Regulation, group selection removes trees to create openings in a stand less than twice the height of mature trees in the stand.

**Seral Stage**

Any stage of development of an ecosystem from a disturbed, unvegetated state to a climax plant community. (FP Code)

| Seral Stage Age Classes by BEC Zone | | | | |
|---|---|---|---|---|
| **BEC Zone** | **Early** | **Juvenile** | **Mature** | **Old** |
| BWBS – Conifer | <40 | 40-100 | 100-140 | >140 |
| BWBS – Deciduous | <20 | 20-80 | 80-100 | >100 |
| SBS | <40 | 40-100 | 100-250 | >250 |
| ESSF | <40 | 40-120 | 120-250 | >250 |

BWBS – Boreal White and Black Spruce Zone
SBS – Sub-Boreal Spruce Zone
ESSF – Engelmann Spruce – Subalpine Fir Zone

**Shelterwood Silviculture System**

A silviculture system in which trees are removed in a series of cuts designed to achieve a new even-aged stand under the shelter of remaining trees.

**SFMP**

Sustainable Forest Management Plan

**Site Degradation**

Productive forest land significantly degraded or permanently lost to forest production.

**Site Index**

An expression of the forest site quality of a stand, at a specified age, based either on the site height, or on the top height (height of the largest diameter tree on a 0.01 ha plot, providing the tree is suitable), which is a more objective measure (FPCode). The measure of the relative productive capacity of a site for a particular tree species, based on height at a given reference or base age (50).

**Site Series**

Variation in site conditions encountered within a biogeoclimatic unit is accommodated within the site classification of BEC. The site series describes all land areas capable of supporting specific climax vegetation. This can usually be related to a specified range of soil moisture and nutrient regimes within a subzone or variant, but sometimes other factors, such as aspect or disturbance history, are important determinants as well. A classification of site series for most of the biogeoclimatic units of the province has been developed by the BC Ministry of Forests and is presented in regional field guides.

**SFM (Sustainable Forest Management)**

Management to maintain and enhance the long-term health of forest ecosystems, while providing ecological, economic, social, and cultural opportunities for the benefit of present and future generations.

**SMZ (Special Management Zone)**

The Dawson Creek LRMP has Special Management Zones based on major resource values to be given a high priority in land and resource planning and development. Resource development is permitted but must consider and address all significant values identified. SMZ include: wildlife habitat and wilderness recreation, major river corridors, and culture and heritage.

**Snag**

Standing dead tree or part of a dead tree.

**SP (Silviculture Prescription)**

A site-specific management plan that is a legal prerequisite to logging on Crown Land. SPs specify planned forest activities, the methods to be used, and the proposed constraints necessary to protect the site and its resource values.

**Species at Risk Terminology (BC)**

**Species:**

Species are assigned to one of six provincial lists depending on their Subnational Conservation Status. The lists are as follows:

**EXTINCT**: Species that no longer exist.

**RED**: Includes any indigenous species or subspecies that have- or are candidates for- Extirpated, Endangered, or Threatened status in British Columbia. Extirpated taxa no longer exist in the wild in British Columbia, but do occur elsewhere. Endangered taxa are facing imminent extirpation or extinction. Threatened taxa are likely to become endangered if limiting factors are not reversed. Not all Red-listed taxa will necessarily become formally designated. Placing taxa on these lists flags them as being at risk and requiring investigation.

**BLUE:** Includes any indigenous species or subspecies considered to be of Special Concern (formerly Vulnerable) in British Columbia. Taxa of Special Concern have characteristics that make them particularly sensitive or vulnerable to human activities or natural events. Blue-listed taxa are at risk, but are not Extirpated, Endangered or Threatened.

**YELLOW**: Includes species that are apparently secure and not at risk of extinction

**INTRODUCED**: Also know as exotic, alien or non-native, these are species that humans transported to an area previously outside of that species' geographic range.

**ACCIDENTAL**: Casual or accidental visitor, not occurring annually.

**Plant Communities:**

**EXTINCT**: Plant Communities that no longer exist.

**RED:** Includes any plant community that is Extirpated, Endangered, or Threatened in British Columbia. Extirpated plant communities no longer exist in the wild in British Columbia, but do occur elsewhere. Endangered plant communities are facing imminent extirpation or extinction. Threatened plant communities are likely to become endangered if limiting factors are not reversed. Placing plant communities on these lists flags them as being at risk and requiring investigation.

**BLUE**: Includes any indigenous plant community considered to be of Special Concern (formerly Vulnerable) in British Columbia. Plant communities of Special Concern have characteristics that make them particularly sensitive or vulnerable to human activities or natural events. Blue-listed plant communities are at risk, but are not Extirpated, Endangered or Threatened.

**YELLOW**: Includes Plant Communities that are apparently secure and not at risk of extinction

**Stand Level**

The level of forest management at which a relatively homogeneous land unit can be managed under a single prescription, or set of treatments, to meet well-defined objectives.

**Terrain Stability Map**

Terrain mapping is a method to categorise, describe and delineate characteristics and attributes of surficial materials, landforms, and geological processes within the natural landscape. Terrain stability mapping is a method to delineate areas of slope stability with respect to stable, potentially unstable, and unstable terrain within a particular landscape. Terrain stability map polygons indicate areas or zones of initiation of slope failure.

**TFL (Tree Farm Licence)**

A Tree Farm Licence (TFL) is a stewardship agreement based on a sustained yield, land-based management unit. This includes the right to harvest a specified volume of timber annually and the obligation to carry out all phases of forest management on behalf of the Ministry of Forests. The licence has a term of 25 years and is replaceable every 10 years.

**Timber**

Timber means trees, whether standing, fallen, living, dead, limbed, bucked or peeled (Forest Act).

**Timber Harvesting Land Base**

The portion of the total area of a management unit considered contributing to, and being available for, long-term timber supply. The harvesting land base is defined by reducing the total land base according to specified management assumptions.

**Timber Supply Analysis**

An assessment of future timber supplies over long planning horizons (more than 200 years) by using timber supply models for different scenarios identified in the planning process.

**Timber Supply Review (TSR)**

The timber supply review program regularly updates timber supply in each of the 37 TSAs and 34 TFLs areas throughout the province. By law, the chief forester must re-determine the AAC at least once every five years to ensure AACs are current and reflect new information, new practices and new government policies.

**TIPSY (Table Interpolation Projection Program For Stand Yields)**

A program that interpolates data from TASS (tree and stand simulator) – a computer model that simulates the growth of individual trees and stands. This program is based on growth trends observed in fully stocked research plots growing in a relatively pest free environment. The yields will be very close to the potential of a specific site, species and management regime.

**Twenty Year Plan**

A TFL licensee submits an operational timber supply projection that indicates the availability of timber by setting out a hypothetical sequence of harvesting over a period of at least 20 years, consistent with proposed management objectives. The main purpose of the plan is to demonstrate whether or not the harvests projected in the base case over the next 20 years are spatially feasible, taking into account constraining factors such as Code requirements, timber harvesting land base deductions and the volume assignments per hectare on each entry.

**Vegetation Resources Inventory (VRI)**

The BC Vegetation Resources Inventory is an improved process for assessing the quantity and quality of BC's timber and other vegetation resources. The BC Vegetation Resources Inventory uses both photo interpretation and detailed ground sampling to arrive at an accurate assessment of timber volume and other vegetation resources within a predefined unit. The BC Vegetation Resources Inventory replaces BC's previous process of assessing timber resources.

The Vegetation Resources Inventory uses three processes to assess BC's vegetation resources:

1. photo-interpreted estimates
2. ground-sample measurements
3. statistical analysis and adjustment of the original estimates

The photo-interpretation process shows where timber and other kinds of vegetation are located. It involves using aerial photos to identify the location of timber and other vegetation resources throughout the province.

Ground sampling measures how much timber, vegetation, and woody debris is present within a given area. It describes both the quantity and quality of vegetation in sample areas.

Statistical analysis involves using the ground sample measurements to adjust the photo-interpreted estimates to remove interpretation bias.

**Visual Quality Objective (VQO)**

An approved resource management objective that reflects a desired level of visual quality based on the physical and sociological characteristics of the area; refers to the degree of acceptable human alteration to the characteristic landscape.

**Waste**

The volume of timber left on the harvested area that should have been removed in accordance with the minimum utilisation standards in the cutting authority. It forms part of the allowable annual cut for cut-control purposes.

**Waterbody**

Any land covered by water.

**Windthrow**

A tree or trees uprooted by the wind.

**YELLOW Listed Species**

Includes species that are apparently secure and not at risk of extinction

# Appendix 2. ROS Polygon Delineation Standards

| ROS Class | Factors | | | | | |
|---|---|---|---|---|---|---|
| | Remoteness | | Naturalness | | Social Experience | |
| | Distance from road (km) | Size (ha) | Motorized Use | Evidence of Humans | Solitude/Self-reliance | Social Encounters |
| Primitive (P) | >8 | >5000 ha | • occasional air access, otherwise no motorized access or use in the area. | • very high degree of naturalness;<br>• structures are extremely rare<br>• generally no site modification<br>• little on-the-ground evidence of other people<br>• evidence of primitive trails | • very high opportunity to experience solitude, closeness to nature; self-reliance and challenge. | • very low<br>• interaction with<br>• other people;<br>• very small party<br>• sizes expected; |
| Semi-Primitive Non-Motorized (SPNM) | > 1 | > 1000 ha | • generally very low or no motorized access or use<br>• may include primitive roads and trails if usually closed to motorized use. | • very high degree of naturalness;<br>• structures are rare and isolated except where required for safety or sanitation<br>• minimal or no site modification.<br>• little on-the-ground evidence of other people. | • high opportunity to experience solitude, closeness to nature, self-reliance and challenge. | • low interaction with other people;<br>• very small party sizes expected; |
| Semi-Primitive Motorized (SPM) | > 1 | > 1000 ha | • a low degree of motorized access or use. | • high degree of naturalness in the surrounding area as viewed from access route;<br>• structures are rare and isolated<br>• minimal site modification.<br>• some on-the-ground evidence of other people<br>• evidence of motorized use | • high opportunity to experience solitude, closeness to nature, self-reliance and challenge. | • low interaction with other people;<br>• small party sizes expected; |
| Roaded Natural (RN) | < 1 | N/A | • moderate amount of motorized use within the area.<br>• may have high volume of traffic through the main travel corridor. | • moderate degree of naturalness in surrounding area<br>• structures may be present and more highly developed;<br>• moderate site modification.<br>• some on-the-ground evidence of other people,<br>• some on-site controls.<br>• typically represent main travel corridors and recreation areas that have natural-appearing surroundings | • moderate to high opportunity to experience solitude, closeness to nature, self-reliance and challenge. | • moderate interaction with other people;<br>• small to large party sizes expected; |
| Roaded Modified (RM) | < 1 | N/A | • moderate to high degree of motorized use for both access and recreation. | • low degree of naturalness;<br>• moderate number of more highly developed structures;<br>• highly modified in areas; generally dominated by resource extraction activities.<br>• on-the-ground evidence of other people and on-site controls. | • low to moderate opportunity to experience solitude, closeness to nature, self-reliance and challenge. | • moderate to high interaction with other people;<br>• moderate to large party sizes expected; |
| Rural (R) | < 1 | N/A | • high degree of motorized use for both access and recreation. | • very low degree of naturalness;<br>• complex and numerous structures, high concentrations of human development and settlements associated with agricultural land.<br>• obvious on-the-ground evidence of other people and on-site controls. | • low opportunity to experience solitude, closeness to nature, self-reliance and challenge. | • high interaction with other people;<br>• large party sizes expected; |
| Urban (U) | < 1 | N/A | • very high degree of motorized use for both access and recreation. | • very low degree of naturalness;<br>• highly developed and numerous structures associated with urban development;<br>• very high site modification.<br>• obvious on-the-ground evidence of other people and on-site controls. | • very low opportunity to experience solitude, closeness to nature, self-reliance and challenge. | • very high interactions with other people;<br>• very large party sizes expected; |

## Appendix 3. KPMG Forest Certification Update – February 2004

February 2004

KPMG

# Forest Certification UPDATE

# Canadian Forest Products Chetwynd TFL 48

TFL 48 is located in northeast B.C. around the communities of Chetwynd, Hudson's Hope and Tumbler Ridge. As part of Canfor's commitment to sustainable forest management and forest certification, an audit team from KPMG Performance Registrar Inc. completed the following assessments of Canfor's Tree Farm Licence (TFL) 48 in July 2003:

- Periodic assessment of TFL 48 to the Canadian Standards Association's standard for Sustainable Forest Management (SFM) Systems (CAN/CSA Z809-96); and
- Field assessment of the TFL as part of a corporate-wide periodic assessment to the ISO 14001 standard for Environmental Management Systems (EMS).

The audit determined that both the SFM System and EMS in use on the TFL continue to meet the requirements of CSA Z809 and ISO 14001 and are, overall, well implemented.

The combination of ISO 14001 and CSA Z809 registration demonstrates a strong commitment to sustainable forest management on the TFL and is a significant achievement for Canfor. The assessment applies to a defined forest area (DFA) of 643,500 hectares with an allowable annual harvest of 580,000 cubic meters.

## Background

- The ISO 14001 and CSA Z809 standards require regular audits by an accredited Registrar to assess continuing conformance with the standards and the implementation of action plans related to previous assessments.
- A team of two auditors conducted the ISO 14001 and CSA Z809 assessments in July 2003.
- The team conducted interviews with staff, contractors and stakeholders and examined EMS and SFM System records, monitoring information and public involvement information.
- The team conducted field assessments of 35 sites during the 2-day audit to assess the operation's planning, harvesting, silviculture, road construction, maintenance and deactivation, as well as fuel and facilities management.

## Noteworthy comments

- The SFM system has been effectively implemented. Continuous improvement was noted in operational planning, SFM objectives and field practices. No nonconformances were identified during the audit.
- The operation has effectively addressed all opportunities for improvement identified during the previous assessment.
- The operation is fulfilling its commitment to coordinate forest management planning with BC Timber Sales by developing operating guidelines with BCTS to ensure operational planning is consistent with the SFM indicators.
- The operation continues to work diligently to fine tune the SFM Plan (e.g., improvements to indicators concerning wildlife and water).
- The operation has implemented an EMS project review to assess and minimize the risks associated with the harvesting, transportation, storage and milling of mountain pine beetle-infested timber.
- The operation's commitment to enhanced public involvement opportunities continues through its public advisory committee. Interviews with committee members indicated strong, positive support for this established process.
- Habitat mapping and assessments required under the SFM Plan have now been completed by the operation.
- Overall, operator awareness of block-specific issues was found to be very high.
- A stream crossing quality index has been developed and implemented, providing a structured approach for assessing and managing the risks associated with sediment delivery into streams.

# Findings – Tree Farm Licence 48



**Irregular shelterwood systems are commonly applied when managing high elevation uneven-aged Engelmann spruce - subalpine fir stands.**

## Key Areas of Nonconformance

- There were no areas of major or minor nonconformance identified during the periodic assessment audit indicating overall sound SFM planning, a high level of field performance and a strong commitment to continuous improvement.

## Key Opportunities for improvement

- Our assessment indicated that objectives have generally been updated and fine tuned in consideration of new information as required by CSA Z809. However, changing economic circumstances and mill log quality specifications have led to the objective relating to Timber Harvesting Utilization Standards not being met for a second year. There is a clear opportunity to reconsider the specific nature of this objective to reflect the revised expectations of operations in this regard.
- CSA Z809 requires records to be maintained of field assessments. On one cutblock however, two low gradient streams considered non-fish bearing on the basis of electroshocking did not have the required back-up field assessment documentation to support the absence of fish.

| July, 2003 CSA Z809 Periodic Assessment | |
|---|---|
| Major nonconformances | 0 |
| Minor nonconformances | 0 |
| Opportunities for improvement | 2 |

**Major nonconformances:**
- Are pervasive or critical to the achievement of the EMS/SFM Objectives.

**Minor nonconformances:**
- Are isolated incidents that are non-critical to the achievement of the EMS/SFM Objectives.

All nonconformances require an action plan within 30 days and must be addressed by the operation.

Major nonconformances must be addressed immediately or registration cannot be achieved/ maintained.

**Opportunities for Improvement:**
- Are not nonconformances but are comments on specific areas of the EMS or SFM where improvements can be made.

Through KPMG PRI, KPMG's Vancouver based forestry specialist group is accredited to register forest companies to ISO 14001, CSA-SFM and AF&PA SFI certification standards. The group is led by Mike Alexander and consists of a highly qualified team of professional foresters and industry experts.

**Contacts:**
Mike Alexander, RPF, CEA (604) 691-3401
Chris Ridley-Thomas, RPBio, CEA (604) 691-3088
David Bebb, RPF, CEA (604) 691-3451

## Appendix 4. Canfor - Chetwynd SFM Matrix

**Canfor SFM Matrix June 12, 2003**
**Version 2.0**

**Matrix Updated to reflect June 12, 2003 PAC Meeting Summary**

**Canfor Changes additions /** ~~deletions~~
***PAC Suggestions***

| **4.4 CCFM Criteria and Critical Elements** The Canadian Council of Forest Ministers has developed criteria and indicators to define sustainable forest management in a national context. The six CCFM criteria reflect broad Canadian values to guide sustainable forest management. Each criterion contains a number of critical elements that further refine the scope of the criteria. All of the following critical elements of the CCFM criteria shall be addressed at the DFA level in order for an SFM System to be registered. | **Value** - a principle, standard, or quality considered worthwhile or desirable. | **Goal** - a broad, general statement that describes a desired state or condition related to one or more forest values. | **Indicator** - a measurable variable used to report progress toward the achievement of a goal. | **Objective** - a clear, specific statement of expected quantifiable results to be achieved within a defined period of time related to one or more goals. An objective is commonly stated as a desired level of an indicator. |
|---|---|---|---|---|
| **1. Conservation of Biological Diversity** - *Biological diversity is conserved by maintaining the variability of living organisms and the complexes of which they are part.* | | | | |
| *(a) Ecosystem diversity is conserved if the variety and landscape-level patterns of communities and ecosystems that naturally occur on the DFA are maintained through time.* | Landscape level ecosystem diversity | We will conserve or restore ecosystem diversity within the natural limits of variation within DFA over time. | **1)** Forest type and seral stage distribution | **1-1)** We will sustain forest types over time. |
| | | | | **1-2)** We will sustain seral stage within the natural range of variation over time. |
| | | | **2)** Patch size distribution | **2)** We will maintain a patch size consistent within natural disturbance units |
| | | | **3)** Protected area by seral stage | **3)** Identify seral stage distribution in Protected Areas within the TFL (e.g., Bocok, Butler Ridge, Elephant Ridge/Gwillim, Kiln Se Za, Pine/Lemoray, Peace River/Boudreau). |
| *(b) Species diversity is conserved if all native species found on the DFA prosper through time.* | Native species diversity | We will sustain suitable habitat levels to sustain species diversity | **4)** Number of forest dependant plant species, plant associations, fish and wildlife classified as threatened, endangered, or vulnerable in the TFL. | **4)** We will ensure no species is uplisted as a result of Canfor management activities within the TFL. |
| | | | **5)** Habitat supply for indicator species. (grizzly bear, wolverine, marten, fisher, elk, moose, mountain goat, caribou, Northern Goshawk, Trumpeter Swan, Black-throated Green Warbler, and Three-toed Woodpecker) | **5-1)** We will ensure distribution of habitat for indicator species across the TFL. |
| | | | | **5-2**) We will ensure sufficient furbearer habitat on a drainage-by-drainage basis exists to enable the maintenance of populations. |
| | | | **6)** Disease transmission from domestic sheep grazing activities. | **6)** No disease transmission from domestic sheep to wild sheep populations from domestic sheep use in Canfor activities. |
| *(c) Genetic diversity is conserved if the variation of genes within species is maintained.* | Genetic diversity | We will conserve genetic diversity of native plant species. | **1)** Forest type and seral stage distribution | **1-1)** We will sustain forest types over time. |
| | | | | **1-2)** We will sustain seral stage within the natural range of variation over time. |
| | | | **7)** The number of seeds for coniferous species collected and seedlings planted in accordance with the regulations | **7)** All coniferous seeds will be collected and seedlings will be planted in accordance with the regulations |
| | | We will conserve genetic diversity of wildlife | **2)** Patch size distribution to address habitat fragmentation | **2)** We will maintain a patch size consistent with natural disturbance types. |

**Canfor SFM Matrix June 12, 2003**
**Version 2.0**

**Matrix Updated to reflect June 12, 2003 PAC Meeting Summary**

**Canfor Changes additions /** ~~deletions~~
***PAC Suggestions***

| **4.4 CCFM Criteria and Critical Elements** The Canadian Council of Forest Ministers has developed criteria and indicators to define sustainable forest management in a national context. The six CCFM criteria reflect broad Canadian values to guide sustainable forest management. Each criterion contains a number of critical elements that further refine the scope of the criteria. All of the following critical elements of the CCFM criteria shall be addressed at the DFA level in order for an SFM System to be registered. | **Value** - a principle, standard, or quality considered worthwhile or desirable. | **Goal** - a broad, general statement that describes a desired state or condition related to one or more forest values. | **Indicator** - a measurable variable used to report progress toward the achievement of a goal. | **Objective** - a clear, specific statement of expected quantifiable results to be achieved within a defined period of time related to one or more goals. An objective is commonly stated as a desired level of an indicator. |
|---|---|---|---|---|
| **2. Maintenance and Enhancement of Forest Ecosystem Condition and Productivity** - *Forest ecosystem condition and productivity are conserved if the health, vitality, and rates of biological production are maintained.* | | | | |
| *(a) Forest health is conserved if biotic (Including anthropogenic) and abiotic disturbances and stresses maintain both ecosystem processes and ecosystem conditions within a range of natural variability.* | Forest Health | We will conserve forest health | **8)** Area and severity of incidence of fire, windfall, insects and disease. | **8-1)** We will minimize Non Recoverable Losses to less than 10% of AAC based on a 10 year rolling average. |
| | | | | **8-2)** We will salvage 90% of merchantable timber volumes within the THLB damaged by fire, windfall, insects and disease within 18 months of occurrence. |
| *(b) Ecosystem resilience is conserved if ecosystem processes and the range of ecosystem conditions allow ecosystems to persist, absorb change, and recover from disturbances.* | Ecosystem resilience | We will sustain ecosystem capability to recover from disturbance. | **9)** Percent of a harvested area that is reforested. | **9)** We will reforest 100% of net area to be reforested within 2 years of harvest, on average. |
| | | | **1)** Forest type and seral stage distribution | **1-1)** We will sustain forest types over time. |
| | | | | **1-2)** We will sustain seral stage within the natural range of variation over time. |
| | | We will sustain ecosystem components. | **10)** Minimum harvest age (as a surrogate for nutrient cycling). | **10)** Minimum harvest ages in years will be: Aspen 61, Cottonwood 61, Pine 81, Subalpine Fir 81, Spruce 121 (based on leading species and average stand age). |
| | | | **11)** Wildlife Tree Patches | **11)** Wildlife Tree Patches will not be less than 8% of the harvested area, on average. |
| | | | **3)** Protected Area by seral stage | **3)** Identify seral stage distribution in Protected Areas within the TFL (e.g., Bocok, Butler Ridge, Elephant Ridge/Gwillim, Kiln Se Za, Pine/Lemoray, Peace River/Boudreau). |
| | | | **12)** Old Growth Management Areas | **12)** We will sustain old growth habitat values within the TFL. |
| | | | **13)** Coarse Woody Debris | **13)** We will maintain natural levels of coarse woody debris (CWD) across the TFL. |
| | | | **14)** Habitat Connectivity | **14)** Maintain an adequate level of habitat connectivity at landscape and stand levels with an emphasis on species dependant on mature forest or forest types (e.g., caribou and marten) recognizing that habitat connectivity may shift across the landscape. |
| *(c) Ecosystem productivity is conserved if ecosystem conditions are capable of supporting all naturally occurring species.* | Ecosystem productivity | We will sustain or enhance ecosystem productivity over time. | **15)** Area of the TFL occupied by permanent access corridors associated with forest management activities. | 1**5)** We will limit impacts on the landbase due to the presence of permanent access corridors to less than 3.5% of the gross landbase of the TFL. |
| | | | **9)** Percent of a harvested area that is reforested. | **9)** We will reforest 100% of net area to be reforested within 2 years of harvest, on average. |
| | | We will sustain habitat for all naturally occurring species at natural ranges. | **5)** Habitat supply for indicator species. (grizzly bear, wolverine, marten, fisher, elk, moose, caribou, Northern Goshawk, Black-throated Green Warbler, and Three-toed Woodpecker) | **5-1)** We will ensure distribution of habitat for indicator species across the TFL. |

**Canfor SFM Matrix June 12, 2003**
**Version 2.0**

**Matrix Updated to reflect June 12, 2003 PAC Meeting Summary**

**Canfor Changes additions /** ~~deletions~~
***PAC Suggestions***

| **4.4 CCFM Criteria and Critical Elements** The Canadian Council of Forest Ministers has developed criteria and indicators to define sustainable forest management in a national context. The six CCFM criteria reflect broad Canadian values to guide sustainable forest management. Each criterion contains a number of critical elements that further refine the scope of the criteria. All of the following critical elements of the CCFM criteria shall be addressed at the DFA level in order for an SFM System to be registered. | **Value** - a principle, standard, or quality considered worthwhile or desirable. | **Goal** - a broad, general statement that describes a desired state or condition related to one or more forest values. | **Indicator** - a measurable variable used to report progress toward the achievement of a goal. | **Objective** - a clear, specific statement of expected quantifiable results to be achieved within a defined period of time related to one or more goals. An objective is commonly stated as a desired level of an indicator. |
|---|---|---|---|---|
| **3. Conservation of Soil and Water Resources**- *Soil and water resources and physical environments are conserved if *the quantity and quality of soil and water within forest ecosystems are maintained.* | | | | |
| *(a) Physical environments are conserved if the permanent loss of forest area to other uses or factors is minimized, and if rare physical environments are protected.* | Forest land base | We will conserve productive area of forest land base. | **15)** Area of the TFL occupied by permanent access corridors associated with forest management activities. | **15)** We will limit impacts on the landbase due to the presence of permanent access corridors to less than 3.5% of the gross landbase of the TFL. |
| *(b) Soil resources are conserved if the ability of soils to sustain forest productivity is maintained within characteristic ranges of variation.* | Soil productivity | We will conserve productive capacity of soil. | **15)** Area of the TFL occupied by permanent access corridors associated with forest management activities. | **15)** We will limit impacts on the landbase due to the presence of permanent access corridors to less than 3.5% of the gross landbase of the TFL. |
| | | | **16)** Number of reportable spills entered into Incident Tracking System. | **16)** We will minimize the number of reportable spills. |
| | | | **17)** Use of environmentally friendly lubricants | **17)** We will research and identify environmentally friendly lubricants biannually |
| | | | **18)** Soil productivity measures | **18)** We will use site index measures based on BEC zone (SIBEC) to confirm the predicted long-term soil productivity. |
| | | | **19)** Soil degradation | **19)** We will not exceed site degradation guidelines. |
| | Soil Quantity | We will minimize soil erosion | **20)** Seedling growth or establishment | **20)** We will meet free growing requirements within silvicultural prescriptions. |
| | | | **21)** Soil disturbance surveys | **21)** We will not exceed soil disturbance limits within cutblocks. |
| *(c) Water resources are conserved if water quality and quantity is maintained.* | Water quality and quantity | We will conserve water quality and quantity within the natural range of variation. | **22)** Area in cutblock managed as Riparian Reserve Zone or Riparian Management Zone by appropriate stream, lake or wetland classification. | **22)** We will meet or exceed appropriate riparian measures as recommended by the Forest Practices Code Riparian Guidebook. |
| | | | **16)** Number of reportable spills entered into Incident Tracking System. | **16)** We will minimize the number of reportable spills. |
| | | We will ensure that sedimentation due to forest management activities falls within acceptable limits. | **24)** Stream Crossing Quality Index (SCQI) | **24-1)** We will conduct a sampling of stream crossing quality assessments and ensure that the watershed level SCQI score does not exceed 0.40 |
| | | | | **24-2)** We will visit all crossings with a High Water Quality Concern Rating (WQCR) within one year of detection and prepare an action plan to reduce the WQCR. Priority for remedial projects shall be in the following order: streams used for domestic water supply, fish bearing streams, and others. |
| | | We will ensure changes to Peak Flow Index due to forest management activities will fall within acceptable limits | **25)** Peak Flow Index (PFI) | **25)** We will design forest management activities so that Peak Flow Indices (PFI) thresholds in designated sub-basins are not exceeded. |

**Canfor SFM Matrix June 12, 2003**
**Version 2.0**

**Matrix Updated to reflect June 12, 2003 PAC Meeting Summary**

**Canfor Changes additions / ~~deletions~~**
***PAC Suggestions***

| **4.4 CCFM Criteria and Critical Elements** The Canadian Council of Forest Ministers has developed criteria and indicators to define sustainable forest management in a national context. The six CCFM criteria reflect broad Canadian values to guide sustainable forest management. Each criterion contains a number of critical elements that further refine the scope of the criteria. All of the following critical elements of the CCFM criteria shall be addressed at the DFA level in order for an SFM System to be registered. | **Value** - a principle, standard, or quality considered worthwhile or desirable. | **Goal** - a broad, general statement that describes a desired state or condition related to one or more forest values. | **Indicator** - a measurable variable used to report progress toward the achievement of a goal. | **Objective** - a clear, specific statement of expected quantifiable results to be achieved within a defined period of time related to one or more goals. An objective is commonly stated as a desired level of an indicator. |
|---|---|---|---|---|
| **4. Forest Ecosystem Contributions to Global Ecological Cycles** – *Forest conditions and management activities contribute to the health of global ecological cycles. This contribution is maintained if* | | | | |
| *(a) the processes that are responsible for recycling water, carbon, nitrogen, and other life-sustaining elements are maintained;* | Ecological cycles | We will maintain or restore ecological cycles within levels of historic variation. | **1)** Forest type and seral stage distribution | **1-1)** We will sustain forest types over time. |
| | | | | **1-2)** We will sustain seral stage within the natural range of variation over time. |
| | | | **8)** Area and severity of incidence of fire, windfall, insects and disease. | **8-1)** We will minimize Non Recoverable Losses to less than 10% of AAC based on a 10 year rolling average. |
| | | | **9)** Percent of a harvested area that is reforested. | **9)** We will reforest 100% of net area to be reforested within 2 years of harvest, on average. |
| *(b) utilization and rejuvenation are balanced and sustained; and* | Sustainable yield of timber | We will balance annual growth rate and harvest rate. | **27)** Allowable Annual Cut | **27)** We will ensure that the Allowable Annual Cut will not adversely impact Long Term Harvest Level. |
| | | | **28)** Sawmill Lumber Recovery Factor (SLRF), Chip Recovery Factor and shipment of mini chips. | **28)** We will target an annual minimum of 275 fbm/m3, 0.140 ODt/m3 and 40,000 ODt/year, respectively. |
| | | | **29)** Harvest levels/volumes | **29)** We will achieve periodic cut control within 10% of target, over 5 years. |
| | | | **30)** Waste | **30)** We will assess all waste volumes for harvested blocks and report annually |
| | | | **31)** Timber harvesting utilization standards | **31)** We will meet or exceed timber utilization standards of 1999 (i.e., 4 inch tops). |
| *(c) forest lands are protected from sustained deforestation or conversion to other uses.* | Forested land base | We will sustain forests within the TFL. | **32)** Area of forested land. | **32-1)** We will track and monitor losses to other uses and incorporate these losses into AAC calculations every five years. |
| | | | **15)** Area of the TFL occupied by permanent access corridors associated with forest management activities. | **15)** We will limit impacts on the landbase due to the presence of permanent access corridors to less than 3.5% of the gross landbase of the TFL. |
| | | | **9)** Percent of a harvested area that is reforested. | **9)** We will reforest 100% of net area to be reforested within 2 years of harvest, on average. |

**Canfor SFM Matrix June 12, 2003**
**Version 2.0**

**Matrix Updated to reflect June 12, 2003 PAC Meeting Summary**

**Canfor Changes additions /** ~~deletions~~
***PAC Suggestions***

| **4.4 CCFM Criteria and Critical Elements** The Canadian Council of Forest Ministers has developed criteria and indicators to define sustainable forest management in a national context. The six CCFM criteria reflect broad Canadian values to guide sustainable forest management. Each criterion contains a number of critical elements that further refine the scope of the criteria. All of the following critical elements of the CCFM criteria shall be addressed at the DFA level in order for an SFM System to be registered. | **Value** - a principle, standard, or quality considered worthwhile or desirable. | **Goal** - a broad, general statement that describes a desired state or condition related to one or more forest values. | **Indicator** - a measurable variable used to report progress toward the achievement of a goal. | **Objective** - a clear, specific statement of expected quantifiable results to be achieved within a defined period of time related to one or more goals. An objective is commonly stated as a desired level of an indicator. |
|---|---|---|---|---|
| **5. Multiple Benefits to Society** - *Forests provide a sustained flow of benefits for current and future generations if multiple goods and services are provided over the long term. Multiple benefits are maintained if* | | | | |
| *(a) extraction rates are within the long-term productive capacity of the resource base;* | Sustainable harvest levels | We will establish harvest at a level that can be maintained in perpetuity for coniferous and deciduous species. | **27)** Allowable Annual Cut | **27)** We will ensure that the Allowable Annual Cut will not adversely impact Long Term Harvest Level. |
| | | | **29)** Harvest levels/volumes | **29)** We will achieve periodic cut control within 10% of target, over 5 years. |
| *(b) resource businesses exist within a fair and competitive investment and operating climate; and* | Economic viability for Canfor | We will maintain a local, up to date timber processing facility and infrastructure. | **33)** Average investment in new technology, capital maintenance and construction at Canfor operations in Chetwynd. | **33)** We will invest $2.5 million annually, based on 10 year rolling average, in new technology, capital maintenance and construction. |
| | Local employment | We will ensure local communities and contractors have the opportunity to share in benefits such as jobs, contracts and sales. | **34)** The economic contribution that Canfor Chetwynd makes to local communities and contractors. | **34-1)** We will annually report on the economic indices that reflect Canfor's contribution to local communities and contractors. (property taxes, salary and wages, contract services {split out local vs. non-local}, supplies, community donations, and jobs/m3) |
| | | | | **34-2)** We will provide contracting opportunities that support local employment where the skills exist. |
| *(c) forests provide a mix of market and non-market goods and services.* | Economic diversity | We will maintain domestic grazing levels over time. | **35)** Animal unit months | **35)** We will maintain an annual average of 1000 Animal Unit Months (excludes brush control by sheep grazing) |
| | | We will sustain acceptable levels of habitat for key furbearer and big game species. | **5)** Habitat supply for indicator species (marten, fisher, moose, elk). | **5)** We will ensure distribution of habitat for indicator species across the TFL. |
| | | We will sustain acceptable levels of visual quality in key public access, recreation, and tourism corridors. | **36)** Visual landscape inventory. | **36)** We will maintain and update an approved visual landscape inventory. |
| | | | **37)** Level of public acceptance of Visual Landscape Inventory | **37-1)** We will include public input in reviewing and updating the visual landscape inventory. |
| | | | | **37-2)** We will propose and manage harvesting cutblocks consistent with Visual Sensitivity Classes. |
| | | We will sustain backcountry condition in key backcountry areas. | **38)** Back country Condition | **38)** We will maintain or increase backcountry condition in Klin Se Za, Bocock, Butler Ridge, Pine/Lemoray, Peace River/Boudreau and Elephant Ridge/Gwillim Protected Areas and manage special management zones (Klin se za, North Burnt, Dunlevy) as per LRMP. |
| | | We will sustain acceptable levels of habitat to provide botanical forest products. | **39)** Habitat supply for botanical forest products. | **39)** We will investigate local uses of botanical forest products to determine habitat requirements. |
| | | We will provide recreation opportunities on the TFL. | **52)** Number of recreation trails and campsites. | **52)** We will provide and/or maintain a minimum of one trail and three recreation sites on the TFL. |

**Canfor SFM Matrix June 12, 2003**
**Version 2.0**

**Matrix Updated to reflect June 12, 2003 PAC Meeting Summary**

**Canfor Changes additions /** ~~deletions~~
***PAC Suggestions***

| **4.4 CCFM Criteria and Critical Elements** The Canadian Council of Forest Ministers has developed criteria and indicators to define sustainable forest management in a national context. The six CCFM criteria reflect broad Canadian values to guide sustainable forest management. Each criterion contains a number of critical elements that further refine the scope of the criteria. All of the following critical elements of the CCFM criteria shall be addressed at the DFA level in order for an SFM System to be registered. | **Value** - a principle, standard, or quality considered worthwhile or desirable. | **Goal** - a broad, general statement that describes a desired state or condition related to one or more forest values. | **Indicator** - a measurable variable used to report progress toward the achievement of a goal. | **Objective** - a clear, specific statement of expected quantifiable results to be achieved within a defined period of time related to one or more goals. An objective is commonly stated as a desired level of an indicator. |
|---|---|---|---|---|
| **6. Accepting Society's Responsibility for Sustainable Development** - *Society's responsibility for sustainable forest management requires that fair, equitable, and effective forest management decisions are made. Sustainable forest management requires that* | | | | |
| *(a) forests are managed in ways that reflect social values, and management is responsive to changes in those values;* | Social responsibility | We will seek active partnerships that build community relationships and strengthen Canfor's business | **40)** Public Advisory Committee | **40-1)** We will establish and maintain Public Advisory Committee and hold at least two meetings annually. |
| | | We will develop a process to provide ongoing involvement to reflect changes in social values. | **40)** Public Advisory Committee | **40-1)** We will establish and maintain Public Advisory Committee and hold at least two meetings annually. |
| | | We will reflect the LRMP and other land use planning decisions in operations. | **41)** Participation in LRMP. | **41)** We will attend meetings and provide information as required, for LRMP functions. |
| *(b) duly established Aboriginal and treaty rights are respected;* | Treaty and Aboriginal rights | We will respect Treaty 8 rights | **43)** Pro-active consultation process for significant activities such as proposed timber harvesting. | **43)** Forest Development Plan to be referred to Saulteau and West Moberly FNs. |
| | | | **44)** Archaeological impact assessments on proposed harvest blocks. | **44)** We will conduct archaeological impact assessments as indicated through archaeological overviews or inventory. |
| *(c) the special and unique needs of Aboriginal peoples are respected and accommodated in forest management decisions;* | Aboriginal needs | We will increase our understanding of Aboriginal issues and needs and work with Bands to find solutions or give assistance where possible. | **45)** Aboriginal Liaison | **45)** We will increase the level of aboriginal input to forest management by meeting with Band councils, representatives, contractors, and/or individuals as issues and opportunities arise. |
| | | | **46)** Incorporate objectives of Klin Se Za into Forest Development Plan and Management Plan. | **46)** We will maintain Klin Se Za Protected Area and Special Management Zone as per LRMP. |
| | | | **47)** Aboriginal employment | **47)** We will budget $100,000 annually for aboriginal contractors. |
| *(d) the decision-making process is developed with input from directly affected and local interested parties;* | Public acceptance of decision making process | We will involve all parties (public, agencies, other licence holders, etc.) in development of decision-making process | **40)** Public Advisory Committee | **40-1)** We will establish and maintain Public Advisory Committee and hold at least two meetings annually. |
| | | | | **40-2)** We will hold an annual open house to review SFM plan performance. |
| | | | **48)** Forest Development Plan, Pest Management Plan, TFL Management Plans | **48)** We will advertise and refer plans to all parties in a proactive manner (public, agencies and other licence holders). |
| | | | **49)** Public Enquiry Forms | **49)** We will respond to public inquiries on our practices (in addition to normal planning processes) within 1 month of receipt and maintain and track forms as per Environmental Management System. |
| *(e) decisions are made as a result of informed, inclusive, and fair consultation with people who have an interest in forest management or are affected by forest management decisions; and* | Informed Decision Making | We will involve all parties (public, agencies, other licence holders, etc.) in decision making process. | **40)** Public Advisory Committee | **40-1)** We will establish and maintain Public Advisory Committee and hold at least two meetings annually. |
| | | | | **40-2)** We will hold an annual open house to review SFM plan performance. |
| | | | **50)** Level of Public Comments (e.g., FDP Public Comments) | **50)** We will provide feedback to concerned individuals commenting on planning processes (e.g., FDP, PMP) within one month and the PAC by the next scheduled meeting on how concerns were addressed. |
| *(f) collective understanding of forest ecosystems, values, and management is increased and used in the decision-making process.* | Continual Improvement | We will improve and apply knowledge of forest ecosystems, values and management. | **51)** Spatial and temporal models | **51-1)** We will use leading edge modelling systems to develop rotation length plans within 3 years. |
| | | | | **51-2)** We will use up-to-date vegetation inventory. |
| | | | | **51-3)** We will use the best available science to develop an understanding of ecological response. |