



# **ANNUAL PERFORMANCE MONITORING REPORT**

**Grande Prairie Operations**

**Alberta Region**

**August 2002**

**Reporting Period: May 1, 2001 - April 30, 2002**





## INTRODUCTION - CERTIFICATION

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### Environmental Management Systems and Sustainable Forest Management Plan

#### **Quick Facts**

#### **Canfor's Certification Chronology**

- 1997- ForestCare Certified
- 1999 - (Nov.) Environmental Management System (EMS) certified to ISO 14001 standard
- 2000 - (June) Sustainable Forest Management Plan certified to National CSA standard (Z809-96)

Certification of sustainable forestry practices is becoming key to maintaining market share and meeting public demands. To that end, Canfor has sought and achieved certification under a variety of respected standards (see Quick Facts box).

The purpose of the Canadian Standards Association (CSA) standard is to describe the components and performance objectives of a sustainable forest management system. In 1996, 6 criteria were developed by the

Canadian Council of Forest Ministers (CCFM) to address sustainable forest management. The criteria addresses many key aspects of forest management including maintenance of biological diversity, forest ecosystem and productivity maintenance, soil and water protection, ecological cycles, benefits to society and the rights of aboriginals. The CCFM criteria and elements are fully consistent with those of the Montréal and Helsinki processes, both internationally recognized by governments around the world. In the CSA Standard, adoption of the CCFM criteria and elements as a framework for value identification provides vital links between local level SFM and national and provincial-scale forest policy, as well as a strong measure of consistency in identification of local forest values across Canada. The CSA process developed a set of critical elements for each criteria, numbering 22 in total. This Standard, which utilizes a continual improvement approach, requires public participation, practical demonstration of sustainable forest management practices, and management commitment. Through the process of public participation, the CSA performance framework attains a local relevance to the critical elements in the form of locally determined values, goals, indicators and objectives.

In partial fulfillment of achieving CSA registration, the existing public advisory group — The Forest Management Advisory Committee (FMAC) — assisted Canfor to identify quantifiable local-level values, goals, indicators and objectives of sustainable forest management. The 71 Objectives identified by the FMAC are detailed with associated forest management practices in the Sustainable Forest Management Plan (SFMP) for the Grande Prairie Forest Management Agreement (FMA) area.

The following *performance monitoring report* is a requirement of the standard and reports on the progress of the commitments made in the SFMP.



## Purpose of the Annual Performance Monitoring Report

The purpose of this report is to summarize the progress of Canfor's performance to the goals and objectives as committed in the CSA Sustainable Forest Management Plan (SFMP) by reporting on the goals and indicators. Detailed information can be found in the complete SFMP document available at local libraries, the Canfor Grande Prairie office, and as of Sept 30, 2002 on the net at [www.canfor.com](http://www.canfor.com).

The objectives from the SFMP have been incorporated into the Detailed Forest Management Plan (DFMP). This gives the SFMP more strength since the CSA certification, which is voluntary, is incorporated into the DFMP, which is a legal document.

Following are the 6 CSA Criteria together with their 22 applicable Critical Elements illustrating the status of the associated Goals and Indicators. For example, Criteria 1 - Biological Diversity, has 3 Critical Elements labelled as 1A, 1B, and 1C. The status of each of the 71 Objectives mentioned previously, are summarized in the text portion under the associated goals.

The reporting period for this report is the 2001 timber year (May 1st, 2001 to April 30th, 2002).



## **Grande Prairie Operations Landbase Information**

***Total Landbase: 649,160 ha***

***Productive Landbase (Deciduous and Coniferous): 474,193 ha***

***Pending approval<sup>1</sup>: Coniferous AAC: 640,000 m<sup>3</sup>; Deciduous AAC: 473,000 m<sup>3</sup>***

### **Detailed Forest Management Plan (2001)**

The primary regulatory environment under which Canfor, Grande Prairie Operations conducts its forest operations is Forest Management Agreement 9900037 (FMA), signed with the Minister on May 5, 1999 and expiring on May 4, 2019.

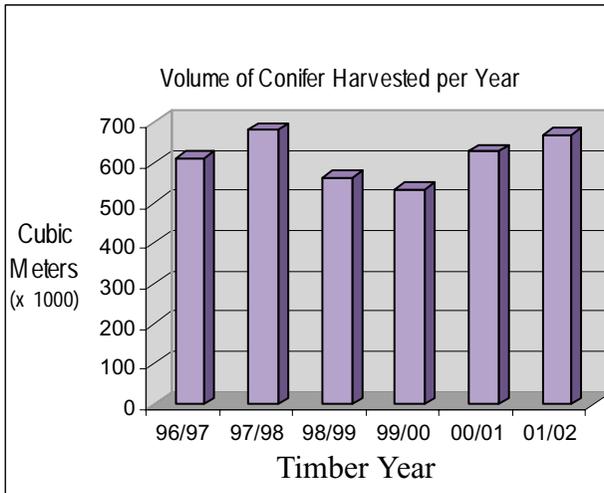
As per subparagraph 10(3) of the Forest Management Agreement, a Detailed Forest Management Plan (DFMP) must be submitted to the Minister not more than 2 years following the commencement date of the FMA agreement. The DFMP defines activities in a specific geographic area and time period, and provides detailed justification and environmental planning to support the annual allowable cut (AAC) for both coniferous and deciduous species from the FMA area.

Canfor has adopted a sustainable ecosystem management approach for current and future plans. The Company will continue to improve its understanding of the ecological processes that have produced natural forests and will incorporate this knowledge into its daily operations. Social, environmental and economic values will be addressed within a framework of ecological processes and science to deliver desirable future forest conditions. Measurable ecological targets will be included to help gauge performance and independent audits will be used to verify progress.

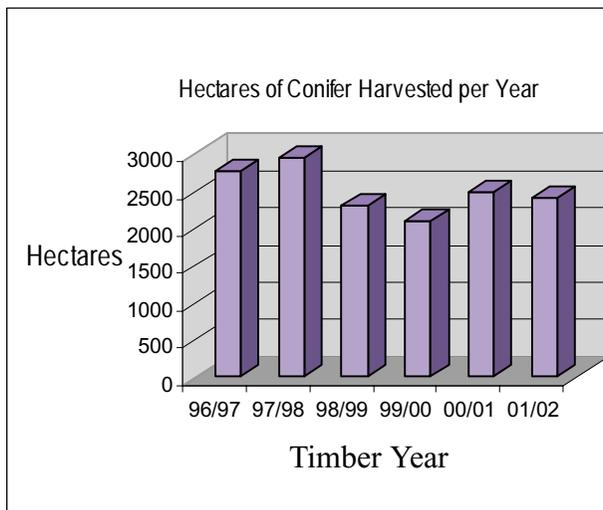
1. The DFMP was submitted to Alberta Sustainable Resource Development (ARSRD) July 31, 2001 and the process for approval is currently underway. Feedback from the Government has been received and Canfor is working on responding to the requests.

## Historical Information - Coniferous

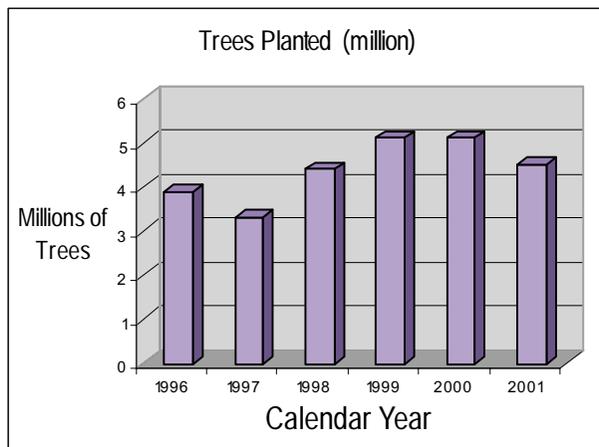
The following graphs show some historic data on coniferous volume harvested, hectares harvested and trees planted. Additional data relating to Canfor's operations can be found in the Annual Public Report, published in September. This report is available at Canfor's office or on the net at [www.canfor.com](http://www.canfor.com) (commencing September 30/02)



Fluctuations in volume harvested are dependant on mill requirements and amount of purchase wood available. Mill requirements are approximately 730 000 m<sup>3</sup> a year. Over the past few years, volume harvested from the FMA ranges from 500 000 -660 000 m<sup>3</sup> .



The amount of hectares harvested averages out to approximately 2 400 hectares a year.

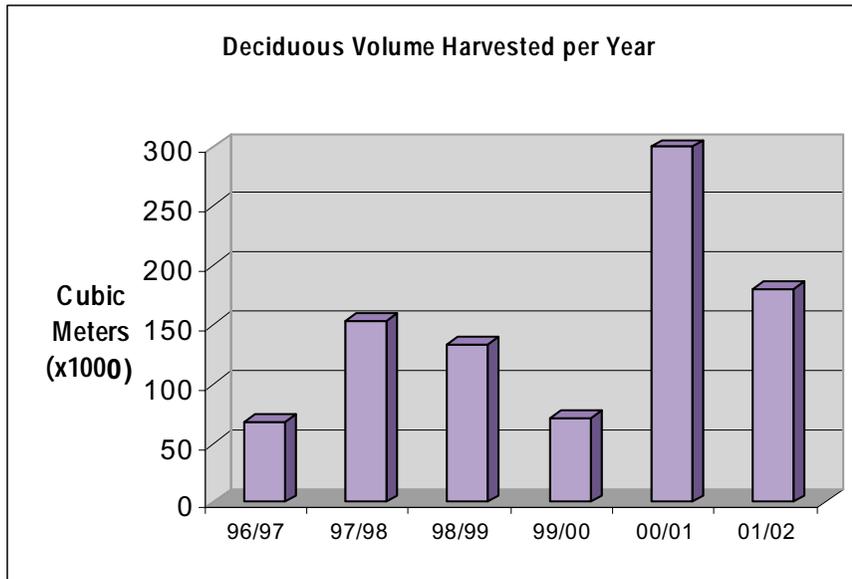


Canfor has increased it's planting program over the past number of years, eliminating eaerial seeding from their treatmnet regime. Aerial seeding was last done in 1998. sinc ethen, the amount of trees planted has increased to about 4.5 Million a year.

## Historical Information - Deciduous

Deciduous trees within the FMA area have been utilized since 1996. Aspen, poplar and a minor portion of birch trees have been harvested and delivered to Tolko in High Prairie for processing into OSB (oriented strand board). Ainsworth has bought incidental deciduous (aspen harvested from within mixwood cutblocks) from the FMA area over the past two seasons.

Historic information for deciduous harvesting is provided graphically below:



In mixwood stands, deciduous trees are very successful in propagating naturally and consequently limited planting of this species is required. Planting by the deciduous company is also done in pure stands to supplement the naturally occurring regeneration.

In 1996, Tolko received a Deciduous Timber Allocation (DTA) of 54,512 m<sup>3</sup> from the Alberta Government for deciduous timber rights in Canfor's G5C Forest Management Unit in the FMA. (reference map on page 49 ) In 1997, a second DTA of 60,500 m<sup>3</sup> was issued for G2C. Actual harvesting of the pure deciduous did not occur until 1998.

In 1996, Canfor began harvesting deciduous along with the conifer in mixwood cutblocks. This volume of aspen is referred to as incidental (as described above) as well as "sterilized deciduous" [deciduous left standing in the cutblocks that could not be sold but is part of the Annual Allowable Cut.].

In 1999, Ainsworth was awarded a 171,000 m<sup>3</sup> DTA within the FMA area pending construction of a sawmill in Valleyview and expansion of their existing facility south of Grande Prairie. In 2001, a 2 year extension to this project was granted.

In 2000, Ainsworth began purchasing incidental aspen from the FMA area.

Canfor is currently working with Tolko and Ainsworth to produce an integrated Annual Operating Plan (AOP) wherein the operational plans of all three companies will be combined into a single plan.

# CRITERIA 1 – BIOLOGICAL DIVERSITY

## 1A - ECOSYSTEM DIVERSITY

**Goal: To provide support to areas of rare physical environments**

- **Indicator: Amount of area of lands excluded from Harvest**

**Status:** 100% of identified rare physical environments are excluded from the company's annual allowable cut (AAC) calculation (see Table below). As a result these areas will never be harvested. The Dunvegan West Wildland (shown below) has been designated a Special Place for the dry mixwood region and the Parabolic Sand Dunes (shown below) are a company chosen no harvest area.

The table below shows the area of rare physical environments within Canfor's FMA area that have been protected from forest industry harvesting. The Dunvegan West Wildland and the Parabolic Sand Dunes (southeast of Grande Prairie) are both included as rare physical environments. In addition, there is a significant portion of the Dunvegan West Wildland that lies outside the FMA, as shown in the table below.

Area	Area (ha)
Outside the FMA Area - Dunvegan West Wildland	17,884.0
Within the FMA Area - Dunvegan West Wildland	
Cactus Hills (TWP 84-RGE 9-W6M)	214.8
Peace Parkland (TWP 81-RGE 7-W6M)	1,172.3
Peace River Dunvegan (TWP 81 to 83, RGE 7&8-W6M)	3,084.0
Subtotal	4,471.1
Within the FMA Area - Parabolic Sand Dunes (TWP 69-RGE 3-W6M)	6,114.2
FMA area Total	10,585.3

These photographs illustrate the rare physical environments protected in the FMA area.



**Goal: Maintain range of seral stages (as per fire return intervals- natural disturbance regimes)**

- **Indicator: Amount of area in each seral stage at present and key points in time**

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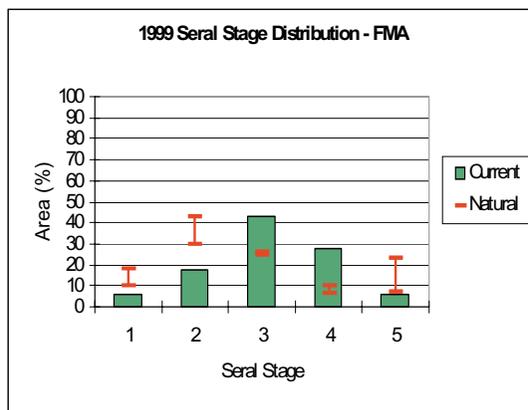
**Status:** When the current and projected seral stage distributions are compared (see graph), the 'Old', 'Overmature' and 'Mature' targets have been met. The other seral stages are generally within, or very close to, their natural disturbance regimes.

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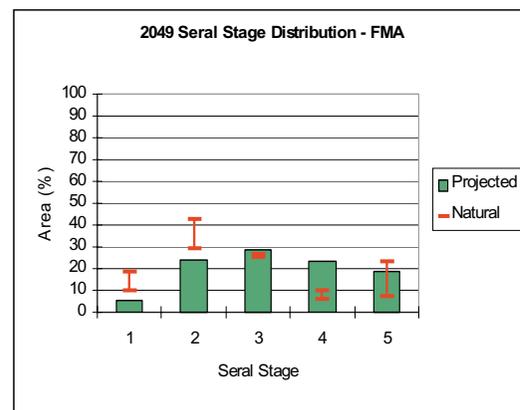
Seral stage distribution is important for conservation of biodiversity because it “enables timber harvest to be planned so as to maintain a full range of successional habitat for wildlife and ecosystem types over the long term.” The target seral stage distribution is one that approximates the expected distribution created by natural disturbance regimes (i.e. fire).

The natural disturbance regime is based on historic fire return interval data and is represented by the red 'I' line on the following graphs. The green bars indicate the current or expected amount of area in each seral stage (stages 1-5).

Seral Stage distributions for 1999 (baseline data) and five key points in time (10,20,50,100 and 200 years) are projected through the modelling process used in calculating the cut for the DFMP. The 50 year projection below illustrates the change through time.



**Baseline - (1999)**



**Projected to 2049**

**Seral stage legend: 1 = pioneer, 2 = Young, 3 = mature, 4 = overmature, 5 = old**

## 1B - SPECIES DIVERSITY

### ***Goal: Minimize impacts on wildlife species population abundance***

- ***Indicators: 1) Amount of Canfor license of Occupation (LOC) road access into the Caribou Area that is gated. 2) Level of suitable habitat for species of special management concern. 3) To have an amphibian species represented as a species indicator to manage for. 3) Number of significant wildlife licks that are protected. 4) Presence of rare plants on the FMA area.***

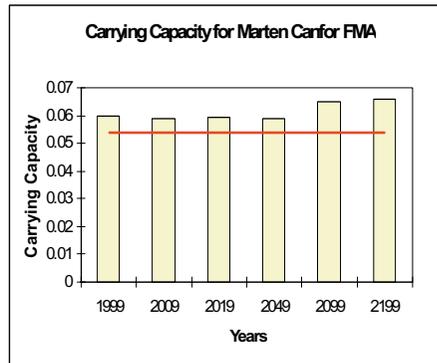
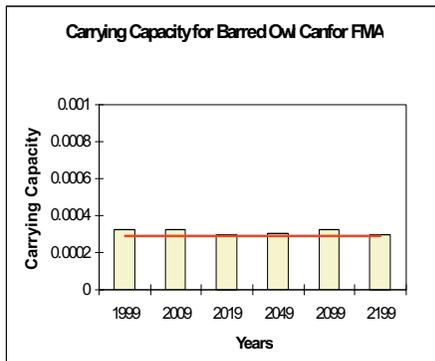
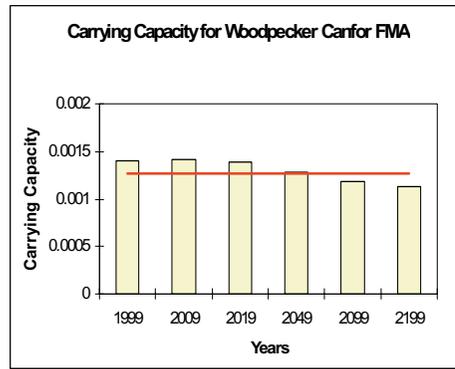
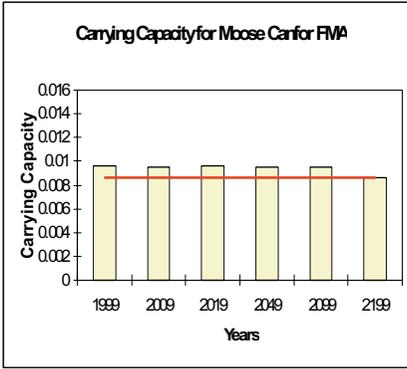
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***Status:*** *The status of the goal to minimize impacts on wildlife species population abundance is illustrated in the following five ways:*

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1. Canfor has installed gates on roads leading into the Caribou area to manage access.
  - There are currently 3 gates in place along bridges to control access into the Caribou area.
  - New road construction to cross the Deep Valley river within the Caribou area is currently occurring, however, the road is gated further to the north. In addition, to meet the requirement of no new long term access, the bridge will only be in place during the winter months and will be removed at the completion of the haul season on an annual basis for the next 15 years.
2. In consultation with members from the Forest Ecosystem Management Task Force, Canfor and the Forest Management Advisory Committee (FMAC), the following selection of seven indicator species were made: moose, pine marten, pileated woodpecker, barred owl, woodland caribou, bull trout, and trumpeter swan. The first four species were selected for habitat suitability index (HSI) modeling (see charts on the next page) and the last three species are to be managed by habitat constraint modelling.
  - The DFMP advances a coarse filter approach to forest management that maintains forests and wildlife habitat across the landscape. Coarse filter management is defined by Dunster and Dunster (1996)<sup>1</sup> as being “*conservation of land areas and representative habitats with the assumption that the needs of all associated species, communities, environments, and ecological processes will be met.*”
  - The carrying capacity for all species modelled under HSI remain above the acceptable variance (red line) except for pileated woodpecker for the periods 2099 and 2199. It is proposed that this is due to snag tree availability and Canfor is currently collecting additional data to verify the model results.

1. Dunster and Dunster, 1996. Dictionary of Resource Management. University of British Columbia Press, Vancouver, British Columbia.



The species managed under habitat constraint modelling – bull trout, caribou and trumpeter swan are all meeting their defined targets as stated in the SFMP.

- **Bull trout habitat** is managed by reducing the amount of timber harvested in bull trout watersheds within the H60 area. [for a further explanation of the H60 and Canfor’s approach to minimizing effect of harvesting in watersheds, see Goal on page 28]
  - The 2002 watershed analysis calculation has not been carried out yet.
- **Caribou habitat** is managed by habitat constraint modelling. The following targets were established:
  - Maximum of 20% of the area to be in younger age classes.
  - At least 20% of the area in old seral stage

A 5% variance in any given time period is considered acceptable for both targets. Canfor also continues to participate on the West Central Alberta Caribou Standing Committee, which is comprised of representatives from all resource sectors and is involved in many caribou research projects (see also critical element 6F on page 47).

Currently 13% of the area is in young seral stage (meets target) and only 10% in the old seral stage.

Percentage of pioneer/young and old seral stages in the Caribou Area		
Year	Pioneer/young (%)	Old (%)
1999	13	10
2009	18	11
2019	22	15
2049	24	32
2099	24	38
2199	25	42

- Although the amount of land in old seral stage within the Caribou Area is currently below the 20% level specified in the SFMP, no constraint was applied to these stands. Early model runs indicated, and subsequent analysis confirmed, that the old seral class could support some harvesting without delaying the time that it takes to recover to the lower limit of the SFMP prescribed rate (15%). By 2021, the 20% old seral requirement will be achieved.
  - **Trumpeter Swan habitat** is managed by identifying waterbodies supporting trumpeter swans and maintaining a 200 meter no-harvest buffer to protect nesting sites.
    - There are approximately 45 waterbodies identified as having nesting sites for the trumpeter swan. In the 2002 Annual Operating Plan, one of these waterbodies were within the planning area and the appropriate buffer of 200 meters was applied.
    - No new sites have been identified.
3. The FMAC requested that in addition to the species listed above, an amphibian species be selected as an indicator species.
- Canfor is contributing to the Provincial Biodiversity Monitoring Program which includes amphibians. As information becomes available from this program, relevant components will be applied to Canfor's operations. The advisory committee supported this approach.
4. Wildlife licks receive a 100 meter no harvest buffer.
- There are 209 wildlife zones identified, representing 1,265 ha (0.2% of the FMA area). All wildlife licks are included in these wildlife zones and not distinguished as a separate identity. Reclassification of these wildlife zones into more definable attributes, such as wildlife licks, nest sites, etc is currently being undertaken.
5. A program which enables staff to predict occurrences of rare plants within the FMA area has been completed. Canfor will be training staff and utilizing a rare plant identification manual to aid in plant identification.
- Grande Prairie staff and contractors have received training in rare plant identification and reporting procedures in spring of 2001.
  - A book entitled "Rare Vascular Plants of Alberta" was distributed to all Canfor field staff in May 2002.
  - This identification and reporting procedure will be incorporated into the EMS Planning Environmental program by Fall 2002 and updated as required. New Staff will be trained in accordance with this documented procedure.

## 1C - GENETIC DIVERSITY

### ***Goal: To conserve genetic diversity of tree species***

- ***Indicators: 1) Number of unrelated trees (seed collected from different parent trees) in the seed orchard breeding program. 2) Amount of area planted with bulk seed (seed from the FMA, not from the seed orchard program). 3) Number of mother trees represented in the bulk seed collections.***

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***Status:*** Canfor is in the early stages of utilizing a tree improvement orchard to grow seedlings from genetically superior trees found within the FMA area. To do this, a breeding program for pine and spruce has been established in partnership with Canfor, Weyerhaeuser, ANC (pine only) and the Alberta Government.

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1. In order to maintain a sufficient number of unrelated trees, an objective of having 300-600 different white spruce parents in the orchard breeding program was established. In 1998, there were 218 parent trees in the White Spruce breeding program, therefore a further 140 selections were planned to improve the genetic coverage and broaden the genetic base; 70 trees were the responsibility of Canfor and the remaining 70 from one of the other partners.
  - In 1999, a sufficient cone crop enabled collection from an additional 30 trees.
  - In 2001, a sufficient cone crop enabled a further collection of 40 trees.
    - This completed Canfor's commitment.
2. As orchard seed stock becomes available, the goal is to use approximately 70% orchard stock and 30% bulk seed for our planting program. This goal should be achieved within 3 to 5 years as orchard trees start to produce more cones. It should be noted that currently only the pine is available as orchard stock.
  - For the 2002 planting program, 33% of our pine came from orchard seed; Pine represents about 18% of our entire planting program. Orchard pine seed represents about 6% of our entire planting program.
3. The bulk seed collection consists of seed from the FMA area, not those grown in the orchard. In order to have a consistent supply of bulk seed, additional black spruce seed was needed.
  - In the summer and fall of 2001, cones from approximately 1,200 black spruce trees were picked for seed from within the FMA area.



Collection of cones in this photograph is being done using a helicopter and a cone rake. The cone rake is placed over the upper branches of the trees and rakes cones into a basket.

**Goal: To Maintain conditions that do not negatively impact the genetic diversity of wildlife species**

- *Indicator: landscape structure indices are met.*

*Status: At the landscape level, there are a number of important factors (indices) relating to the conservation of genetic diversity of wildlife species. Canfor has chosen 5 indices to monitor landscape structure and is generally meeting the established targets as discussed below.*

By maintaining a range of cutblock sizes, shapes and ages (landscape structure), suitable habitat conditions are maintained for a wide range of species and therefore it is assumed that genetic diversity is not negatively impacted. Landscape composition and spatial configuration define landscape structure. Composition is generally described by seral stage distribution (habitat type) and patch size distribution (habitat size). Configuration is represented by fragmentation, connectivity and patch shape. Each of these 5 indices has an acceptable variance by which progress is measured.

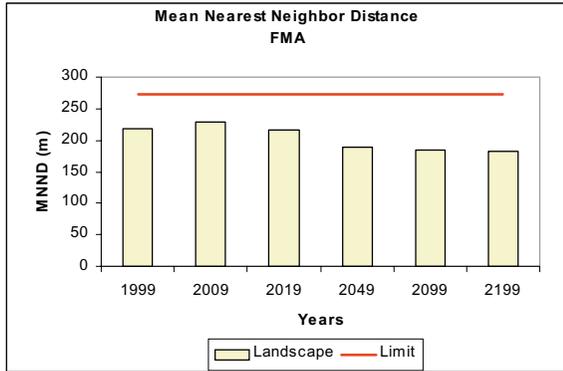
The targets and acceptable variance for landscape structure indices are illustrated in the following table:

Indices	Spatial Property	Target	Acceptable Variance	Met Target Over Planning Period
Seral stage distribution	Seral stage distribution	Distribution that approximates expected distribution created by natural disturbances	To be within natural range of variation as represented by variant bar on the graph (see Criteria 1a - Ecosystem Diversity on page 11)	Generally
Patch Size	Aggregated Patch Size	Distribution that approximates expected distribution created by natural disturbances	To be within natural range of variation as represented by variant bar on the graph	Generally
Fragmentation	Mean Patch Size (MPS)	1999 MPS	MPS will not fall below 25% of current (1999) MPS for FMA area	Yes
Connectivity	Mean Nearest Neighbor Distance (MNND)	1999 MNND	MNND will not exceed 25% of current (1999) MNND for the FMA area	Yes
Patch Shape	Average Weighted Mean Shape Index (AWMSI)	1999 AWMSI	Will not fall below 2 times current (1999) AWMSI for the FMA area	Yes

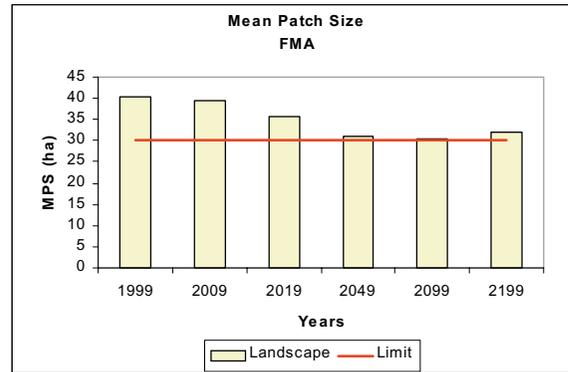
Canfor's performance in meeting the landscape targets is illustrated by the following graphs (see also seral stages in Criteria 1A on page 11). Canfor is generally meeting the targets for the planning horizon. The indices will continue to be monitored and reported on at key points in time.

# Current and Projected Landscape Structure Progress

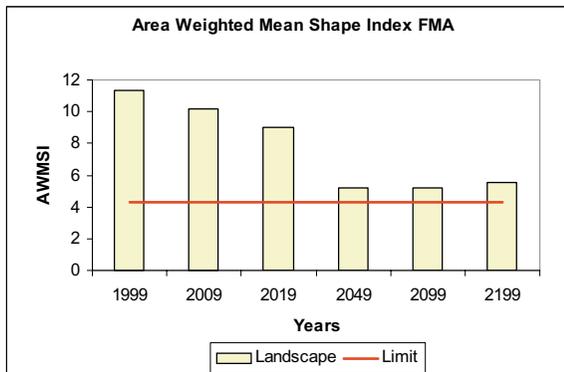
The following graphs demonstrate the anticipated progress in meeting landscape targets:



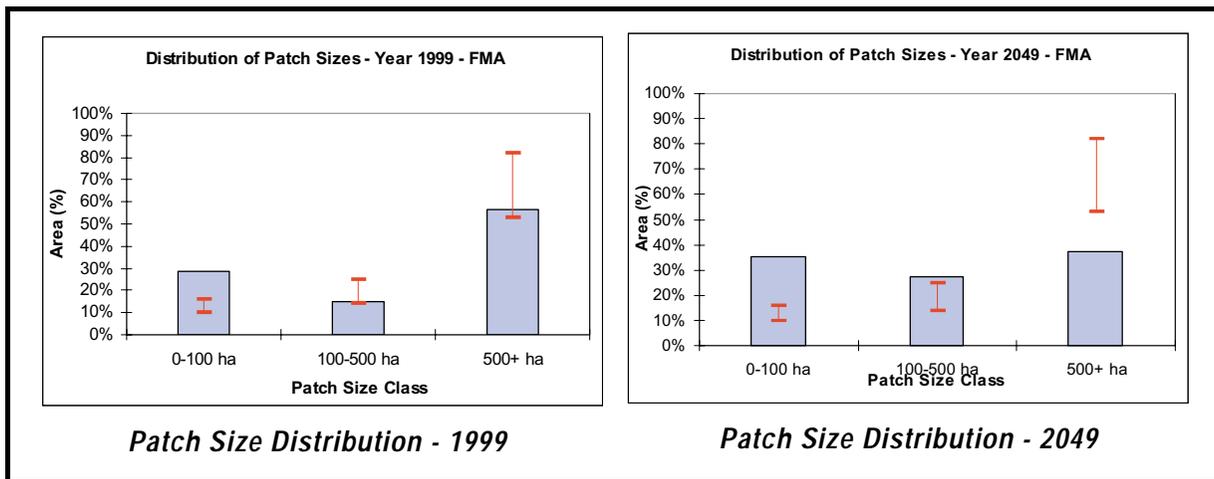
**Connectivity**



**Fragmentation**



**Patch Shape**



**Patch Size Distribution - 1999**

**Patch Size Distribution - 2049**

## CRITERIA 2 - FOREST ECOSYSTEM CONDITION AND PRODUCTIVITY

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### 2A - ECOSYSTEM HEALTH

***Goal: To conserve Forest Health***

- *Indicator: Number of, and area impacted by, fire, insect, disease and windfall*
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*Status: There have been no significant fire, windfall, or coniferous insect & disease events in the past year. However, some occurrences of tent caterpillar and the large aspen tortrix have caused severe defoliation of the aspen.*

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Canfor works with Alberta Sustainable Resource Development (ASRD) during periods of high fire hazard by providing equipment and people on standby. As well, all areas where top piles were burnt during November to April are infrared scanned for hotspots in April.

- Scanning usually occurs in April, however, due to weather limitations, the scanning was delayed until May and June 2002. No hot spots were detected.

Canfor is currently working on a proactive procedure to address windfall and mitigate its effect during operational practices.

- An observational approach to windthrow assessment during field operations has been adopted. As windfall is identified, an assessment will be made to determine if a salvage plan is required.
- During the 2001 timber season, one block was harvested that was identified as having windfall.
- For the 2002 harvest season, there have been no windfall patches identified, however, another aerial assessment will be scheduled this fall, as some significant wind storms occurred during the summer.

Canfor keeps abreast of insect and disease populations in Alberta through the Annual Report of Forest Health and by attending provincial meetings as well as participating in an industry funded insect monitoring pilot project.

- The mountain pine beetle, which is a problem in BC, is being monitored as it appears to be moving towards Alberta.
- The aspen defoliation from tent caterpillar and the large aspen tortrix is being monitored on an annual basis.

## 2B - ECOSYSTEM RESILIENCE

**Goal: To sustain the capability of ecosystems to recover from both natural and human-caused disturbances**

- **Indicators: 1) The amount of area in the Regenerated Yield Group. 2) Timeframe for treating (via reforestation) harvested areas (within 18 months of end of timber year).**

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**Status:** All yield groups (similar stand types) are reforested according to a predefined strategy in the DFMP. The reforestation of these yield groups are balanced across the FMA, so that the amount of area in each yield group remains the same.

Canfor regenerates 100% of harvested areas within 18 months of the end of the timber year (April 30) and since 1998 have improved upon this timeframe. This objective of 18 months will be reviewed and the timeframe adjusted to more accurately reflect field results.

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1. As per the Detailed Forest Management Plan, the reforestation strategy must follow certain rules to reforest the landbase as per the predefined yield groups.
  - Each of the 17 predefined yield groups is assigned to one of four strata; Deciduous (D), Deciduous/Coniferous (DC), Conifer/Deciduous (CD) or Coniferous (C) based on species composition. The total area harvested in each yield group is then calculated. Based on the yield group designation, the area harvested in each of the four strata are balanced to +/- 5% and individual yield groups to +/- 10%. Then, each cutblock, or a portion of cutblock, is assigned to a given strata. In some cases, a mixedwood block (DC or CD) is changed to a pure D. This strategy allows small patches of strata to be switched and managed within a larger area strata as long as equal areas of those strata are reforested and balanced.
2. Regulations state that regeneration must occur within 24 months; our commitment to 18 months has been met and improved upon. Canfor, Grande Prairie Operations, plants approximately 4.5 million trees each year. (see historical statistics graph on page 7).
  - The following table shows the number of months, on average, since the end of the timber year that reforestation treatment has actually occurred over the past few years. In all cases, blocks that have been harvested in one season are reforested that summer.

<b>Regeneration Delay Table</b>	
<b>Timber Year</b>	<b>Approximate time from end of timber year (Apr 30) to Reforestation Treatment</b>
1998/99	2.9 months
1999/00	3 months
2000/01	2.9 months
2001/02	3 months
<b>Average</b>	<b>2.95 months</b>

## 2C - ECOSYSTEM PRODUCTIVITY

### ***Goal: To maintain ecosystem productivity***

- ***Indicators: 1) Maintaining wildlife habitat. 2) Measurement of tree growth (site index) based on yield curves.***

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***Status: Two significant considerations important for maintaining ecosystem productivity have been undertaken:***

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1. Maintaining wildlife habitat, (described in Criteria 1B on page 12).
2. Site index is a common measure of the overall productivity of forested ecosystems (determined through tree growth). This index is commonly referred to as the predicted height for a specific tree species at a given breast height age (1.3 m). The measurement of tree growth is directly related to the productivity of the site and therefore, tree growth is a general indication of overall site productivity. Measurement and tracking of tree growth over time is referred to as “Growth and Yield” and it is an important aspect of Canfor’s Forest Management Planning. This ensures long-term maintenance of coniferous, deciduous and mixwood forest types on the forested landbase. Establishment of Permanent Sample Plots (PSPs) is the means by which the same trees are consistently measured over time to track growth rates. The table below illustrates the number of PSP plots maintained and remeasured within the 2001/02 timber year in the FMA area.

<b>Permanent Sample Plots Within the FMA Area</b>		
<b><i>Type of Permanent Sample Plot</i></b>	<b><i>Number of Plots Established Y-T-D</i></b>	<b><i># of Plots Remeasured in 2001/02 Timber Year</i></b>
Timber Inventory	839	137
Foothills Growth and Yield Association	6	6
NIVMA <sup>1</sup>	20	7
WESBOGY <sup>2</sup>	2	2
<b>Total</b>	<b>867</b>	<b>152</b>
1. Northern Interior Vegetation Management Association 2. Western Boreal Growth and Yield Cooperative		

## CRITERIA 3 - SOIL AND WATER RESOURCES

### 3A - PHYSICAL ENVIRONMENTS

**Goal: To minimize loss of landbase**

- **Indicators:** 1) Amount of permanent road (LOC) constructed by Canfor within the FMA area. 2) Amount of area lost to other industry activities.

**Status:** Canfor limits the amount of its permanent (LOC) road that is built and actively works with the energy sector in promoting shared access through road use agreements and joint development of new access.

1. Canfor will not exceed 2% withdrawal of the productive forested landbase from their own roads.

2% withdrawal of productive forest landbase would equal 5,000 km of roads. Between 1999 - 2001 only 12.0 km of LOC roads were constructed.

Canfor Permanent LOC Road Built Within the FMA Area		
Year	Road Built (Km)	Area (ha)
1999	0	0
2000	12.0 km	24 ha
2001	0	0

2. Canfor actively works with the energy sector in sharing access through road use agreements and utilizing existing seismic lines as much as possible for new road construction. In addition, Canfor works with the energy sector in jointly developing new road access into common work areas.

- Examples of joint road access development include 5.2 km of road in Twp 61-Rge2-W6M with Burlington Resources that accessed their wellsite and our harvesting operations.
- Numerous examples exist where the energy sector has consulted Canfor and used existing bush roads to access areas as opposed to building new road.

In addition, land withdrawals from the energy sector affect the landbase available for timber harvesting and other uses. The amount of area that is withdrawn on an annual basis from the FMA area is monitored and illustrated in the table below.

Period Ending Dec. 31	Wellsites, pipelines, power lines, roads		Seismic		Total Area (ha)
	Number of Dispositions	Area Withdrawn	Number of Programs	Area Withdrawn	
1994	176	545	23	219	764
1995	123	415	36	697	1,112
1996	154	392	50	400	792
1997	203	632	35	238	870
1998	168	648	26	386	1,034
1999	147	310	21	245	555
2000	194	780	24	139	726
2001	138	445	17	48	493

***Goal: To protect the natural states and processes of rare physical environments***

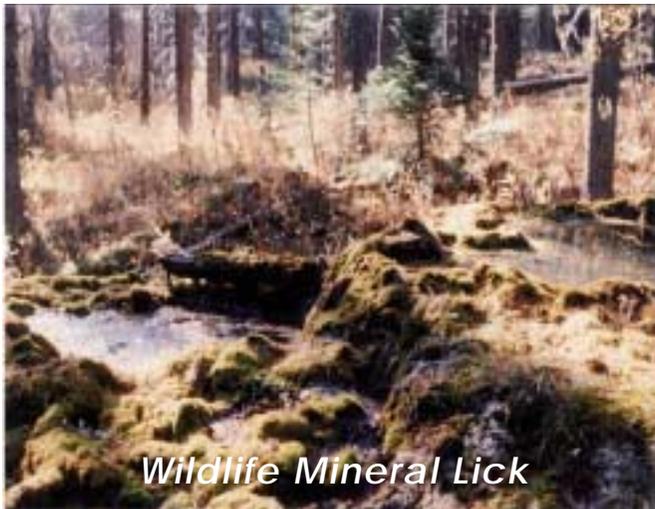
- *Indicator: Amount of area of lands excluded from Harvest.*

---

*Status: Currently this goal is being met. Three objectives were developed to monitor our progress in protecting rare physical environments.*

---

1. Rare physical environments are protected as stated in Criteria 1A, and will always remain in the landbase in conjunction with managed areas.
2. Wildlife mineral licks are protected as stated in Criteria 1B.
3. Natural grasslands are identified and no afforestation efforts (conversion of grasslands to treed area) will be conducted.
  - A query of the database in July 2002 shows that 0.0012 ha of grasslands were afforested within one block of 8.8 ha (approximately 0.013% of the block area). This is insignificant.



## 3B - SOIL RESOURCES

### ***Goal: To minimize impact on soil productivity***

- ***Indicators: 1) measurement of site quality (site index) based on ecological type, 2) amount of Coarse Woody Debris on site, post harvesting, and 3) measurement of site disturbance.***

---

***Status: Operations are conducted to minimize impacts on soil productivity. Three objectives were developed to demonstrate progress towards improving soil productivity.***

---

1. To aid in the development of site specific forest management, a model to predict site quality / site index (a direct measure of soil productivity) has been developed. The model requires evaluation and testing to determine its operational use (to be completed by 2005).
2. A Coarse Woody Debris (CWD) survey was conducted during the summer of 2001 for the first time to determine the amount of CWD remaining after harvest. Pre-harvesting data has also been collected. CWD is an important contributor of nutrients to the soil, and contributes positively to soil productivity. Over the next few years the results of pre and post harvesting levels of CWD will be compared to determine if post-harvest levels are sufficient. Below is a brief summary of the post harvest surveys conducted during the summer of 2001. (see also Criteria 4A on page 29).

Area	Types of CWD	Volume
Pure conifer (90% +) sites	Standing dead, undersized stems, rotten logs	60 m <sup>3</sup> /ha of CWD left on site.
Mixwood sites – aspen harvested	Branches, older rotten logs, live and dead standing.	45 m <sup>3</sup> /ha of CWD left on site.
Mixwood sites – aspen not harvested	Old rotten logs, undersized pieces, branches.	105 m <sup>3</sup> /ha of CWD left on site.

- The results from the CWD survey for 2002 are not yet available.

3. Harvested sites are monitored so as not to exceed Forest Soil Conservation Guidelines of 2% of the block area in ruts and 5% in roads. Ruts are monitored during on site visits and operations cease during non-frost periods if rutting occurs. On a block by block basis, the 5% in-road guideline can be exceeded if :

- The block is small (generally <10 ha),
- The block is narrow in width,
- The terrain is quite steep (>20% slopes), or
- Additional decking room and truck turnarounds are needed.

Inspections from **2001/2002** season have shown that there have been no instances of blocks exceeding the rutting guidelines.

Road length allowances are indicated on all block maps to give contractors guidance when constructing roads. The following are the “percent of block area in road” results from the 2001/2002 season.

Percent of Block area in Roads Results (2001/02 harvest season)					
% of Block Area in Roads FMA average	Total number of blocks harvested	Total # of blocks exceeding 5% guideline	Blocks less than 10 ha in size exceeding the 5% guideline	Blocks with Steep terrain (>20% slope) exceeding the 5% guideline	Comments
2.6% (Range 0.0% -9.2%)	134	22	17	5	<b>Acceptable</b> - The data shows that the blocks that exceed the 5% guideline are either small in area or have steep terrain.

**Goal: To minimize Soil Erosion**

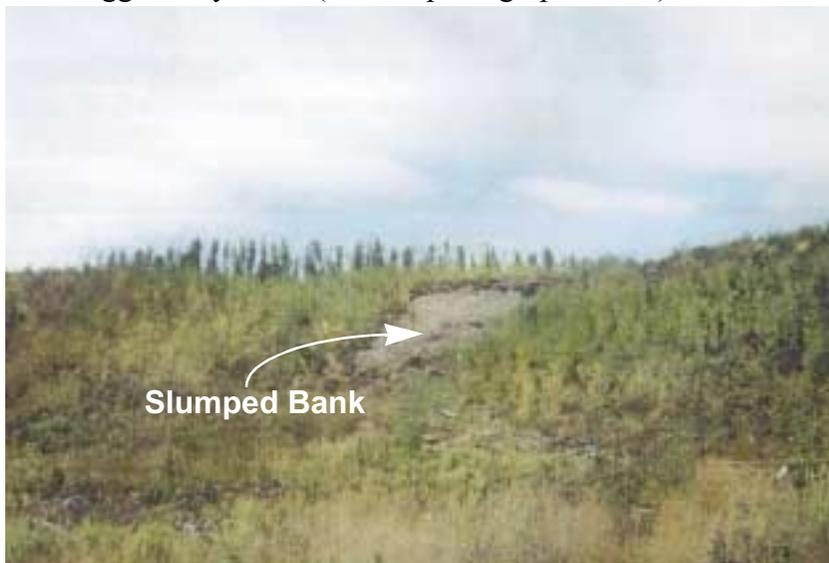
- **Indicators:** 1) Occurance of slumping caused by Road Construction. 2) Number of locations that have slumped on sensitgive or steep slopes due to harvesting.

---

**Status:** Two objectives relating to achieving zero slumping events on road and harvested areas were developed. Results for 2001/2002 inspections indicate that roads and harvested areas are not causing significant erosion problems.

---

1. Annual detailed road inspections are conducted and tracked in a database that schedules any repairs required.
  - A slump on the Wapiti haul road (4 or 5 years old) along the banks of the Wapiti River is presently stable and is being monitored.
  - A slump adjacent to a class 2 road in Twp 59 Rge 5 W6M (3 years old) is being monitored.
    - A qualified professional visited the site in September 2001 and provided advice on how to mitigate the effects of the slump. An action plan has been developed and is being followed.
2. All harvested areas are inspected aerially for clearance about 3 years after harvesting.
  - One slump in Twp 62-Rge 27-W5M - block 73067 was found that did not appear to be triggered by water (See the photograph below).



A qualified professional was consulted and has visited the site (Sept 2001). Mitigative plans were developed that included grass seeding and monitoring.

- During an inspection this spring, it was noted that the area had grassed in naturally, but additional grass seed was added to help stablize the area. The area will be re-inspected next summer to determine if additional grass seeding is required.

### 3C - WATER RESOURCES

#### ***Goal: To conserve water quality and quantity***

- ***Indicators: 1) Amount of siltation caused by road construction in forestry operations. 2) Response to identified problems regarding siltation. 3) Amount of forest cover (buffers) along watercourses (in the watershed. 4) Number of excursions of herbicide.***

---

***Status: Objectives have been developed to address stream siltation, watercourse buffers and protecting watercourses from herbicide excursions.***

---

1. To assess whether road construction has an effect on stream siltation, a sampling program is currently being implemented.
  - All stream crossings are being ranked as to the risk of their contribution to stream siltation. Once the ranking is completed (scheduled for August 2002), all high risk stream crossings will be sampled for stream siltation.
  - The next step is to conduct a literature search on similar type of research programs. This will direct any future research that gets conducted.
2. In addition, any siltation events found during annual road maintenance inspections are tracked and mitigative efforts are scheduled.
  - In 2001, approximately 400 km of road was inspected and repair work was schedule as needed.
3. All permanent streams receive a 30 or 60 meter no-harvest buffer depending on stream size. These areas are removed from the Annual Allowable Cut calculation as a net down on productive landbase. Smaller, intermittent streams also receive buffers depending on the characteristics of the watercourse. The buffer ranges from a 5 meter machine free zone to a 30 meter buffer of vegetation and trees. Topography, stream type and stream side vegetation play a role in this decision.
  - Currently, there are 40,000 ha of forested landbase (6%) allocated as watercourse buffers.



The right-center area of this photograph illustrates a 30 meter buffer running parallel to the stream.

- The common practice is to harvest along buffers and sensitive sites during daylight hours to minimize excursions.
- No buffer excursions (trespasses) occurred during the 2001/2002 logging season

4. During the aerial herbicide spray program, all creeks are buffered out to alert the pilots of the stream and avoid spraying in these areas.
  - During a flight in July 2002 to check on the results of the 2001 spray program, one excursion of herbicide into an ephemeral draw was noted. The corrective action taken is to review the program with the helicopter pilots and to implement a half width swath to be left as a no spray zone. In previous years there have been no excursions of herbicides into watercourses since the aerial spray program began in 1998.

**Goal: To minimize the effect of forest cover removal on the water cycle (water yield).**

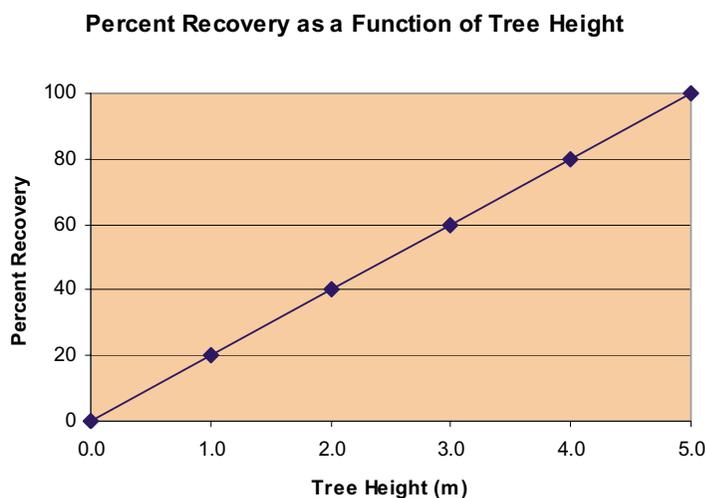
- **Indicators: Amount of forest cover removed and its spatial distribution within a defined watershed (H60).**

---

**Status:** Current harvesting plans meet the model objectives regarding ECA\* (see below). Further research of ECA and hydrological recovery is ongoing.

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Water yield is affected by vegetation growth removal. Water yield generally increases after timber harvest through a reduction in transpiration and precipitation interception losses.



Water yield increases can be directly modeled, but Equivalent Clear cut Area (ECA) is often used as a surrogate. ECA is a primary factor to be considered when evaluating the potential effect of historic and proposed forest harvesting on water yield. ECA is usually expressed as a percent of watershed area. The index (hydrological recovery) takes into account the initial percentage of crown removal and the recovery through regrowth of vegetation since the initial disturbance. The graph illustrates

Hydrological Recovery which refers to the return of the hydrology of an area to pre-disturbance conditions by the regenerating stand growth.

Watersheds are considered important areas to manage due to their function of regulating runoff rate and volume. Watershed areas above the 'H60' (the elevation above which 60% of the watershed lies) are considered as the source area for major snowmelt peak flows. Removal of the forest canopy also affects snow accumulation and melt processes, often resulting in an increase in snowpack accumulation and melt rates, thereby increasing runoff rate and volume.

- Canfor's management strategy is to harvest between 20-40% of the watershed above the "H60" to minimize the impact of harvesting in the source area. Previous practices allowed up to 50% removal of a watershed by area and volume.

In the DFMP, previous harvesting plans (1999 and earlier) were compared to the developed model to determine our compliance with the objectives. Of the 297 watersheds in the FMA area, only two harvested in the 1980s exceeded the ECA target. Future harvesting plans will be compared against the model at *key points in time* (10, 20,50,100 and 200 year intervals) to ensure the objectives are met.

## CRITERIA 4 - GLOBAL ECOLOGICAL CYCLES

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### 4A - WATER CARBON AND NITROGEN CYCLES

**Goal:** *To minimize disturbances that negatively impact carbon cycles.*

- **Indicators:** 1) Amount of area under forest cover 2) Number of, and amount of area impacted by fire, insect, disease and windfall. 3) Technology associated with  $CO_2$  and  $NO_x$

---

**Status:** *It is widely understood that forests and forest soils represent large reservoirs of carbon that have accumulated over thousands of years. Altering the amount of land that is forested has a notable impact on the global carbon cycle. It is important to have the forests continually growing (evergreen). The following initiatives have been undertaken:*

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1. Canfor's commitment to reforest the harvested areas within 18 months means that the trees are planted sooner, thereby contributing to maintenance of the carbon cycle by keeping the forest evergreen. (see Criteria 2B on page 19)



This photograph illustrates a healthy forest stand of young pine trees which has been recently stand-tended (thinned to provide optimum growing space)

2. By managing the losses caused by fire, insects, and blowdown, (see Criteria 2A on page 18) we are protecting the forests.
3. Not only do the trees affect the carbon cycle, but the equipment and technology that is utilized in forestry contributes to the amount of carbon emitted into the atmosphere.
  - Canfor commissioned a report that addresses alternate equipment and technology to help reduce carbon emissions. This information is currently being shared with all of our contractors to help encourage them to utilize low  $CO_2$  emission technology.

***Goal: Minimize disturbances that negatively impact the water cycle***

- *Indicator: Amount of forest cover removed and its spatial distribution within a defined watershed (H60).*

---

*Status: This goal is being managed under critical element 3C - Minimizing the effect of forest cover removal on the water cycle.*

---

Managing the amount of forest cover removed in defined watersheds aids in mitigating any negative effects on the water cycle.

***Goal: Minimize negative impacts to the nitrogen cycle***

- *Indicators: 1) Amount of coarse and fine woody debris on site, post-harvesting. 2) Presence of vascular plant species that can be used to indicate potential nitrogen levels.*

---

*Status: The presence of Coarse Woody Debris (CWD) is recognized as important to the nitrogen cycle of soil productivity. A survey of CWD left on harvested sites was conducted in summer 2001 (refer to Critical Element 3B on page 23). A study to determine the relationship between site nitrogen and types and abundance of plant species is now completed.*

---

1. Coarse and fine woody debris consists of stems, branches, tops, and leaves. The finer the material, the faster it decomposes and provides nutrients to the soil. Coarser material uses up nitrogen near the beginning of the decomposition process; whereas, it adds nitrogen to the soil when more advanced stages of decomposition are reached. The amount of available nitrogen in the soil is a key factor in soil productivity.



The background of this photograph illustrates a variety of snag trees left standing in a cutblock.

The foreground shows Coarse Woody Debris (CWD) that is intentionally left on a cutblock.

2. Certain plant species play an important role as nitrogen fixers. The SFMP committed to developing a model for predicting which vascular plants are indicators of potential nitrogen levels. A report was completed that documented which plants were indicators of nitrogen. Evaluation of this report indicates that plants can grow in a wide range of nitrogen levels. It is thought that soil sampling pre and post harvesting will provide a more absolute picture of site nitrogen. Further literature review is required before a final decision is made.

## 4B - FOREST UTILIZATION AND REJUVENATION

**Goal: Maintain harvest level related to the AAC as defined in the Detailed Forest Management Plan.**

- **Indicator: The amount harvested versus the approved AAC.**

---

**Status:** Operational harvest plans are evaluated to determine their level of compliance to the objectives developed within the Sustainable Forest Management Plan (SFMP). These SFMP objectives have been incorporated into the Detailed Forest Management Plan.

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Targets developed for seral stage, habitat constraints, etc., that were discussed earlier in this report are compared to the operational harvest plans to ensure targets are being achieved.

**Goal: To reforest every hectare harvested.**

- **Indicators: 1) The amount of harvested area in the regenerated yield group. 2) Total area harvested annually compared to total area reforested.**

---

**Status:** As earlier discussed in Criteria 2B, Canfor is committed to regenerating all harvested areas as per the regenerated yield groups as defined in the DFMP. In addition, all harvested sites are treated within 18 months after the end of the timber year. The current success rate for reforestation (restocking) is 98%, as determined by surveys conducted by year 8. (see results table below)

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Reforestation of harvested areas ensures the renewal of the forest. Results from the 2000 and 2001 regeneration surveys show that the reforestation success rate is approximately 98% (see the Regeneration Survey Results table below).

Regeneration Surveys Results					
Year	Number of Cutblocks Surveyed	Area Surveyed (ha)	Number of Cutblocks Satisfactorily Restocked (SR) (establishment standards)	Area of SR (ha)	Percent Successful
2000	140	3,224	130	3,115	96.6%
2001	126	2,676	123	2,618	97.8%

**Regeneration surveys are completed within 8 years after harvesting.**

Canfor does an internal check survey at year 4 to identify cutblock failures prior to the year 8 survey. Those numbers, however, are not reported.

**Goal: Maximize utilization of merchantable wood**

- **Indicators:** 1) Amount of merchantable wood (m<sup>3</sup>) left on site. 2) Amount of accessible merchantable industrial salvaged wood brought in on an annual basis.

*Status:* During harvesting, our target is to have less than 1% merchantable waste left on site. In the Summer 2001, the target was exceeded slightly (1.2%). Salvage wood (wood available from the harvesting of pipelines and wellsites from the energy sector activity) continues to be utilized.

1. The goal of maximum utilization implies that waste is minimized. Waste minimization is an important objective because more of the tree is used and, consequently, less standing timber needs to be harvested.



2001 survey results were above the target of 1%, therefore additional surveys were conducted in 2002. (in contrast to the regular plan of surveying every two years). The data from the 2002 surveys is not available at this time.

2. Salvaging wood on the FMA area is important as it assists Canfor to offset the loss of timber created by the withdrawal of landbase by other sectors. The table below illustrates salvage wood utilization over the previous six years. In 2001/2002 season, it was estimated that 162 loads were available as salvage. 166 loads were actually delivered. Therefore, we can say with a high degree of certainty that all of the available salvage timber was hauled into the sawmill.

Timber Year (May 1-April 30)	2001/ 2002	2000/ 2001	1999/ 2000*	1998/ 1999	1997/ 1998	1996/ 1997
Volume of Salvage wood (m <sup>3</sup> )	8,440	14,480	25,166*	10,277	11,494	8,044
*Volume indicated is higher than average due to the removal of forest cover for the Alliance pipeline project in the FMA area.						

## 4C - MAINTENANCE OF FOREST LANDBASE

### ***Goal: Maintain forests on the landbase***

- ***Indicators: 1) The amount of productive area Canfor utilizes for future permanent roads (LOCs). 2) The amount of area in each seral stage at key points in time. 3) The amount of area identified as low productive sites.***

---

***Status: Three objectives have been developed to aid in maintaining forests on the landbase.***

---

Some of the ways in which forests are maintained on the landbase are the same ways discussed in Criteria 3A. The goal is to minimize loss of landbase (i.e. minimize road construction, and promotion of shared access).

1. Canfor helps to minimize the loss of forests on the landbase by managing the amount of permanent roads it constructs.
  - The objective is to keep Canfor's permanent road construction to less than 2% of the landbase. Canfor can not control the amount of landbase lost as a result of other industrial activities, however, shared access is being actively promoted.
2. Maintenance of seral stages (age groups) as discussed under Criteria 1A (see page 11) also contributes to maintaining forests on the landbase.
3. All low productive yield groups (typically wet, unproductive black spruce sites which are yield group 13) are excluded from the Annual Allowable Cut calculation. During harvest planning, yield group 13 sites over one hectare within a cut block are designated as no-harvest zones, thereby leaving forests on the landbase.
  - All harvested areas from the 2001/02 timber year were compared to the inventory maps to determine if any yield group 13 areas were included in the harvested areas. The result shows 19 cutblocks (out of 134) overlapping into the yield group 13 areas. Of those 19 cutblocks, only one included a yield group 13 area that exceeded the one hectare objective amount. Further investigation into this area revealed that this area was misclassified and should have been a yield group 12 (blackspruce/larch productive).

**Goal: Productive lands are restored to productive status (excludes cutunits)**

- **Indicator: Amount of productive area regenerated (excluding cut units)**

---

*Status: Two objectives have been developed to aid in the return of previously productive land to productive status (excluding cutunits)*

---

1. Canfor works with the Alberta Sustainable Resource Development (ASRD) to identify areas withdrawn for oil and gas activity that are no longer required. These areas are reclaimed and added back into the FMA area compatible with current regulations. These areas are currently reclaimed with grass or other vegetative cover, which conflicts with seedling establishment. From a forestry perspective, it would be more efficient to bring those lands back into productive status prior to grass establishment. The table below illustrates the hectares of wellsites and access roads reforested during the period of 1999 to 2001 and projected for 2002.

Previously Productive Area Reforested	
Year	Hectares of Wellsites/roads Planted
1999	13 ha
2000	0
2001	22 ha
2002	175 ha (projected)



This oil lease is located within a forested area. Timber from this area was harvested when the lease was created and it will be reforested when the lease site is no longer needed for oil and/or gas production.

2. Productive burnt areas within the FMA area are reforested to ensure they return to productive status as soon as possible. A report of burned area is received and tracked in the Fire Control Plan. There have been a total of 186 fires during the last 16 years (1986-2001) impacting 189.6 hectares. A total of seventy-nine hectares of the burned area has been reforested. Fifty-nine hectares were within existing harvested areas and required reforestation to meet legal requirements. Twenty hectares from a pipeline fire have also been reforested. These areas are tracked separately from areas that were burned within harvested areas.

## CRITERIA 5 - BENEFITS TO SOCIETY

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### 5A - SUSTAINABLE HARVEST LEVELS

**Goal: Maintain sustainable harvest levels on the FMA area.**

- **Indicator: Long term harvest levels vs. actual extraction rates as per the DFMP.**
- 

**Status:** The Annual Allowable Cut (AAC) has been undercut for the past three timber years as part of the balancing needed for the new AAC calculation process.

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The proposed coniferous AAC for the FMA area is 640,000 m<sup>3</sup>/year based on the 2001 DFMP (submitted July 30 2001).

<b>AAC vs. Actual Extraction Rate by Timber Year</b>				
<b>1st Quadrant by Timber Year</b>	<b>Harvested (m<sup>3</sup>)</b>	<b>AAC (m<sup>3</sup>)</b>	<b>Variance (m<sup>3</sup>)</b>	<b>Variance (%)</b>
1999/00	524 553	640 000	115 447	-18%
2000/01	627 692	640 000	12 308	-1.9%
2001/02	542 827	640 000	97 173	-15%
2002/03 (projected)	634 714	640 000	5 286	-0.8%
2003/04 (projected)	634 714	640 000	5 286	-0.8%
<b>TOTAL</b>	<b>2 964 500</b>	<b>3 200 000</b>	<b>235 500</b>	<b>-7.35%</b>

The Detailed Forest Management Plan calculates an AAC that meets the long run sustained yield average (the amount of timber that can grow in a given year on the allocated landbase). The harvest rate can not exceed that volume over a 5 year cut control period. If the company overcuts in a given quadrant, the Minister may reduce the AAC during the subsequent quadrant by an amount equivalent to the entire overcut volume. When production is lower than the AAC (as indicated by a negative variance), the company may be required to submit a satisfactory program to the Minister making up the undercut in the subsequent quadrant. Typically, AACs are recalculated every 5 years, so any under or overcuts are adjusted for in the recalculation.

- Currently, Canfor is in year four of its 1st five year quadrant and is in an undercut situation, as indicated in the table above.

## 5B - COMMUNITY SHARED BENEFITS

**Goal: Local Communities and contractors have the opportunity to share in benefits such as jobs, contracts and services**

- **Indicators:** 1) Economic contribution that Canfor Grande Prairie Operations makes to local communities and contractors. 2) Meet the financial commitments as stated in Section 33 of our Forest Management Agreement 9900037.

**Status:** The contribution made to the local community will be maintained in relation to the prevailing economic climate. Canfor predominately hires local contractors, as long as they are competitive and competent in providing the required product or services.

1. Canfor contributes to the local economy in the form of wages and benefits, property taxes, purchases of goods and services and community support (see the table below).

- The large difference in total community contributions between 1999 and 2000 is attributable to the amount paid out to the provincial government in stumpage fees (timber dues). Stumpage fees are market dependent; when the price of lumber is high, stumpage fees increase, subsequently when lumber prices are low, so are the stumpage fees.
- The large difference in between 2000 and 2001 is due to the high prices for energy last year. The price fluctuations more than doubled our energy costs.

Key Contributions to the Local Community				
Contribution	Amount (\$Millions)			
	2001	2000	1999	1998
Property Taxes	0.8	0.7	0.6	0.6
Salary, Wages & Benefits	12.0	11.6	11.6	10.6
Contract Services Local <sup>1</sup>	25.3	24.8	26.8	32.3 (combined <sup>2</sup> )
Contract Services Non-local <sup>1</sup>	7.0	6.9	2.3	
Supplies	5.6	5.0	4.6	4.6
Energy	6.8	2.3	2.2	1.9
Stumpage (provincial government)	4.6	2.3	10.9	6.8
Community Donations	0.1	0.1	0.1	0.1
<b>Total</b>	<b>62.1</b>	<b>53.8</b>	<b>59.1</b>	<b>56.9</b>

*Notes:*

1. Canfor's accounting ledger currently does not distinguish between local and non-local contractors. However, an estimate of the local versus the non-local has been determined, based on preliminary data stratification.
2. Local plus non-local contract services.

Contract services are divided into local and non-local categories in order to assess the amount of contracted work being awarded to local contractors.

2. The signed Forest Management Agreement (FMA) with the Province dated May 1999, indicates that the company must upgrade the sawmill and submit a forestry project in accordance with Section 33 of the agreement. The progress of this commitment is detailed below:

- In the fall of 1998, \$3.2 million was spent on a high speed edger to improve log throughput in the sawmill. In spring 2000, \$22 million was spent on mill modernization. We have also established a partnership with Canadian Gas and Electric to build a Co-Generation energy plant on our site to utilize wood residue (bark, waste wood, etc.) that is currently burnt in our incinerator. Site Preparation work has begun and construction completion is expected by November 30, 2003. The Co-Generation plant will eliminate the need for the Olivine Incinerator, currently in use to burn wood residue from the Grande Prairie mill, and the teepee burner used at the Canfor sawmill in Hines Creek. These projects have been submitted to the Minister as fulfillment of Section 33. Once the project is complete, the Minister will determine if the commitments in Section 33 has been fulfilled.



Pictured to the left is the Grande Prairie mill site showing the current Olivine Incinerator (soon to be eliminated) and the construction site of the future Co-generation plant.

## 5C - FOREST BENEFITS TO PUBLIC

***Goal: Maintain the opportunity for others to use the forest for market and non-market goods.***

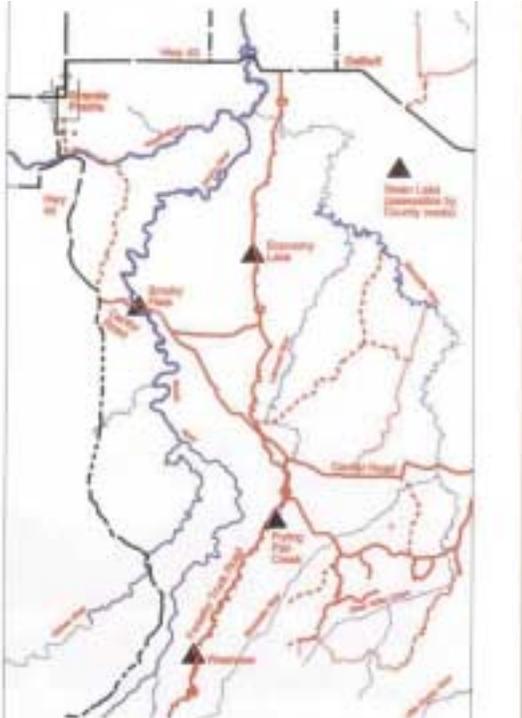
- ***Indicators: 1) Amount of Coniferous timber available to locals. 2) Recreational opportunities are available 3) Communication with Trappers and outfitters impacted by harvest operations.***

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***Status: The forest is currently managed for other uses beside timber and energy.***

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1. As part of the Forest Management Agreement, 0.5% of the AAC is made available for local use through the Local Timber Permit (LTP) program . In addition, up to 10,000 m<sup>3</sup> of wood is made available throught the Community Timber Use (CTU) program. Both these programs are administered through the Alberta Government and are subject to government regulations (for more information, contact the local Lands and Forest Division).
  - Current demand for community timber and local use is met by the Lands and Forest Division from timber available outside of the FMA area. During the past few years, an average of two local timber permits per year were issued within the FMA area totaling 150 m<sup>3</sup>/year (equivalent to 0.04% of the current AAC of 640,000 m<sup>3</sup>/year).
2. There is a need to fully understand the current and future recreational use of the FMA area. Canfor has committed to conduct a recreational assessment within 5 years of the approval of the DFMP.
  - Canfor currently manages 4 campgrounds within the FMA area and 1 campground outside the FMA area (Swan Lake – near Valleyview off Hwy 43)(See the map on page 39 for campground locations). A caretaker is hired annually to patrol the sites, keep them clean and ensure a reasonable supply of firewood is available. These campsites are currently provided free of charge. A brochure highlighting our campsites is available locally at the Tourism center, Rotary Club city tours (during summer months), Muskoseepi Park and at the Canfor Administration office.
    - In 2002, distribution of the broucher expanded to include the Valleyview Tourism Center, High PrairieTtourism, and Dunvegan Visitor Center (by Fairview).
3. Trappers and outfitters operating in the FMA area can be affected by our harvesting operations. Operational plans are communicated to both groups either through direct communication (trappers) or by sending out the 5 year general development plan maps (outfitters). Both groups get personal invitations to the Forestry Open House in which operational plans are available for input and discussion.



The map to the left shows the name and locations of the five campgrounds Canfor manages for public use



Canfor sponsored picnic at McLeod Flats (previously Smoky Flats) campground

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***Goal: To improve the value of the raw timber material from the FMA.***

- **Indicator:** Increase lumber recovery from the conifer timber resource during the milling process .

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*Status: Through the sawmill upgrades discussed in criteria 5B (see page 36), lumber recovery has been increased by 14%.*

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The increase in lumber recovery achieved by the recent sawmill upgrades means the same volume of logs going through the mill produces 14% more product. This is a significant improvement in the value of the raw logs.

## CRITERIA 6 - SOCIETY'S RESPONSIBILITY FOR SUSTAINABLE DEVELOPMENT

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### 6A - FOREST AND SOCIAL VALUES

***Goal: To be responsive to the social values identified by the FMAC and other publics.***

- ***Indicators: 1) Topics in current issues list (for FMAC) are addressed by the company to the committee's satisfaction. 2) Number of Canfor responses to written letters or public meeting issues.***

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***Status: The Forest Management Advisory Committee (FMAC) has been active since 1995 and was instrumental in the development of the goals and objectives for the Sustainable Forest Management Plan for CSA certification. These objectives were incorporated into the Detailed Forest Management Plan.***

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1. All concerns raised at the meetings are tracked in an "Issues List" which is reviewed annually to ensure we are meeting our commitments. This issue list was included into our Detailed Forest Management Plan.
2. All public concerns received at the office via written letters or phone calls are tracked in our incident tracking database to ensure that actions are completed.
  - Over the past year (May 01/01 to April 30/02), 11 comments have been received from the public either through phone calls or letters. Action items are documented to ensure that follow up is completed on each comment as discussed under this criteria. Comments range from requests for educational support to complaints involving certification. Below is a description of several comments received to date:
    - Three comments related to the certification (support for Forest Stewardship Council (FSC), Chinchaga Special Place support and a complaint against the CSA process)
    - Six comments related to our haul road (weeds on berm, traffic and dust)
    - One comments relating to Trapper compensation
    - One comment relating to educational support for the Scouts.

All comments have been responded to and addressed.

## 6B - ABORIGINAL AND TREATY RIGHTS

### ***Goal: Avoid infringement of treaty and Aboriginal rights***

- *Indicator: Amount of opportunity for input by Aboriginal peoples.*

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*Status: Canfor is providing opportunities for Aboriginal input.*

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The Sturgeon Lake Cree Nation (SLCN) and the Metis Nation Zone 6 are both active members of our Forest Management Advisory Committee (FMAC). This provides the committee a venue to provide input into our management and operational plans. In addition, separate meetings with both groups have been held to help develop a working relationship.

- Five meetings were held with SLCN during the timber year May 1 2001 to April 30 2002 and four meetings within the previous timber year.
- To date, one meeting was held with the Metis Nation Zone 6 (May 23, 2001) in which a general understanding of the Metis Nation organization was discussed.

## 6C - UNIQUE ABORIGINAL NEEDS

### ***Goal: Effective consultation with Aboriginals***

- *Indicator: Early consultation prior to decisions being made.*

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*Status: In addition to the forest management advisory committee process, we communicate our five year harvesting plan to all trappers to obtain their input regarding trapping areas. This is an area that we are continually working on.*

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- Canfor's Trappers Notification Program makes provisions for all trappers to be notified of harvesting plans within a five year planning horizon.
- We continue to conduct separate meetings with Aboriginal groups to discuss specific topics of working together.

***Goal: To be open to the development of partnerships and working arrangements with Aboriginals that are based on good, sound business practices and are mutually beneficial.***

- *Indicator: Employment and Business opportunities.*

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***Status: Canfor has entered into a number of business arrangements with Sturgeon Lake Cree Nation (SLCN)***

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The following initiatives have been undertaken in relation to developing business arrangements:

- A five year business plan with (SLCN) is currently being developed through a co-operative process.
- SLCN members have been employed by Canfor over the past few years performing mechanical stand tending operations as well as being involved with the backpack herbicide application program.
- The SLCN members are also trained as a fire response crew and act as a standby fire crew when working in the FMA area.
- On February 5, 2002 a joint letter of intent with Canfor, Ainsworth and SLCN was signed to pursue a timber harvesting contract. A business plan must be provided by SLCN by Oct 31, 2002 that will be reviewed by Canfor and Ainsworth.

***Goal: Respect special cultural and historic sites***

- *Indicators: Location of special cultural and historic sites.*

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***Status: Western Heritage Resource Ltd. (WHR) has completed the development of a heritage resources model to predict sites in the FMA area with a high potential for archeological finds.***

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The model was completed in April 2002, ready for use in the 2002 field season.

- A letter has been forwarded to the ACD (Alberta Community Development) outlining the model development process used. ACD has confirmed they are in agreement with the approach and feel the intent of the Historical Resource Act is being met. .
- Once Canfor identifies, through the use of the model, high potential sites associated with harvesting and site preparation plans, an archaeologist conducts annual field inspections and assists Canfor in preparing written reports in compliance with the Historical Resource Act. Once sites are identified, Canfor will follow the recommendations of the archeologist

## 6D - LOCAL STAKEHOLDER INPUT

***Goal: To proactively involve directly affected and local interested parties in the development of the decision making process***

- ***Indicator: Approved terms of reference for the FMAC.***
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***Status: The Forest Management Advisory Committee (FMAC) has been active since 1995 and involves local stakeholders in the decision making process.***

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The FMAC has a terms of reference document defining how the group will operate.

- The terms of reference document is reviewed annually in September by the FMAC to ensure they remain current.

## 6E - INFORMATION FLOW TO THE PUBLIC

***Goal: To provide information regarding forest management practices to the public.***

- ***Indicators: 1) A report on Canfor's forest management practices. 2) Copies of Canfor's operational and strategic plans to be available at the local libraries. 3) Amount of forest educational opportunities supported by Canfor. 4) Use of experts to provide information on forest ecosystem management to the FMAC.***

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***Status: Canfor has committed to a number of initiatives to keep the public informed of our management practices. Some of these are listed below:***

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1. The development of an Annual Public Report is a commitment made to meet the goal of communicating Canfor's practices to the public. The Annual Public Report will be a 4-6 page summary of operations and will function as an information handout for the general public.
2. Copies of the Annual Operating Plan and the Sustainable Forest Management Plan are provided to the local Public Libraries in Grande Prairie, DeBolt, Valleyview, Spirit River and Grande Cache.
3. A number of educational opportunities are participated in:
  1. Attend trade shows (forestry show (bi-ennially 1999, 2001, 2003, etc))
  2. Work with Grande Prairie Regional College to mentor students in the Forestry and Administrative Assistant programs.
  3. Co-ordinate and participate in the National Forestry Week "Walk through the Forest" event with kids from grades 4-6. This is an outdoor venue of 6 stations where students learn about tree identification, wildlife, insect infestations & tree diseases, tree measurements, planting of trees, logging and forest products. This event has been running since 1990 and is very popular with schools.
    - 2002 Walk through the forest was cancelled due to inclement weather.
  4. Field trips for the FMAC to view management practices in the field.
    - Field trip was scheduled for May 2002, however due to inclement weather, has been postponed until the fall (October 2002).
  5. Support of the Grande Prairie and Area Forest Educator. The Forest Educator has a teacher background and has attended FEESA (Friends of Environmental Education Society Association) workshops to learn about Forestry. As well she has familiarized herself with local mills and forest practices. She uses bias-balanced material from FEESA and does presentations to classrooms (about 140 classrooms a year) as well as takes students on hikes to experience the forest with hands-on learning. The Forest Educator also runs a hands-on Envirothon event for high school kids to learn about forestry, soils, water, oil & gas and wildlife.
  6. Assist the Forest Educator by having foresters share knowledge in the classrooms & field trips.



*Supporting Envirothon - a hands on learning competition for high school students*

*A field trip with FMAC members and the forest educator to look at stream crossings and bull trout habitat*



*One of Canfor's staff with a school group teaching them about tree measurements and identification*

***Goal: To obtain public input on forest management practices using an open, transparent and accountable process.***

- *Indicator: Amount of different public involvement opportunities incorporated into the Companies planning.*

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***Status: The company maintains a number of public input opportunities:***

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1. An active FMAC advisory group (refer to page 40 for additional information on the FMAC).
2. Annual Forestry Open House in Grande Prairie, Valleyview and Grande Cache in the spring to discuss the harvesting plans with the public and listen to any comments/concerns regarding the plans and provide appropriate responses.
  - The April 2002 open house had the following attendance
    - Grande Prairie - 11 people attended
    - Grande Cache - 15 people attended
    - Valleyview - 4 people attended
3. Annual trapper and outfitter notifications regarding our harvesting plans.
  - All trappers and outfitters receive a copy of the 5 year General Development Plan Map. Any comments received from the trappers are recorded on the notification sheet and usually dealt with that day. If there is an outstanding issue, it is recorded in the Incident Tracking System.
4. Every written letter and telephone call received is responded to and tracked in an incident tracking system database. These are reviewed annually to ensure follow-up and to identify any trends that may require further attention (see “6a - Forest and Social Values” on page 40).

## 6F - ADAPTIVE MANAGEMENT

***Goal: To use adaptive management to improve the knowledge regarding ecological processes and the natural historic and current disturbance patterns for each ecosystem, and to apply this knowledge to management of the resources within the FMA area.***

- *Indicator: The degree to which the actual field performance aligns with the DFMP.*

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***Status: Canfor is involved in a number of research programs in order to determine the degree to which our field performance aligns with our management plan objectives.***

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On-going research is important as it validates (or not) any assumptions we may have regarding how a forest ecosystem responds to different treatments. Approximately two million dollars is spent annually on various research initiatives within the FMA area.

Some significant research projects undertaken during the last few years include the following:

1. Caribou research initiatives through the West Central Caribou Standing Committee. These initiatives include:
  - Wolf predation studies,
  - Range monitoring (collaring of caribou),
  - Population dynamics,
  - Cumulative effects of resource development, and
  - Linear recovery (accelerating the reforestation of seismic lines in caribou areas).
2. Grizzly bear research - including:
  - Determining the response of landscape changes on grizzly bears, and
  - Determining ranges of grizzly bears.
3. The following reports were developed based on analysis of 1,400 inventory plots and through other available information:
  - Forest Productivity Evaluation (site quality),
  - Plant Resource Evaluation (plant occurrence on an ecosite level as well as rare plant modeling),
  - Ecosystem and Ecosite Evaluation (ecological classification of stands on an FMA basis), and
  - Soil Productivity Evaluation (analysis of soil characteristics).
  - Wildlife Habitat Evaluation

## Summary

Canfor's performance in a variety of aspects is constantly being assessed through audit processes. Over the past year (May 1, 2001 - April 30, 2002) we have undergone the following audits:

- An internal audit in June 2001 and February 2002.
- An independent third party periodic assessment audit on our certification systems (both ISO 14001 and CSA) in December 5, 2001.

*A complete re-certification audit for our ISO 14001 standard and CSA standard is scheduled for November 2002, with a summer field audit scheduled for August 2002.*

During audits, three (3) types of findings are possible:

- *Noncompliances* - a finding that we are doing something against government regulations
- *Nonconformances* - a finding that we are doing something against company commitments
- *Opportunities for Improvement* - a finding that shows a weakness in our systems that could potentially lead to a nonconformance or noncompliance.

A number of minor non-conformances and opportunities for improvement were identified. These included:

- The third party audit reported on one minor nonconformance and three opportunities for improvement, and
- The internal audit in February 2002 reported on 6 minor nonconformances and 13 opportunities for improvement. The June 2001 audit reported on 16 nonconformances and 14 opportunities for improvement. A large improvement in performance can be seen between these two audits.

The February 2002 internal audit was in preparation for the upcoming November 2002 external third party audit.

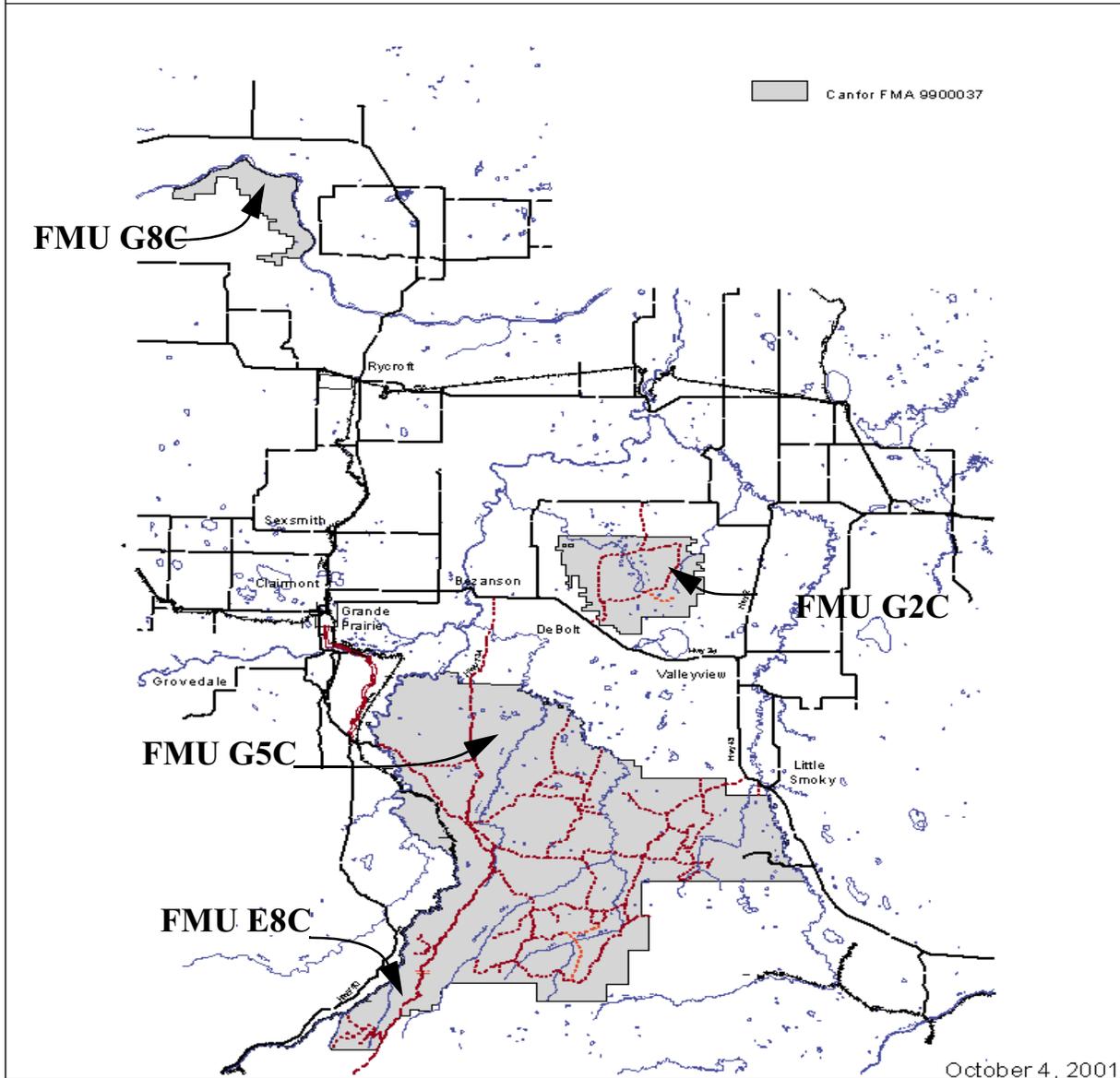
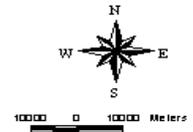
During the course of field operations (within the timber year - May 1/01 - April 30/02), Canfor received did not receive any penalties or warnings from the Alberta Sustainable Resource Development (ASRD). This is a favorable comparison to last year in which we received one penalty and four written warnings (see the December 2001 Annual Performance Monitoring report for details).

## Additional Information

For Additional information, visit Canfor's Website on the net at [www.canfor.com](http://www.canfor.com). All Canfor's SFM plans will be available on-line for public viewing by Sept 30 2002.

More detailed information is contained in the Detailed Forest Management Plan available at the Canfor office. Once this document receives approval, it will be available at the Grande Prairie Public Library and on Canfor's Website.

Please contact Chris Kreibom Quinn at 780-538-7738 or Dwight Weeks at 780-538-7745 if you have any questions.



Map detailing Forest Management Units (FMUs) which comprise Canfor's FMA area.