

CHAPTER 5 FOREST MANAGEMENT STRATEGIES

The implementation of the Goals and Objectives in Chapter 1 critically depends on the strategies to be used by ANC for governing their activities on the landbase. The commitments that are documented here come from four sources.

First, most of the strategies discussed in this Chapter are primarily determined by the Goals and Objectives listed in Chapter 1. Second, other commitments have arisen from discussions between ANC and Alberta Sustainable Development since June of 1999. Third, some of the commitments are standard ANC policy or come from established government guidelines for the management of the ecosystem components found in forest management agreement areas. Fourth, a number of strategies were developed in response to analysis of the output of the timber supply analysis and the future forecast modelling. All these strategies and commitments have been organized in this Chapter according to the Goals described in Chapter 1. We have also linked groups of strategies to specific Objectives in Chapter 1. Table 5.1 provides a cross reference for each of the objectives to the strategy sections in this Chapter as well as background information in Chapter 2, Chapter 3, and Chapter 4.

The monitoring commitments, presented here are not exhaustive. A complete monitoring program associated with this DFMP will be negotiated with Alberta Sustainable Resource Development after approval of the DFMP.

Introduction

ANC is committed to the use of sound, progressive forest management strategies to ensure the long-term wood supply required by the mill and the health of the lands under the Company's care. Extensive forest inventory and planning activities have been carried out since the signing of the Forest Management Agreement. All plans receive thorough review by regulatory agencies prior to implementation.

Alberta Newsprint is fundamentally committed to integrating harvesting and reforestation activities with other significant resource values. Public involvement is sought during the development of all major plans. Key areas of potential concern, such as wildlife, receive special study and funding by ANC to identify successful long-term options.

ANC Timber is fully committed to an adaptive management approach.

Definition Box

Adaptive Management

This is an approach to resource management that rigorously combines management, research, monitoring, and changing of existing practices so that credible information is gained and management activities are modified by experience.

Table 5.1 Cross reference of objectives to strategies and background information

Objective	Location of Strategy in Chapter 5	Location of Background Information
Objective 1.1: Maintain, both spatially and temporally, within the natural range of variability the relative percentage and extent of historical forest types, as measured by the extent, in area, of forest types, relative to the historical condition and total forest area.	5.1.1.1	2.3.3, 4.2
Objective 1.2: Assess the current condition and ensure the current condition is within or moves toward the natural range of variability as measured by percent and extent of area by forest type and age class.	5.1.1.1	2.3.3, 4.2
Objective 1.3: Maintain the integrity of the ecosystem by not exceeding critical thresholds for levels of fragmentation and connectedness of forest ecosystem components, as measured by the level of fragmentation and connectedness of forest ecosystem components.	5.1.1.2	2.3.4, 4.2.4
Objective 1.4: To maintain or decrease the number of known forest dependent wildlife species classified as extinct, threatened, endangered, rare or vulnerable relative to the total number of known dependent species, as measured by the available habitat.	5.1.2	2.3.5, 4.3
Objective 1.5: Ensure the populations of select species and species guilds are not put at risk, as measured by the availability of wildlife habitat and the change over time of habitat types.	5.1.2	4.3
Objective 1.6: Ensure that the number of known forest dependent species, as measured by the availability of habitat, that occupy only a small percentage of their former range does not increase.	5.1.2	4.3
Objective 1.7: Maintain regionally adapted genetic populations for commercial and endangered forest vegetation species, implemented by an insitu/exsitu genetic conservation strategy for commercial and endangered forest vegetation species.	5.1.4.1	2.3.2
Objective 2.1: Area and severity of insect attacks are maintained at rates appropriate to ensure other natural processes are not disrupted.	5.2.2.3	2.2.4.2
Objective 2.2: Area and severity of disease infestations are maintained at rates appropriate to ensure other natural processes are not disrupted.	5.2.2.3	2.2.4.2
Objective 2.3: Area and severity of fires are maintained at rates appropriate to ensure other natural processes are not disrupted.	5.2.2.1	2.2.4.1

Table 5.1 Continued.

Objective	Location of Strategy in Chapter 5	Location of Background Information
Objective 2.4:Ensure changes in crown transparency on a forest level do not reflect significant changes to forest health, as measured by the percentage coverage, by class.	5.2.1.1	—
Objective 2.5:Ensure the area and occurrence of exotic insect and disease species does not compromise natural ecological processes.	5.2.2.3	2.2.4.2
Objective 2.6:Identical to Objective 1.2	5.1.1.1	2.3.3, 4.2
Objective 2.7:The percentage of area successfully naturally regenerated and artificially regenerated will be 100% of all areas harvested within two years of harvest.	5.2.1.2	3.3.5
Objective 2.8:Not reduce, beyond the natural range of variability, the capacity of the forest to accumulate biomass by means of maintaining or increasing the mean annual increment by forest type and age class.	5.2.1.2, 5.2.1.3	3.5
Objective 2.9:Identical to Objective 1.6.	5.1.2	4.3
Objective 2.10:Maintain, and keep current, company forest inventories.	5.1.1.1	3.1
Objective 3.1:Minimize the percentage of harvested area having significant soil compaction, displacement, erosion, puddling, and loss of organic matter, as measured by the percentage of harvested area affected in these ways.	5.3.3	2.2.2
Objective 3.2:Minimize the area of forest converted to non-forest land uses (e.g., urbanization and industry).	5.2.3	—
Objective 3.3:Maintain water quality indices within acceptable levels for the Province of Alberta, as measured by water chemistry, turbidity, and other parameters.	5.3.2.1	—
Objective 3.4:Maintain natural trends and timing of events in stream flows from forest catchments.	5.3.2.2	2.2.3
Objective 3.5:Ensure changes in the distribution and abundance of aquatic fauna are within the range of natural variability, as measured by the potential effects of ANC's management activities on aquatic fauna habitat.	5.1.3	2.3.5.1
Objective 3.6:Implement policies and guidelines that provide for specific management practices to protect ecosystems from inappropriate practices. In particular, maintain or increase the percentage of area managed for soil and water protection.	5.3.2.1	2.2.3
Objective 3.7:Ensure the total FMA area has road construction and stream crossing guidelines in place.	5.3.1, 5.3.2.1	—

Table 5.1 Continued

Objective	Location of Strategy in Chapter 5	Location of Background Information
Objective 3.8: Ensure the hydrologic cycles are not affected or changed beyond the range of natural variability by forest management activities, measured by the amount of surface area of water within forested areas.	5.3.2.2	2.2.3
Objective 4.1: Ensure quadrant (5 year) removal of forest wood products does not exceed amount determined to be sustainable.	5.4.2	Chapter 3
Objective 4.2: Minimize the distribution of and changes in landbase not available for timber production.	5.2.3	3.4
Objective 4.3: All population trends, as measured by trends in habitat availability, of indicator animal species of economic importance will be maintained or increased.	5.1.2	2.3.5, 4.3
Objective 4.4: Ensure competitiveness of ANC by maintain returns on investments to allow increased R and D expenditures in forest products and processing technologies, even in the absence of government incentives.	5.4.4	—
Objective 4.5: ANC will contribute to the national economy by maintaining or increasing its employment in forest related sectors.	5.4.1	—
Objective 4.6: Maintain or increase the utilization of the forests for non-market goods and services, including forest land use for subsistence purposes.	5.4.3	2.4
Objective 4.7: Maintain opportunities for economic valued non-market goods and services.	5.4.3.3	2.4
Objective 4.8: Maintain availability and use of recreational opportunities.	5.4.3.1	2.4
Objective 5.1: Forest planning and management processes will consider and meet legal obligations with respect to duly established individual and group rights, including Aboriginals.	5.5.2	—
Objective 5.2: Protect unique or significant community (including Aboriginals), social, cultural, or spiritual sites.	5.5.1	2.4
Objective 5.3: Continue to provide areas of forest land available for subsistence purposes.	5.4.3.3, 5.5.1	2.4
Objective 5.4: Maintain or increase the diversity of forest use at the community level.	5.5.1	2.4
Objective 5.5: Provide opportunities for input to planning processes to communities and groups with stewardship or co management responsibilities.	5.5.2	—
Objective 5.6: Encourage public participation in the forest management process.	5.5.2	—

Table 5.1 Continued

Objective	Location of Strategy in Chapter 5	Location of Background Information
Objective 5.7: Invest in forest based research and development.	5.4.4	—
Objective 5.8: Contribute to public forestry education.	5.5.2	—
Objective 5.9: Participate in mutual learning mechanisms and processes.	5.5.2	—
Objective 5.10: Participate in the development of appropriate forest sector government policy, primarily at the Provincial level but also at the Federal level, where appropriate.	5.5.3	—
Objective 5.11: Ensure the participation of ANC in the defining and amending of all laws and regulations and policies pertaining to or impacting upon forest land management.	5.5.3	—

We believe adaptive management is the most responsible approach to sound forest management. Performance monitoring and analysis provide feedback that is used during the next round of management decisions. ANC considers this approach to be best suited to forest management activities due to the ever-changing environmental and regulatory conditions. This adaptive approach can be applied to all aspects of forest management, not just those related to fibre production. It can be used to protect wildlife, rare plants, recreational opportunities and so on.

ANC Timber Ltd. Annual and Stewardship Reports

Adaptive management is an integral component of forest management. Management activities are modified based on the experience gained from previous activities. Monitoring, reporting and the analysis of the monitor data provides feedback so that improvements in management can be made. Feedback results in changes to operational plans and activities as well as the forest management plan. Reporting on the results of performance monitoring provides a measure of accountability to the public on management effectiveness.

An annual performance report is used to record results in the preceding year. In addition, it tracks cumulative performance from the time the forest management plan is implemented. The annual report will be prepared and submitted to Alberta Sustainable Resource Development (ASRD) on August 1 of every year reporting on all relevant activities carried out between May 1 and April 30 of the preceding year.

The stewardship report is a more formal compilation of performance prepared and submitted every five years. In the Stewardship Report, ANC Timber will report on performance problems associated with the DFMP, even if those problems are beyond their control or mandated responsibilities. ASRD will work with ANC Timber in monitoring and reporting on external factors affecting DFMP performance. Performance successes will also be noted in this report. As part of the Timber Supply Analysis, sensitivity analysis may be used in the Stewardship Report to identify variables that may have a substantial effect on the results of the analysis.

Compliance with legislation, agreements and ground rules is not intended to be a critical part of this forest management plan performance monitoring. Company performance in these areas is handled in other ways (primarily through the Operating Ground Rules).

The following table outlines what things will be measured and reported on. The components indicated as "annual" under the "reporting period" column will be summarized for the preceding years activities. Every fifth year the components indicated as 5-year stewardship will be summarized for the preceding five-year period. In addition, all aspects of the report will be summarized and analyzed in the 5-year Stewardship Report for identification of necessary Management Strategy Amendments, based on identified trends and/or changes.

Table 5.2 Reporting Schedule for TSA Validations

TSA Validation Report	Description	Measure	Reporting Period	Calculation/Methodology
Annual and Periodic Harvest	Report by leading species for each yield strata.	Hectares	Annual	An annual report will include a summary listing the number of hectares cut by leading species for each yield strata by either digitizing aerial photos or mapping actual area harvested using GPS and overlaying harvested area map onto pre harvest AVI inventory in GIS.
	Compare 5-year planned harvest area to actual harvest area (i.e., net landbase comparisons to determine planning losses).	Hectares	5 year stewardship	Every five years, in the Five Year Stewardship Report, the area harvested for that period will be compared to the simulated harvest from the TSA by yield strata. The annual summaries described above will be used.
	Rationalize differences between the 5-year planned harvest area and the 5-year actual harvested area and demonstrate how the next period (5 year) harvest sequence will be adjusted.	Adjust harvest sequence, compare harvest sequence to thresholds (20% by area, 10% by yield strata/age class)	5 year stewardship	Variations between actual harvest area and simulated area will be discussed and any potential sustainability consequences will be rationalized in the Five Year Stewardship Report.

Table 5.2 Continued

TSA Validation Report	Description	Measure	Reporting Period	Calculation/Methodology
	Report volume harvested by leading species for each yield strata on a cutblock basis and compare to predicted volumes. Complete an analysis to determine if there are differences that are statistically different. This will include a report of the amount of merchantable volume retained for structure retention purposes.	M ³ , hectares	Annual and 5 year stewardship	Actual areas and volumes harvested will be summarized annually by cutblock. In the Five Year Stewardship Report, differences between simulated volumes and actual volumes will be analyzed for statistical differences and potential sustainability consequences.
Silviculture	Report treatments completed by silviculture regime and yield strata.	# stems planted, stock type, species, site preparation tools	Annual	Silviculture treatment records will be submitted annually as per ARIS submission requirements. This information will be summarized and reported in the annual report.
	Report treatments completed using genetically improved stock.	Deployment strategy as per Management and Conservation Standards for Forest Tree Genetic Resources in Alberta.	Annual	Silviculture treatment records will be submitted annually as per ARIS submission requirements including treatments using genetically improved stock. This information will be summarized and reported in the annual report.
	Compare area treated over the previous 5 years by silviculture treatment and yield strata to the DFMP harvest sequence.	Hectares	5 year stewardship	ARIS information will be summarized, compared, analyzed and reported in the five-year stewardship report.

Table 5.2 Continued

TSA Validation Report	Description	Measure	Reporting Period	Calculation/Methodology
Regeneration Surveys	Submit raw regeneration survey plot data to ARIS.	Per regen survey manual	Annual	Raw regen survey plot data will be submitted annually as per ARIS submission requirements.
	Report regeneration survey results and compare them to DFMP regenerated yield assumptions.	Number of plots, results of compilations, trends in growth	5 year stewardship	In the Five Year Stewardship Report, regen survey results for the previous 5 year period will be summarized and analyzed for consistency with the DFMP TSA assumptions.
Growth and Yield	Report new permanent sample plots established.	Number and geographic location	Annual	Within the Annual report, a list and map(s) will be provided showing the locations of all new PSPs installed in the current year.
	Report existing permanent sample plot re-measurements.	Number and geographic location	Annual	Within the Annual report, a list and map(s) will be provided showing the locations of all re-measurements of existing PSPs in the current year.
	Report results of plot compilations from permanent sample plot re-measurements and provide comprehensive comparison to DFMP regenerated yield assumptions.	Number of plots, results of compilations, trends in growth	5 year stewardship	In the Five Year Stewardship Report, a summary analysis of PSP data will be provided placing emphasis on growth trends evident and DFMP regenerated yield curve assumptions.
Forest Structure	Report age class distributions by yield strata and by compartment.	Numbers of hectares for each yield strata by compartment, natural sub-region and caribou zone.	5 year stewardship	The Five Year Stewardship Report will summarize the number of hectares in each compartment by yield strata and age class. This will be done for each natural sub-region and the caribou zone.

Table 5.2 Continued

TSA Validation Report	Description	Measure	Reporting Period	Calculation/Methodology
	Report area projections by species groups.	Number of hectares by species group by natural sub-region and caribou zone	5 year stewardship	The Five Year Stewardship Report will summarize the number of hectares in each compartment by species groups defined in the DFMP and age class. This will be done for each natural sub-region and the caribou zone.
	Report structure retention accomplishments.	M ³ , hectares, species, arrangement(s) by cutblock	5 year stewardship	Any significant activities demonstrating retention of vertical structure post harvest will be reported in the Five Year Stewardship Report. Significant activities will include the number/frequency, volume and area within each of the categories of structure retention defined in the Operating Ground Rules (i.e. large patch, small patch, reforested area, unharvested area, non merchantable area). Merchantable volume retained will also be summarized in the 5 year Stewardship Report.
	Report on status of habitat existing at periods of time.	Hectares by habitat types and natural sub-regions	5 year stewardship	Using AVI and harvesting activity updates, the number of hectares for each wildlife habitat type described in the DFMP will be summarized in the 5 year Stewardship Report.

Table 5.2 Continued

TSA Validation Report	Description	Measure	Reporting Period	Calculation/Methodology
Alberta Vegetation Inventory	Report AVI programs completed	Geographic locations, hectares/townships, audits, and approvals	Annual and 5 year stewardship	Any updates to company AVI inventory will be reported in the Annual and 5 year Stewardship reports. The report will include the geographic location of the updates and the status of any approval processes.
	Report land use changes	Roads, seismic lines, well sites, etc.	5 year stewardship	The Five Year Stewardship Report will summarize the status of land use changes by area, based on information received from Sustainable Resource Development as per FMA referrals. This will include Forest Companies non harvesting land use activities as well.
Buffers	Harvested areas within buffers (deviations from OGRs)	Hectares by strata, watercourse classification	5 year stewardship	The Five Years Stewardship Report will include a summary of the number of hectares harvested from buffers by overlaying actual harvest areas on buffer areas in the GIS.
Watercourse Crossings	Report number of crossings by crossing type	Number by type by watercourse classification	Annual and 5 year stewardship	All crossings installed by ANC will be reported annually and in the 5 year Stewardship Report.
Natural Disturbance Program	Report on progress of ANC's participation in Foothills Model Forest Natural Disturbance Program.	Measurable accomplishments, strategies implemented	Annual and 5 year stewardship	Any significant accomplishments of the FMF NDP will be reported annually and in the 5 year Stewardship Report, including publications completed and strategies implemented.

Forest Management Principles

Forest management has become an increasingly complex process in recent years as societal values have shifted and governments have adopted multiple-use philosophies with respect to forested areas. Forest companies must consider the sustainability of their operations with respect to not only fibre production, but also many other resource values. These include, for example, recreation, wildlife, and water quality. As a forest products company, ANC manages the FMA area primarily for timber production; however, we recognize that other forest values deserve protection.

Forest managers at ANC recognize that the ecological integrity of the forest must be protected. We attempt to recreate natural ecological conditions/processes through responsible forest management practices that mimic natural processes whenever possible.

5.1 GOAL 1—Conservation of Biological Diversity

In this section, we discuss the forest management strategies that ensure the conservation of biological diversity in the FMA area: age-class distribution, fragmentation, connectedness, wildlife diversity, aquatic diversity and plant diversity are all considered under the biological diversity umbrella.

Age-class structure

The area of a forest measured according to the age range of trees, forests, stands, or forest types. Forest inventories usually group this type of analysis into age classes that span 20 years.

Fragmentation

Denotes the transformation of continuous forest areas (called patches) into one or smaller patches surrounded by disturbed areas. Fragmentation can occur naturally through fire, windthrow, insect infestation, or disease attack. In managed forests, timber harvesting and related activities (such as road building) can be the dominant cause of fragmentation.

Connectedness

A measure of the accessibility of one part of the landscape to another, without crossing human-modified habitat. With fragmentation, connectedness indicates the coherence, on a landscape level, of the availability of undisturbed habitat for migration, foraging, and breeding.

Of critical importance to ANC's approach is the premise of emulation of natural disturbance patterns. David Andison (1998) uses historical estimates of 20-year disturbance rates and a spatially explicit stochastic model to create multiple possible landscape mosaic scenes for three different landscapes in the foothills region. The results indicate that, apart from one age-class in one of the landscapes, both current and pre-commercial age-class distributions were well within the historical ranges suggested by the simulations. The simulation study further suggests relatively high temporal variability. This would suggest that it is feasible to manage forests for temporal patterns and still be within the potential ranges of natural variability.

It is assumed that ANC's preferred harvest schedule will maintain forest conditions within a range that would occur under natural disturbance systems. In order to attempt emulating natural disturbance patterns, it is important to understand what those patterns are and how the forest would potentially look and function in the absence of human intervention. ANC Timber is working through the Foothills Model Forest (FMF) to develop models that will describe how the FMA may have appeared under various natural disturbance assumptions. These models will help create an image and a range of possible scenarios that, when compared with the proposed harvesting schedule, allow analysis and estimation of how close the proposed harvesting patterns mimic the patterns that would have been created by nature. By using this coarse filter approach, the majority of the ecological functionality of the forest will be maintained.

Appendix 2 describes the program underway through the FMF for developing a better understanding of managing within the bounds of natural disturbance regimes. It is the intent of ANC Timber to participate in that work and implement its findings over the period of this plan.

5.1.1 Forest Structure

5.1.1.1 Age-class Distribution

The analysis in Chapter 4 suggests that in 100 years the FMA area landscape moves into a bimodal age-class distribution. It suggests that there will be minimal area of forest stands with ages in the range of 100-200 years. The fact that this possible outcome will not manifest itself for quite some time supports the approach of developing a better understanding of both the implications of this outcome as well as better understanding of the accuracy of the prediction. The following strategies will be followed as a result of this finding:

Strategies:

- ✓ ANC will evaluate factors associated with modelling that are creating this bimodal age-class distribution. Included in the evaluation will be TSA modelling approach, spatial data used for the TSA modelling, TSA policy constraints, and adopted forest management strategies.
- ✓ ANC will evaluate the effects of alteration of the proposed harvesting sequence on the future age class structure.
- ✓ ANC will compare results from the FMF Modelling program with the bimodal distribution of the future forest structure to establish the deviation of the predicted structure from the natural range of variability.
- ✓ Predicted age class structure created by following the proposed harvest sequence will be compared to the potential range of age class structures predicted for the FMA area assuming only natural disturbance events occur. If future age class structure created following the proposed harvest sequence does not lie within the limits of natural variation, then harvest simulations will be changed. This analysis is being done through the FMF and will be completed within 2 years of approval of this DFMP.

5.1.1.2 Fragmentation and Connectedness

Current patch size analysis (Section 4.2.4 in Chapter 4) indicate that pure deciduous, deciduous leading, and coniferous leading mixedwood forest types are predominately comprised of small

patch sizes while pure conifer forests are comprised of mostly large patches. Future predictions lead ANC to expect that current forest patch size distributions will be maintained. Edge-to-area ratios are predicted to increase in the next 10 years to 33.1 from the current maximum of 1.65 for various forest types. ANC will implement the following strategies to deal with issues related to fragmentation and connectedness.

Strategies:

- ✓ Through participation in the FMF Natural Disturbance Program, ANC will compare the levels of connectedness and fragmentation of the predicted future forest with levels of fragmentation and connectedness of the naturally disturbed forest. Adjustments will be made to proposed activities should these analyses determine that connectedness and fragmentation levels of the predicted forest vary from the potential range of natural patterns.
- ✓ ANC will report annually the status of the Natural Disturbance Program as well as the status of required changes to current operating practices.

5.1.2 Terrestrial Wildlife Biodiversity

Goals and Objectives related to wildlife will be managed by assessing the condition and availability of different habitat types. Eight different habitat types have been identified, as discussed in Section 2.3.6.

ANC Timber fully intends to continue to work with Alberta Sustainable Resource Development to ensure that the Company's activities do not negatively affect the wildlife habitat within the FMA area beyond acceptable ranges. Wildlife population targets and management is considered to be the responsibility of Alberta Sustainable Resource Development. Any effects that ANC Timber activities have on wildlife habitat will be carefully considered and reviewed with Alberta Sustainable Development prior to implementation.

Of fundamental importance is the continuance of the Forestry Wildlife Integrated Technical Committee (FWITC). The terms of reference for this committee is in Appendix 4.

5.1.2.1 Habitat Type 1 - Deciduous Forest Community

During the planning horizon, conifer stands will naturally succeed deciduous stands, thus triggering shifts between species groups. However, these species transitions currently are not reflected either in the TSA or in the modelling of future species groups composition. When deciduous forests approach 100 years of age, the stands begin to break up. During this time, conifers begin to take over deciduous stands, which will affect AVI species group composition.

As indicated in Section 4.3.1 (Chapter 4), the short-term analysis of deciduous forest community indicates no significant changes in age-class distribution for next 20 to 50 years. In the long-term, however, predictions depict a shift in age-class structure resulting in a bimodal age-class distribution. And, because of that, there will be no deciduous forest stands between 100 and 160 years old.

Sensitive to this, ANC will implement the following strategies:

Strategies:

- ✓ ANC will begin to model cover group transitions caused by succession for the next DFMP.
- ✓ ANC will evaluate the effect of alteration of the proposed harvesting sequence on the amount of deciduous habitat before the next DFMP.

5.1.2.2 Habitat Type 2 – Young Burnt Forest/Naturally Disturbed Forest Community

Various types of natural disturbance can contribute to the naturally disturbed young forest habitat type including fire, insect and disease outbreaks, and flood and wind damage. Common characteristics of these disturbances are their random occurrence in time, unpredictable spatial pattern, and potentially affecting large areas.

There is a need to balance sometimes conflicting management objectives for recently disturbed forests: 1) the ecological importance of young naturally disturbed forest communities, 2) the economic pressures to salvage these stands post-disturbance, and 3) the economic need of minimizing the amount of disturbances. There is a possibility that aggressive controlling of natural disturbances (e.g., elimination of fire) may trigger unintended changes in the local ecosystems. Assuming no natural disturbance occurs, the analysis in Chapter 4 shows that young and burnt/naturally disturbed forest communities may not occur on the landscape within 30 years. No future forecasting was done for young burnt and naturally disturbed forest communities. However, as indicated in Section 2.3.6.2 (Chapter 2), assuming no natural disturbance will take place over the next 30 to 40 years, habitat type 2 areas will decrease steadily.

Sensitive to these concerns, ANC will implement the following strategies:

Strategies:

- ✓ ANC will mimic natural disturbances with harvesting operations through such practices as stand-level structure retention practices to maintain some of the ecological values of burns in young harvested stands using dead deciduous, dead coniferous, unmerchantable trees and understorey trees. These practices will be clearly defined in Operating Ground Rules to be developed with approval of the DFMP.
- ✓ ANC will learn more about the dynamics of the natural disturbance patterns and associated forest cover type alterations within the FMA area and integrate that new knowledge into the next DFMP.
- ✓ ANC will explore opportunities on a site-by-site basis for leaving some young burns unsalvaged.

5.1.2.3 Habitat Type 3—Post-Rotation Forest Community

Section 4.3.3 suggests that the amount of post-rotation forest is not threatened within the next 50 years.

In order to ensure the long-term sustainability of this important community type, ANC will implement the following strategies:

Strategies:

- ✓ ANC will model and integrate the short- and long-term dynamics of post-rotation habitat for the next DFMP.
- ✓ ANC will work with FWITC to develop ecologically meaningful and quantifiable targets for the appropriate amount of post-rotation forest prior to the development of the next DFMP.

5.1.2.4 Habitat Type 4—Riparian Areas

Riparian area modelling results are depicted in Section 4.3.4 (Chapter 4). These results were obtained from standardized 100-m buffer analyses even though operationally ANC is managing for 40-m and 60-m buffers, depending on stream classification and lake characteristics. The short-term predictions (10 to 20 years) depict no significant shifts of area from current age-class distribution. However, predictions past 100 years show a bimodal age-class structure and by the end of 180-year planning horizon, only a few hectares are predicted to be between 100 and 160 years old in this habitat type. The current strategy for protecting riparian areas is to exclude them from the net land base for determination of annual allowable cuts. This exclusion approach implies no harvesting activities will occur within these zones.

Strategies:

- ✓ The suitability of this approach will be examined prior to writing of the next DFMP, as it is recognized that a simple avoidance strategy could result in the creation of unacceptable future forest conditions the riparian areas.
- ✓ Suitable operating guidelines will be developed as part of ANC's Operating Ground Rules.

5.1.2.5 Habitat Type 5 – Thermal Cover

As discussed in Section 4.3.5 (Chapter 4), the predicted area of thermal cover (which is currently estimated to be just over 40,000 ha) during the next 20-year planning cycle will be maintained at its current levels with an average fluctuation no more than 2.3% within a decade. Long-term predictions, however, indicate that the area of thermal cover will be decreasing.

Strategies:

- ✓ ANC will develop ecologically meaningful and quantifiable targets for the appropriate amount of thermal cover needed.
- ✓ ANC will evaluate the effects of alteration of the proposed harvesting sequence on the amount of thermal cover available in 100 years.

5.1.2.6 Habitat Type 6 – Residual Forest Structure

Current residual structure in the FMA area indicates that considerable opportunity exists for retaining residual structure post harvest. In the FMA area, there are 282,683 ha scheduled for harvests during the 180-year planning horizon. Table 5.3 reviews the several categories of tree types that can be retained post-harvest in order to ensure appropriate levels of structure remain after logging.

Table 5.3 Summary of predicted potential for retention of residual forest structure.

Type of Potential Residual Structure	Area and Predicted Quantity within the Scheduled Harvests, According to Chapter 2.
Softwood understorey trees taller than 3 m	29,445 ha (10.4%) are in C and D softwood understorey density classes
Live balsam poplar and white birch trees	67,393 ha (23.8%) of the area are predicted to have more than 40 stems per hectare of this residual structure
Standing dead deciduous trees	161,332 ha (57.1%) have the potential for leaving 0 to 40 stems per hectare of residual structure
Standing dead conifer trees	80,684 ha (28.6%) of the area has greater than 120 stems per hectare 93,661 ha (33.2%) of the area has between 80 and 119 stems per hectare 66,942 ha (23.6%) of the area has between 40 and 80 stems per hectare 41,395 ha (14.6%) of the area has less than 40 stems per hectare
Undersized trees	106,871 ha (38%) of the area has greater than 750 stems per hectare 78,070 ha (28%) has 500 to 749 stems per hectare 49,727 ha (17%) has 250 to 499 stems per hectare 48,015 ha (17.0%) of the area have less than 250 stems per hectare

Strategies:

- ✓ As a general operational procedure, some trees will be left unharvested within cutblocks. A variety of tree sizes may be left with recognition that large trees are valuable for wildlife habitat. Trees that are crooked and heavily branched will be preferably left. Depending on block size and shape, a variety of clumps of more than three trees may be left. Clumps will be left in areas that have a steep slope, excessive moisture, or natural openings. Known nesting areas will be candidates for creating clumps, as well as patches of non-merchantable vegetation and snags, provided worker or public safety isn't compromised.
- ✓ ANC will work with FWITC on developing rules governing which types of residual forest structure are indices to this habitat type.
- ✓ ANC will design and employ harvest strategies that optimize the leaving of stand residual structure.
- ✓ ANC will continue working toward developing ecologically meaningful and quantifiable targets for the appropriate amount of residual structure needed. In the interim, an average of 32% of the landbase within the four SYUs will not be scheduled for harvest within the 180 year planning horizon.

- ✓ ANC will leave coarse woody debris on the site following harvest in amounts that, at minimum, reflect pre harvest condition. Steps will not be taken to drastically reduce the amount of coarse woody debris remaining after harvest unless absolutely necessary for reforestation purposes. This woody debris may be in the form of downed material or as standing snags.
- ✓ ANC will remove snags from areas within 50 m of all roads or landings for safety and fire protection purposes.

5.1.2.7 Habitat Type 7—Caribou Habitat

ANC Timber will practice sustainable forestry while allowing the maintenance of caribou habitat in West Central Alberta utilizing innovation, research and monitoring.

ANC Timber Ltd. has five guiding principles for managing Woodland Caribou habitat in the FMA area, which have been included in the TSA for the Caribou Zone and summarized in Table 5.4.

Table 5.4 Principles of caribou management and associated strategies

Principle	Scale	Strategy
Age as a proxy for structure	Landscape	<ul style="list-style-type: none"> • Maintain adequate amounts of forest at adequate ages for caribou habitat. Quantifiable assessments of adequate amounts are being developed by the West Central Committee on Caribou. • Harvest sites that are less favourable habitat first in critical areas. Harvest sequencing will be used to accomplish this.
	Compartment	<ul style="list-style-type: none"> • Leave unharvested an appropriate amount of older stands at the Compartment level. • Harvest spruce ahead of pine using Ground Rules. • Harvest less favourable sites first in harvest plan.
	Stand	<ul style="list-style-type: none"> • Develop appropriate operating ground rules in consultation with Alberta Environmental Protection.
Large contiguous patches	Landscape	<ul style="list-style-type: none"> • Concentrate harvesting as opposed to diffusing it in the Timber Supply Analysis. • Avoid core caribou ranges in early compartment sequencing in the Timber Supply Analysis. • Develop a long-term access management plan.
	Compartment	<ul style="list-style-type: none"> • Harvest a high percentage of volume from compartments in the caribou areas in first pass in both the Timber Supply Analysis and Compartment harvest designs.
	Stand	<ul style="list-style-type: none"> • Harvest, on average, larger blocks.

Table 5.4 Continued

Principle	Scale	Strategy
Caribou habitat will move through space and time	Landscape	<ul style="list-style-type: none"> Concentrate harvesting as opposed to diffusing it in the Timber Supply Analysis.
	Compartment	<ul style="list-style-type: none"> Harvest a high percentage of volume from compartments in the caribou areas in first pass in both the Timber Supply Analysis and Compartment harvest designs. Develop a long-term access management plan that includes road closure commitments.
	Stand	<ul style="list-style-type: none"> Harvest, on average, larger blocks.
Access	Landscape	<ul style="list-style-type: none"> Develop a long-term access management plan that includes road closure commitments.
		<ul style="list-style-type: none"> Maintain the amount of permanent road within critical caribou areas to a minimum.
	Compartment	<ul style="list-style-type: none"> Develop access control strategies on permanent roads within critical caribou areas.
	Stand	<ul style="list-style-type: none"> Close block roads as soon as possible.
Alberta Sustainable Resource Development manages caribou populations		<ul style="list-style-type: none"> Continue to work with Alberta Sustainable Development on strategies aimed at managing caribou populations. Focus attention on the affect of operations on caribou habitat.

Much of the Foothills SYU (E7) is in the heart of the caribou range. For this reason, specific parameters or limitations were placed on the Timber Supply Analysis, such as concentrating the harvest. Compartments will have 80% of available volume removed in the first entry period as opposed to the usual 50%. Additionally, the harvesting of compartment 7-14, which has some of the oldest forest stands in the FMA area, has been deliberately deferred for an additional ten years. Anticipated yields are also reduced for this compartment to allow for significantly different operational approaches. This will allow ANC time to continue to work on new, innovative harvesting systems compatible with the needs of caribou.

For the next 50 years, caribou habitat will be maintained or enhanced, according to the harvest schedule described in this DFMP. After 50 years, available caribou habitat will decrease and become more fragmented. ANC is committed to address this concern in the next DFMP. ANC will ensure that 54,923 ha of habitat is left undisturbed in the Caribou Zone at all times, which ensures that the current caribou population needs are met.

In addition to the above strategies agreed to by WCSCC, the following will also be delivered.

Strategies:

- ✓ ANC will develop species group succession transition models which affect shifts between species groups and available caribou habitat.
- ✓ ANC will continue to participate in the West Central Standing Committee on Caribou (WCSCC) for as long as that Committee feels it relevant.

- ✓ ANC will continue to do research work on the habitat needs of caribou within the FMA area. The type of research, amount, questions to be answered, etc. will all be influenced by current discussions within the WCSCC and financial capabilities of ANC Timber.
- ✓ ANC is working with Alberta Sustainable Development on the development of Operating ground Rules for the ANC FMA for operations within the caribou ranges. These Ground Rules will follow the intent of the current *Operating Guidelines for Industrial Activity on Caribou Ranges in West Central Alberta* and *Alberta's Woodland Caribou Conservation Strategy* but will be specific to ANC Timber's FMA area.
- ✓ ANC will ensure that the amount of their open all weather roads will be kept to densities of less than 0.3 km/km².

5.1.2.8 Habitat Type 8—Grizzly Bear Habitat

As discussed in Section 4.3.8 of Chapter 4, grizzly bear habitat is predicted to increase over the 180-year planning horizon. Analyses indicate that the most suitable areas for grizzly bears (HSI between 0.7 and 1) will almost triple from existing levels and will be more than 68,000 ha in the FMA area. That indicates an overall increase from 5.4% to 15.6% during the next 180 years.

Strategies:

- ✓ ANC will work with SRD through FWITC to validate the adopted grizzly bear model and adjust or update it as appropriate.
- ✓ ANC will work with FWITC to develop ecologically meaningful and quantifiable targets for the appropriate amount of habitat needed to meet the life requirements of grizzly bear.
- ✓ ANC will ensure that the amount of their open all weather roads will be kept to densities of less than 0.3 km/km².

5.1.3 Aquatic Biodiversity

More baseline data regarding aquatic species of special concern is required. Very little information is available for Pygmy Whitefish, native Athabasca Rainbow Trout, Lake Whitefish, and various macroinvertebrates all of which are present in the FMA area.

Strategies:

- ✓ ANC will work with Alberta Sustainable Resource Development through the Forestry Wildlife Integrated Technical Committee to fill in some of the knowledge gaps with reference to aquatic species.
- ✓ ANC Timber will participate in the development of management strategies for aquatic fauna, based on discussions with Alberta Environment through the Forestry Wildlife Integrated Technical Committee (FWITC). Action plans will be developed and reviewed through FWITC.
- ✓ ANC will continue to protect aquatic fauna through several management initiatives designed to protect soils, streams, and aquatic resources (see Section 5.2).
- ✓ ANC will continue monitoring current research (e.g., scientific journals and university research) in these areas and to support new research, if feasible.

5.1.4 Plant Biodiversity

Within ANC Timber's FMA area, timber harvesting, petroleum exploration, and industrial developments occur concurrently. These activities can pose a level of threat to rare plant species and rare plant assemblages (Bilyk et al. 1996). When assessing these disturbances, the impact is often measured in terms of the plant community, rather than a specific rare plant. This is due to the limited amount of literature dealing with the effects of forestry operations on specific rare plants. Nevertheless, with the exception of some invader species, the impact of forestry activities is similar for both rare plants and the overall vegetation community.

Rare Plants

In a study conducted on an adjacent FMA area, it was found that, in the short-term, clearings created by logging activities provided the necessary habitat for approximately 3% of rare vascular plants (Geographic Dynamics Corp 1995).

Fire is another disturbance that must be considered in the protection of rare plants. As the greatest natural disturbance within the FMA area, fire plays a major role in the survival of rare and endangered plants. Open habitats created by fire can harm rare species that require closed and shaded habitats (Hurtt and Pacala 1995).

Under the proposed Wildfire Protection Strategy (see Section 5.2.2.1), some fires will still occur, providing adequate habitat for those plants that require these areas for survival. Conversely, wildfire suppression will ensure that sufficient habitat will be available to support those rare plants requiring forested sites.

Strategies:

- ✓ ANC harvesting operations will adhere to the Company's operating ground rules that protect rare and endangered plants within the FMA area. These include the use of buffer zones around lakes and wetlands, and the preservation of riparian areas, which are known to have a high potential for harbouring rare plants.
- ✓ Adherence to sustainable levels of timber harvest also lends itself to the protection of rare plants. Through this strategy, a diverse representation of stand age and structure will be maintained throughout the FMA area. This will ensure the continued existence of forested habitat that is required by selected rare plant species.
- ✓ The protection of caribou habitat, particularly in the Little Smoky and Foothills SYUs, riparian zone buffering, and inoperable and non-productive stand exclusion from harvesting all will aid in the protection of rare plants.
- ✓ In general, sites will be reforested to a similar species makeup as was present prior to harvest. This will be more conducive to maintaining habitat for specific rare and endangered plants.
- ✓ The locations of known rare and endangered plants within the FMA are listed in Section 2.3.2. These known locations will be buffered by a radius of the average canopy height to a minimum of 2 m in non-treed areas.
- ✓ ANC will train woodlands personnel in the identification of rare plants that are known to occur, and those that are likely to occur within the FMA area. Through this process, personnel conducting PHAs will be able to accurately confirm the presence or absence of rare plants.

5.2 GOAL 2—Maintenance of Forest Ecosystem Condition and Productivity

In this section, we review specific activities that are under the control of ANC with regard to maintaining the condition (health) and productivity of the forest: 1) increasing the productivity of the forest through ANC's approach to forest renewal initiatives, 2) protecting the forest from natural disturbances, and 3) policies regarding landbase withdrawals. Items 1) and 2) are directly related to enhancing the ability of the forest to recover from both harvesting and natural disturbances. Item 3) addresses the issue of other industries being involved within the FMA area for the removal of forest cover. It is the ability of the forest to recover from disturbance in general, regardless of the cause, that measures its long-term sustainability to provide fibre, community use (social, cultural, and spiritual), recreational use, and economic benefit to neighboring communities. Again, as was the case for the Conservation of Biological Diversity, Goal 2 relies on a good understanding of the natural range of variability and historical (pre-harvesting) data.

5.2.1 Forest Renewal

5.2.1.1 Basic Reforestation

The intent of the Basic Reforestation Program is to ensure all areas harvested are growing healthy vigorous forests while meeting all legal requirements for reforestation. Successful basic reforestation helps to ensure a sustainable level of harvest volumes.

In order to develop individual block strategies, each block will be assessed prior to harvesting. The pre-harvest assessment (PHA) identifies site factors that have a bearing on both reforestation and harvesting. Site factors that are assessed and recorded include:

- soil types
- moisture conditions
- species composition
- ecosite phase
- slope position

Ecosite phase classification is recorded to enhance the current classification system and, more importantly, to develop an understanding of how various reforestation and harvesting techniques relate to the ecosites within the FMA area.

Following the initial assessment, a harvesting system will be chosen that suits site factors. Clearcutting has traditionally been the primary harvesting system, but a suite of other systems including, but not limited to, partial cutting, shelterwood, or understory protection techniques will be considered, where applicable.

Following harvest, a second site assessment is performed in order to confirm or adjust the pre-harvest assessment. A reforestation prescription is then developed. Typically, mechanical site preparation, followed either by planting or seeding, occurs within one year of harvest. In some instances, the planting component is delayed until the second year following harvest. Site factors dictate which tree species will be used for reforesting cutovers.

Post-treatment discretionary assessments will be done two to three years after reforestation treatments to measure the success of the treatment. In selected cases, additional treatments may be prescribed. Regulatory surveys on all cutovers will be completed following government regulations and policies. ANC Timber Ltd. intends to explore the feasibility of developing reforestation standards unique to their FMA area. This work would be carried out over several years.

Aerial herbicides have been used as a means of controlling competing vegetation that is having a negative impact on reforestation efforts. Competing vegetation can create a situation that does not allow ANC to meet its obligations under the current regeneration standards. To date, ANC has been treating between 500 and 1000 hectares annually to address these concerns. The use of herbicides is closely monitored by Alberta Environment with strict operating guidelines, approval processes, and public involvement programs. It is ANC's intent to continue to follow these regulatory processes.

Areas within the FMA area will be considered for pre-commercial thinning and treated as appropriate. Over the last 10-year period, ANC has pre-commercially thinned approximately ten hectares of fire origin lodgepole pine.

Associated with the basic program, but not necessarily connected to specific blocks, is the cone collection and seed program. The target is to keep sufficient seed on hand to cover eight years' requirement for white spruce and five years' for lodgepole pine. The quantity required to achieve this target is estimated at 30 kg and 25 kg, respectively. Black spruce seed will also be collected on a trial basis. Seed costs, nursery costs, and field performance for this species are being assessed.

Blocks requiring brushing, weeding, or tending will be treated as required. It has become apparent, through experience, that excellent results can be achieved by weeding three to five years after harvest. Other sites will require only the fourteen-year treatment while some will not require brushing treatment at all to meet free-to-grow status. The most cost effective and environmentally acceptable techniques available will continue to be used in this process.

Table 5.5 describes, by species group, the common methods used to reforest the various site types found on the FMA area. This table format has been agreed to in principal between ANC Timber and embedded quota holders. Ranges are stated for planting densities to account for advanced regeneration, anticipated natural ingress and expected survival depending on site moisture, nutrient and competition conditions. Variation in site preparation reflects site variation normally associated with soil moisture condition and slash loading.

Strategies:

- ✓ ANC will adhere to Alberta Government Acts and Regulations as they pertain to reforestation activities.
- ✓ ANC will negotiate a set of operating ground rules with Alberta Sustainable Resource Development that ensure adequate measures are taken to protect soil productive capacity thereby ensuring site productivity is not reduced.
- ✓ ANC will report all reforestation activities as required under current policy.
- ✓ ANC will negotiate the format of an annual report on the status of its operations relative to the Ground Rules and then submit that report annually.

Table 5.5 Reforestation Methods Used in the FMA Area

Species Group	Site	LFN (y/n)	Seed (y/n)	Treatment							
				Plant						Competition	
				Unimproved		Improved (W8 only)		Fill Plant		Chemical	Manual
Stems/ha	Species	Stems/ha	Species	Stems/ha	Species						
PI	NIL,D,DT,DM,P,R,CH,PB	y	y	0-2000	PI,Sb,Sw	1400	PI	as needed	PI,Sb,Sw	y	y
PI(Sb)	NIL,D,DT,DM,P,R,PB	y	y	0-2000	PI,Sb,Sw	1400	PI	as needed	PI,Sb,Sw	y	y
PI(Fb)	NIL,D,DT,DM,P,M,PB	y	y	0-2000	PI,Sb,Sw	1400	PI	as needed	PI,Sb,Sw	y	y
PI(Sw)	NIL,D,DT,DM,P,M,CH	y	y	0-2000	PI,Sw	1400	PI	as needed	PI,Sb,Sw	y	y
PI(Aw)	NIL,D,DT,DM,P,M,CH	y	y	0-2000	PI,Sw	1400	PI	as needed	PI,Sb,Sw	y	y
Sb(SbLt)	NIL,DM,HM,P,B,P,M,D,PB	n	n	0-2000	PI,Sb,Sw,Lt	1400	Sb	as needed	PI,Sb,Sw,Lt	y	y
Sb(PI)	NIL,DM,HM,P,B,D,M,P,PB	n	n	0-2000	PI,Sb	1400	PI	as needed	PI,Sb	y	y
Sb(Fb)	NIL,DM,HM,P,D,M,DT,PB	n	n	0-2000	PI,Sb,Sw	1400	Sw,PI	as needed	PI,Sb,Sw	y	y
Sb	NIL,DM,HM,P,M,DT,CH	n	n	0-2000	Sb,Sw,PI	1400	Sw,PI	as needed	PI,Sb,Sw	y	y
Sw	NIL,DM,HM,P,M,DT,CH	n	n	0-2000	Sw,PI,Sb	1400	Sw,PI	as needed	Sw,PI	y	y
Sw(Fb)	NIL,DM,P,HM,M,CH,D,DT,R,PB	n	n	0-2000	Sw	1400	Sw	as needed	Sw,PI,Sb	y	y
Sw(PI)	NIL,DM,P,HM,D,M,DT,PB,R,CH	n	n	0-2000	Sw,PI	1400	Sw,PI	as needed	Sw,PI,Sb	y	y
Sw(Pb)	NIL,DM,P,HM,M,CH	n	n	0-2000	Sw	1400	Sw	as needed	Sw,PI	y	y
Sw(Aw)	NIL,DM,P,HM,CH,M,DT,D(for Aw)	n	n	0-2000	Sw,PI,Sb	1400	Sw	as needed	Sw,PI,Sb	y	y
Aw	NIL,HM,P,M,CH,D,DT	y	n	0-1800	PI,Sw	N/A	N/A	as needed	PI,Sw	y	y
Aw(PI)	NIL,DT,P,HM,M,CH,D	n	n	0-1800	PI,Sw	N/A	N/A	as needed	PI,Sw	y	y
Aw(Sw)	NIL,DT,P,HM,M,CH,D	n	n	0-1800	Sw,PI	N/A	N/A	as needed	Sw,PI	y	y
Aw(Pb)	NIL,DT,P,HM,CH,M	n	n	0-1800	Sw,PI	N/A	N/A	as needed	PI,Sw	y	y
Fb	NIL,DM,P,HM,M,PB,D,DT,R	n	n	0-1800	PI,Sw	1400	Sw	as needed	Sw,PI,Sb	y	y

This table is intended as a description of how the various site types will be reforested under normal conditions. Due to the extreme variation that exists within these site types deviations will occur. Regardless of any deviations provincially legislated reforestation standards will be met on all harvested areas.

Ranges are expressed to reflect adjustments to treatments based on such things as; understorey presence, season of harvest, cone crops, microsite climatic factors, insects and diseases, other resource values, local drainage, new technology, etc.

NIL	No site prep	R	Rake
HM	Hoe Mound	M	Mound
DT	Disc Trench	PB	Prescribed Burn
D	Drag	DM	Donaren Mound
CH	Chemical		
P	Plow		
B	Blade		

5.2.1.2 Enhanced Reforestation

Section 26. (1) (Appendix 1) of the Forest Management Agreement establishes the opportunity for ANC Timber to implement an intensive silviculture program beyond that required by current legislation. In addition to the Forest Management Agreement, the province, in consultation with the forest industry, is developing an Enhanced Forest Management policy framework.

The Enhanced Reforestation Program will implement reforestation and stand management activities to enhance the growth capacity of the forest and increase the sustainable level of harvest. Beck and Beck (1996) suggest that companies operating in tree breeding regions can expect an increase of allowable cut if initiating a tree improvement program.

According to Beck and Beck (1996), fulfilling these assumptions will result in yield improvements in the 8-12% range for the first seed orchard of lodgepole pine and 5% for first seed orchard of white spruce. However, once roguing occurs, yield gains of approximately 20% are expected.

According to a report by Chicoine and John (1997), the tree improvement program has the potential to 1) increase expected yields, 2) increase crown form efficiency, 3) increase wood quality and recovery rates, 4) potentially reduce stand tending and harvesting costs, 5) ensure a secure seed supply, and 6) reduce nursery expenses.

The expected yield gains obtained from the tree improvement program provide the justification for increased AAC. Timber Supply Analysis (Section 3.1) explains how gains from tree improvement are estimated for the current AAC calculations.

Strategy:

- ANC will continue with a genetics and tree improvement program by participating in the Lodgepole Pine Breeding Region BI, White Spruce Breeding Region I, and Black Spruce Breeding Region H.

5.2.2 Protecting the Forest from Natural Disturbances

ANC has made a sizable investment in its FMA area, in terms of infrastructure, employment, and reforestation. Protecting that investment from damage caused by fire, insects and disease is vitally important. Monitoring and control systems designed to limit unusually large outbreaks of insects and diseases, and to prevent fires from getting out of control, are necessary. ANC has developed a rigorous wildfire protection strategy, along with an insect and disease monitoring system, that will limit the amount of timber lost. This will protect the forest resource for ANC and the public, for generations to come.

5.2.2.1 Wildfire Prevention and Suppression

The fundamental principle used to protect ANC's FMA area from catastrophic wildfire is early detection and rapid, early initial attack.

During the summer, manned towers and aerial patrols are used for the early detection of fires. Once a fire is spotted, it is critical to deploy men and equipment rapidly in order to contain the fire before it has a chance to spread. Typically, this is done using helicopters and initial attack crews. The early fire attack strategy is to get crawler tractor type equipment onto the fire line to construct a non-combustible perimeter guard. The intent of this strategy is to not allow a fire to enter the second burning period (second day) without a perimeter guard. Typically, fires start late in the afternoon as a result of late day thunderstorms.

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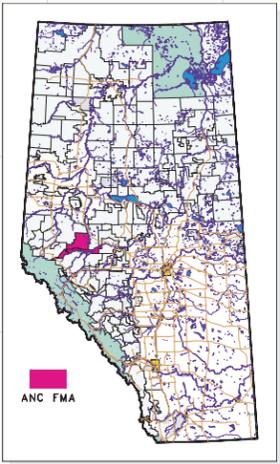
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ALBERTA NEWSPRINT COMPANY
FOREST MANAGEMENT AREA

ROAD DEVELOPMENT PLAN

Figure 5.2



**LICENSE OF OCCUPATION
ANC RESPONSIBILITY**

EXISTING ROAD CLASSES

- CLASS 1 - Permanent, year-round access, 20 years+
- CLASS 3 - Permanent, year-round access, 2 to 20 years
- CLASS 4 - Permanent, dry or frozen periods, 2 to 20 years
- - - - OTHER ROAD CLASSES

PROPOSED ROAD CLASSES

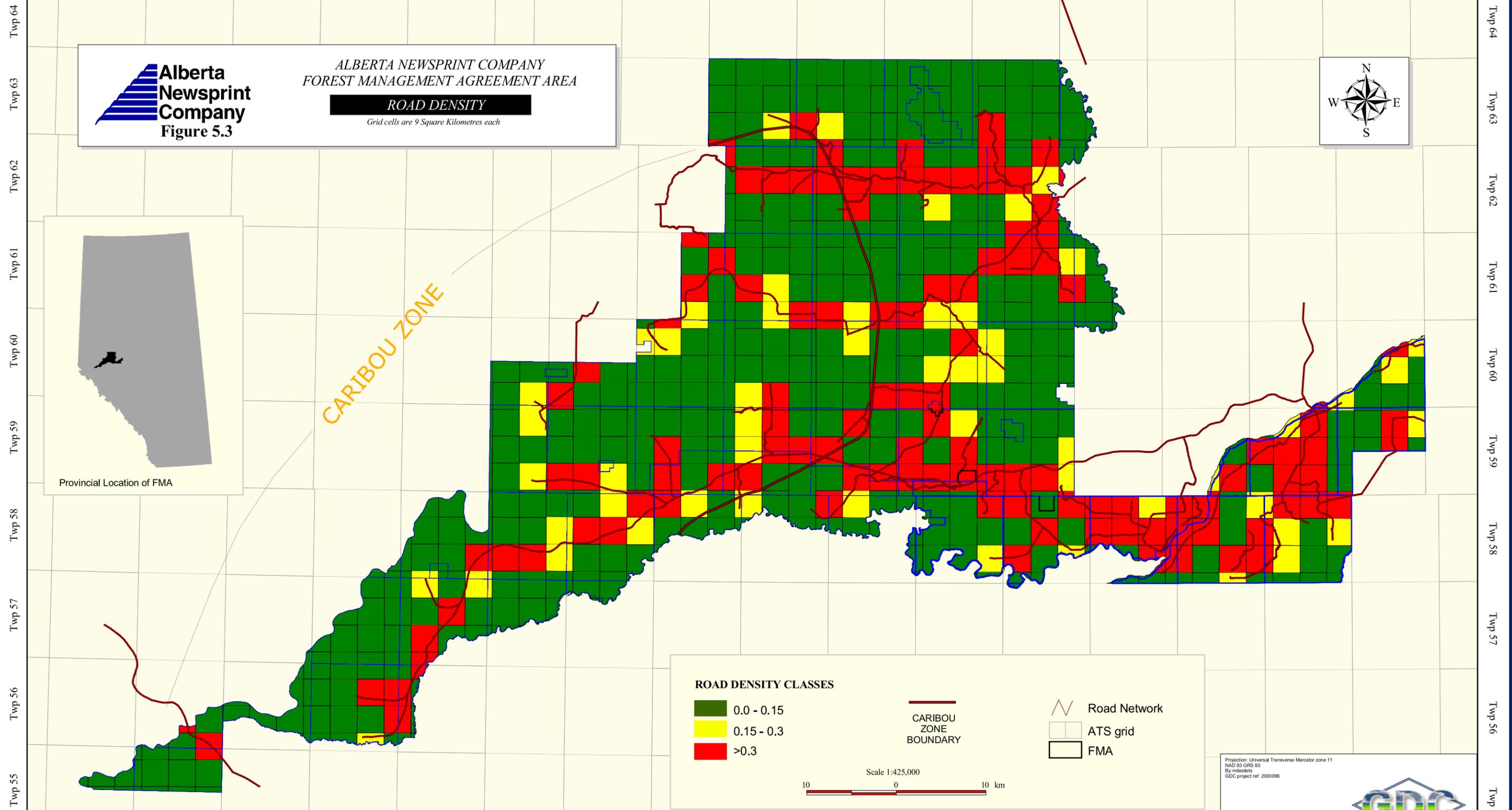
- - - - CLASS 1 - Permanent, year-round access, 20 years+
- - - - CLASS 3 - Permanent, year-round access, 2 to 20 years
- - - - CLASS 4 - Permanent, dry or frozen periods, 2 to 20 years

Map Production: Silvacom Ltd
Map Date: June 10, 1999
Map Scale: 1:400000
Silvacom Ref.: C-049
Map File:
.../g-049/maps/report_maps/road_plan



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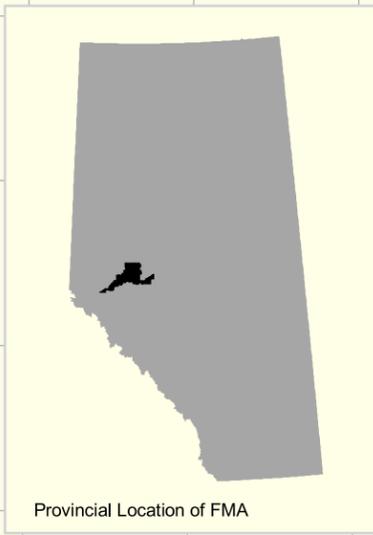
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Figure 5.3

*ALBERTA NEWSPRINT COMPANY
 FOREST MANAGEMENT AGREEMENT AREA*

ROAD DENSITY
Grid cells are 9 Square Kilometres each



CARIBOU ZONE

ROAD DENSITY CLASSES

- 0.0 - 0.15
- 0.15 - 0.3
- >0.3

CARIBOU ZONE BOUNDARY
 FMA
 Road Network
 ATS grid
 FMA

Scale 1:425,000

10 0 10 km

Projection: Universal Transverse Mercator zone 11
 NAD 83 GRS 80
 By models
 GDC project ref: 2000096



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Strategies:

- ✓ ANC Timber will prepare an annual Emergency Response Plan (ERP) detailing how the above principles will be met. These obligations are established in the Forest Management Agreement and the Fire Control Agreement between ANC Timber and the Alberta government.
- ✓ ANC Timber will maintain all equipment necessary to meet their obligations under the FMA, the Fire Control Agreement, the Annual Emergency Response Plan, in addition to any other commitments made.
- ✓ ANC will ensure that all company woodlands staff, contractor and summer staff have the necessary training to report and effectively take initial action on any fire discovered.
- ✓ ANC will train company staff to recognize fire hazards and to eliminate the hazard promptly.
- ✓ ANC will ensure that company personnel are equipped or have access to the necessary fire fighting equipment required to take initial action on a fire.
- ✓ ANC will supervise all winter burning sites and ensure that all ground fires are extinguished prior to the commencement of that year's fire season.
- ✓ ANC will continue formalized communication of weather and fire hazard information to company field personnel.
- ✓ ANC will maintain good communications with Alberta's Lands and Forest Service (LFS) to ensure that pre-suppression requirements are being met.
- ✓ ANC will maintain good communications with commercial stakeholders within the FMA area and with the public who are traveling through the FMA area, in order to convey the importance of fire prevention and reporting.
- ✓ ANC will continue its annual reporting of the area and severity of fires by forest types. This report will be made available to Alberta Sustainable Development.

5.2.2.2 Wildfire Hazard Reduction

Strategies intended to reduce the likelihood of large catastrophic wildfires before they ignite focus on replacing contiguous, highly flammable forest types with less flammable ones as well as the development of infrastructure to assist in the extinguishing of fires when and if they start.

The western region of the ANC FMA area has continuous lodgepole pine/black spruce forest types, making this region susceptible to a catastrophic fire event. A map of the Canadian Forest Fire Behaviour Prediction System Fuel Types (Figure 2.9) shows the spatial distribution of fire risk in the FMA area. The risk of a large, out of control fire would be lessened through the removal of larger sections of older, high fuel-load forest cover. The harvest plan for the western portion uses a compartment sequencing designed to first remove the oldest timber from the FMA area. (Older stands are generally more susceptible to large fires due to their structure, fuel loading, down woody debris, and standing dead.)

Strategies:

- ✓ ANC Timber will concentrate, rather than diffuse harvesting within the high-risk areas of the FMA area. Certain compartments will have a higher percentage of volume removed (Section

3.1) during the first entry. These compartments will have up to 80% of the merchantable volume removed in the first pass. Several of these compartments will be opened in the next ten years, while the remainder will be opened within the next twenty-year period.

- ✓ In order to facilitate the removal of a higher percentage of volume, individual cutblocks will be larger. These approaches will be considered in the new operating ground rules to be negotiated with Alberta Sustainable Resource Development. Prior to any action being taken with regards to fire control through harvest strategies, the TSA will be consulted to ensure that all assumptions of the TSA are being met.
- ✓ During the compartment design phase, specific high fire risk stands will be identified for early removal. In this way the highest risk stands will be replaced by younger, more fire resistant stand types.
- ✓ ANC will develop a road infrastructure in the western portion of the FMA area. Section 5.3.1 describes how the LTADP will approach access planning and development. The use of a more developed road network as part of the fire suppression strategy in this portion of the FMA area will also benefit other resource values.
- ✓ ANC will investigate the use of fire as a tool in forest management and will explore this opportunity in future management plans.
- ✓ ANC Timber is committed to working with Alberta Land and Forest Service on developing, over the one-year period after approval of the DFMP, a comprehensive strategic approach to “cooling down” the forest through acceptable management activities. These activities may include specific harvesting strategies, road building strategies, and campsite or staging area establishment. This strategy will be contained in a report that will be submitted to Alberta Land and Forest Service.

5.2.2.3 Insects and Disease

A map of the FMA area, depicting the location of insect and disease risk as a function of tree species and stand age is presented in Chapter 2 (Figure 2.11).

When the species listed in the Provincial Standards (dwarf mistletoe, spruce beetle, mountain pine beetle, spruce budworm, jack pine budworm) are present in abnormally high populations within proposed harvest areas, a Forest Protection Officer will be consulted during the development of the AOP. The following information (gathered and developed by the LFS in cooperation with the timber operator) will be included with the preliminary harvest design: a map or aerial photograph of appropriate scale showing the infested/infected areas; a description of damage, causes and future implications; and a description of proposed treatments, modifications to the harvest areas, and sequence and operational precautions.

Strategies:

- ✓ Priority will be given to harvesting stands with a high incidence of disease or insects, or stands that are most at risk because diseases or insects are known to be present at above-normal population levels. Over-mature stands are often the source of pest outbreaks.
- ✓ Harvest designs will minimize the risk of stand degradation and blowdown that might provide a refuge or be the centre for insect infestations or disease.

Natural Disturbances

- ✓ Harvesting methods will be used that encourage the natural control of pests, including the retention of cutover stands and maintaining minimum coarse woody debris levels where risks of insect and disease outbreaks are considered high.
- ✓ Wherever possible, wildlife and protection buffers will be selected from stands free of disease or insect infestations.
- ✓ Key ANC Timber staff will be trained in the identification of insects and diseases common to the FMA area.
- ✓ Insect and Disease information updates will be circulated to all Woodlands staff.
- ✓ Reporting of infestations or abnormalities will be made to ANC Timber's Forest Protection Coordinator noting the following: land location or AVI stand number, species affected, area affected (ha), suspected insect or disease type (if known).
- ✓ Any areas of infestation seen during fire patrol flights made throughout the summer are to be reported to ANC Timber's Forest Protection Coordinator.
- ✓ If reported findings are judged to be serious, then experts will be consulted as to complete identification and possible control methods (Canadian Forest Service, Alberta Environmental Protection, University of Alberta, etc.).
- ✓ ANC Timber will continue to participate in the Regional Integrated Pest Management Committee and share appropriate information with that group.
- ✓ ANC Timber will be supportive of any monitoring protocols developed by the Regional Integrated Pest Management Committee.
- ✓ Areas infested will be described in the annual report.
- ✓ Any area treated due to an infestation, will be included in the annual report.
- ✓ ANC Timber will review and consider, through the NES Integrated Pest Management Committee, a set of programs to further improve our insect and disease control strategy.

5.2.3 Landbase Withdrawals

As a Forest Management Agreement holder, ANC Timber receives a report of all dispositions issued by the Alberta Government within the boundaries of the FMA area. Typically these dispositions are for land clearings related to industrial activities other than timber harvesting by forest products companies. The most common other industrial activity in the FMA area is oil and gas development. These clearings are usually roads, pipelines, wellsites or other clearings necessary for development

ANC Timber tracks these activities by recording the information from the applications submitted to the Alberta government by the oil and gas company. These records are both spatial and tabular. Upon completion of the project, the company is required to report to ANC the "as built" status.

“As built” submissions are handled by ANC in one of two ways. If an “as built” report is received by ANC, it is entered into a database. If an “as built” report is not received by ANC, then the “as built” condition is captured during the AVI update procedure.

Operators constructing industrial developments (e.g., powerlines and pipelines) through forested land do not normally reforest these areas following the termination of the development. These areas are typically removed from the province’s productive forested landbase, with a subsequent reduction in the Forest Management Unit’s (FMU) annual allowable cut (AAC). Compensation for the loss of productive forest land is paid to the timber rights holder in the form of timber damage assessment (TDA) dollars.

ANC’s forest management agreement (FMA) directs the use of TDA dollars to offset the impact of industrial development in the following way:

“6. (4)All compensation received by the Company under this paragraph shall be placed in a separate interest bearing account with an independent financial institution, and funds from the trust account shall be used solely for the purposes of:

- a) Purchasing logs from farmers and permittees who are logging on lands outside the forest management area*
- b) Purchasing wood chips that are not the subject of chip direction by the Minister to the Company*
- c) Intensive forest management programs as approved by the Minister”*

Another activity that ANC tracks is timber harvesting by all forest products companies. Timber is harvested in the FMA area either by quota holders or by ANC Timber Ltd. ANC annually photographs its cutover areas. The photographs are then interpreted and cutover boundaries created digitally in the Geographic Information System (GIS) database.

Areas harvested by quota holders are tracked in a similar manner, except that the photography is the responsibility of the quota holder. ANC uses these photographs to update the database.

Strategies:

- ✓ ANC Timber will keep accurate records of all industrial land withdrawals from its FMA area.
- ✓ ANC Timber will keep accurate spatial and non-spatial records of all of their timber harvesting activities within the FMA area.
- ✓ ANC Timber will work with Alberta Sustainable Development on developing an acceptable way to ensure accurate spatial records of all quota holder harvesting activities are kept.
- ✓ ANC will track all lands that are converted to non-forest land uses. ANC’s Forest Management agreement will form the basis for establishing thresholds for acceptable levels of land withdrawals and the consequences of exceeding those thresholds.
- ✓ ANC Timber will report annually the status of all land withdrawals to Alberta Sustainable Resource Development.
- ✓ Critical to many aspects of forest management including tracking land use activities is the maintenance of an accurate and current vegetation inventory. ANC will maintain an Alberta vegetation inventory (AVI) current to acceptable government standards by following the regular update schedule described in Figure 5.1.

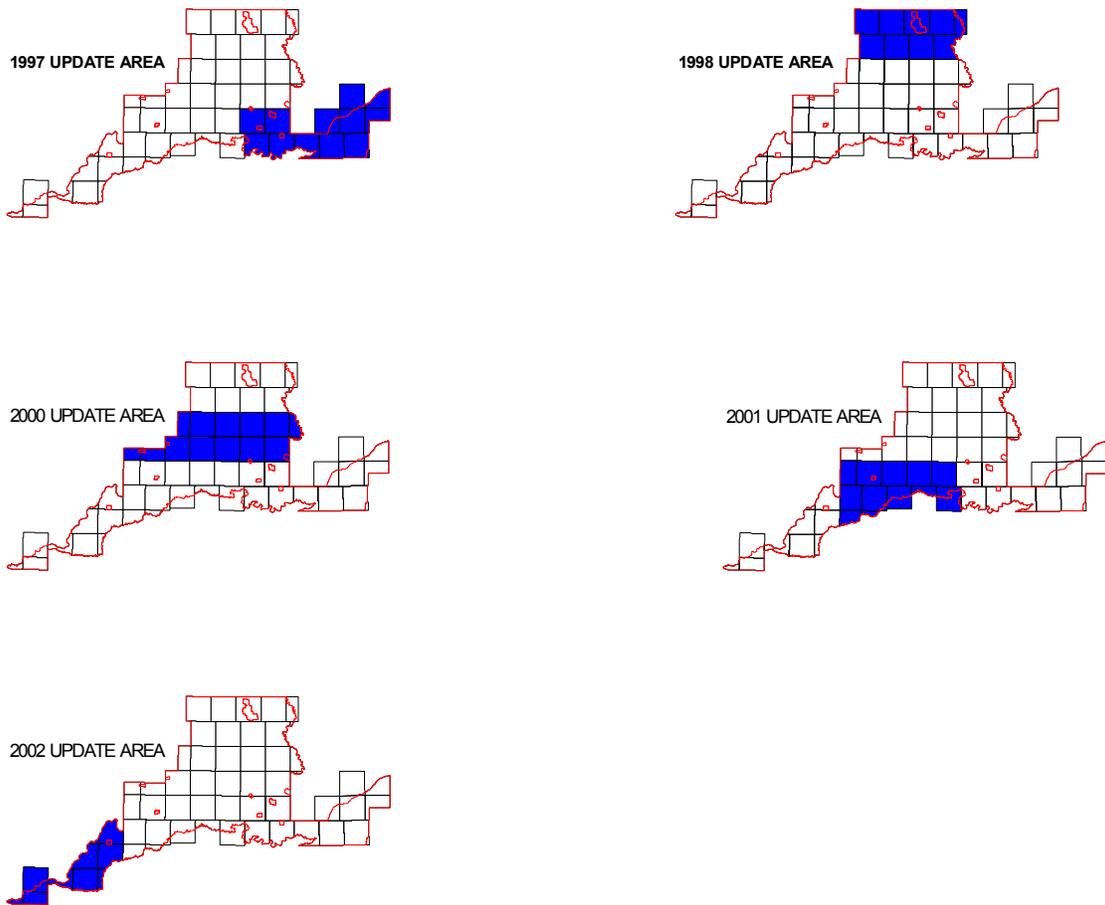


Figure 5.1 Scheduled Sequence of AVI Photography

5.3 GOAL 3—Conservation of Soil and Water Resources

Goal 3 focuses on the underlying physical environment of the forest. The protection of biological diversity (Goal 1) represented by the forest and the living systems that it supports and the sustainability of that support (Goal 2) relies on maintaining the underlying dynamic of soil and water resources in the FMA area. Soil and water characteristics largely determine the type of trees that grow, their density, and their distribution. The three groups of strategies (Long Term Access Development Plan, soil protection, and water protection) directly affect the ability of ANC to maintain its operations without modifying the soil and water characteristics of the landbase. The Long Term Access Development Plan contains strategies that ensure that temporary and permanent roads (and their reclamation) do not modify—beyond the natural range of variability—the soil layer and stream flow. The soil and water strategies discuss specific approaches to preventing harvesting activities from significantly changing the soil texture and structure, and water flow and extent in the FMA area.

5.3.1 Long Term Access Development Plan

5.3.1.1 Introduction

Long term, all weather roads are critical to Alberta Newsprint Company. Extraction of fibre from the Forest Management Agreement (FMA) Area is a fundamental business process that must be completed in a safe, timely, cost effective way.

The intent to construct one primary east west corridor for the FMA area has existed since the ANC project was initiated. The Berland Resource Road route was initially selected by the Alberta government to provide for resource extraction in the Berland plateau area. ANC has developed the majority of this road already with only a small amount of further construction required.

Accessing the land base for the purpose of exercising forest management responsibilities is also vital. These activities include reforestation, reclamation, vegetation inventories, and wildlife inventories.

The land base must be accessed in an aggressive, timely manner for the purpose of protection from wildfires as well. This objective is obviously critical for the management of timber production but is just as important for the protection of many other forest values.

In order to meet the above objectives, roads will be required for a considerable length of time. The life expectancy for primary roads is essentially the life of the FMA. Twenty to twenty five years would be the life expectancy of individual compartment roads and something less than that for individual block road networks.

The construction of access into remote forest areas has the potential to change various forest processes and hence should not be done in the absence of a coordinated plan. It is therefore the intent of ANC Timber to implement this Long Term Access Development Plan (LTADP) for the ANC FMA. Figure 5.2 depicts, via a map, the LTADP for ANC Timber's FMA area. Figure 5.3 shows all roads that are expected to be built over the 180-year planning horizon, plotted on a 9-km² grid size.

5.3.1.2 Summer Access vs. Winter Access

Distinction between summer and winter access has a couple of significant connotations. Roads constructed for exclusive winter use may be built to a standard that requires the ground be frozen in order to allow trafficking. This means that during non-frozen periods vehicle traffic will not be able to utilize these roads.

Roads constructed for year round use allow much more flexibility in terms of scheduling, and certain recreation uses.

Balancing conflicts between the need for year round access and the need to minimize access is complex and very important. It is anticipated that this LTADP will help ensure balance exists.

ANC Timber anticipates harvesting 60% of the annual harvested volume during frozen ground conditions and 40 % during non-frozen conditions. This is necessary for several reasons:

- ✓ To ensure a stable contractor workforce is available that consists of well trained, conscientious individuals who are in tune with ANC's philosophies and programs.
- ✓ To provide flexibility for log chip exchanges that allows delivery of logs to various mills in west central Alberta at various times of the year.
- ✓ To ensure as close to "just in time" deliveries as possible for the supply of fresh fibre to ANC's mill as well as to sawmills.
- ✓ To build up necessary inventories for a continuous log haul program under frozen conditions.
- ✓ To allow an early in early out approach to operations within the caribou study area.

Accomplishing these objectives requires a combination of both summer and winter only roads.

5.3.1.3 Access Opportunities Outside ANC FMA Area

Opportunities for the use of existing road systems outside of ANC Timber Ltd.'s FMA will be utilized wherever possible and feasible. It is in the best economic interest of ANC to do this as well as in the interest of minimizing road construction. The most logical road networks to consider are adjoining FMA areas.

Weldwood's infrastructure to the south for their FMA area was reviewed with no likely replacement potential for ANC roads. Weldwood's roads run north-south and our need is to move wood generally east and north toward our mill.

Both Canfor and Weyerhaeuser join the ANC FMA area to the west and north. Harvested volumes from compartments 1-9 and 1-8 will likely be hauled on roads outside of the FMA area, assuming those roads still exist when needed. Should this opportunity present itself, it would not preclude the need for roads within ANC's FMA area for the other compartments.

5.3.1.4 Access needs for forest protection

Typically fires start late in the afternoon from late day thunder storms. In order to get equipment to the fire line before the following afternoon, there must be a series of access routes strategically located across the entire FMA area.

The western region of the ANC FMA has the lowest road density. This, combined with continuous Lodgepole Pine/Black Spruce forest types makes it extremely susceptible to a catastrophic fire event. It is ANC's intent to reduce this risk by developing a road infrastructure in that portion of the FMA area as per Figure 5.2.

Alberta Newsprint recognizes the need to protect the western portion of the FMA area from catastrophic fire events. Without the ability to construct infrastructure that would improve the capabilities to prevent that occurrence ANC's responsibility is diminished.

5.3.1.5 Non-timber Values

A variety of non-timber values exist within the ANC FMA area. Many of these values are addressed within this DFMP.

Likely, the most critical non-timber value within the FMA area is Woodland Caribou habitat. The Woodland Caribou generally reside in two areas of ANC's FMA area. The a la Peche herd and the Little Smoky herd roam within western portions of the FMA area. New access development is deemed by the "Alberta Woodland Caribou Conservation Strategy" to be one of seven critical issues facing Caribou. Alberta Newsprint intends to develop access in Caribou range following the intent of Caribou habitat conservation. The creation of new access will be minimized but more importantly access use must be managed as it is the use rather than the existence of the access that is most critical to Caribou conservation. An FMA holder within Alberta does not have the right to deny access and hence a close working relationship with Alberta Sustainable Resource Development is critical if access is to be managed effectively. The fundamental principle must be an objective driven decision making process.

5.3.1.6 Route selection

Route selection principles are in line with the "Resource Road Planning Guidelines (ENR Technical Report T/25)".

The following principles were followed in identifying the routes depicted in the LTADP map (Figure 5.2):

- ✓ Access all compartments.
- ✓ Main haul road will be long term (20 years +) all weather roads.
- ✓ Main roads will take the route with the best ground conditions for construction and maintenance.
- ✓ Class 3 and 4 roads will branch off main roads to access the various compartments. These roads will be constructed to facilitate closing the road to public access if appropriate.
- ✓ Maximize the potential to access summer ground in the summer.
- ✓ Utilize existing access as much as possible.

- ✓Ensure route provides for safety of users.
- ✓The road will be usable for forest management activities other than harvesting and hauling.
- ✓The route could provide an anchor point for protection of the adjoining forest from wildfire.

5.3.1.7 Road Use management

An FMA holder is neither mandated nor authorized to restrict road use by the public. The following list is a series of potential road closure techniques that would be entertained by ANC Timber Ltd. on the direction of Alberta Sustainable Resource Development: gates, roll back, berms, snow-in, log decks, bridge removals, and cross ditches.

Factors that would be considered in selecting which technique is best suited to a given road closure would be such things as;

- ✓The season that a particular road is needed.
- ✓The availability of materials necessary for blocking access. These materials may include gravel for berms, logs, large boulders, etc.
- ✓The standard of road being closed.
- ✓The length of time the road is to be inactive. If a road is to be inactive for, say five years, a fairly aggressive closure technique would be used. If a road were to be inactivated for only one year then a less aggressive approach would likely be chosen.

The decision as to which technique would be used would be finalized through the existing approval process, which entails discussion between ANC Timber, Alberta Sustainable Resource Development and, potentially, the public through open houses and local Regional Forest Advisory Committee input.

5.3.1.8 Road closures

ANC may need to temporarily close permanent roads to vehicles during specific times of the year to prevent road grade degradation or watercourse sedimentation, or where there is a safety hazard. This will be authorized by Alberta Sustainable Resource Development.

Roads that are no longer required will either be “put to bed” or maintained for drainage and erosion prevention. Roads that are to be “put to bed” may be reclaimed in a manner that will allow periodic trail access for follow up reforestation and or recreation use. These decisions will be authorized by Alberta Sustainable Resource Development.

Roads that are not required by Alberta Newsprint or any other users should be reclaimed. These actions will be prompted by Alberta Sustainable Resource Development.

5.3.1.9 Implementation of LTADP

This LTADP becomes the framework for making access development decisions within the FMA area. In order to ensure coordinated access development between all users of the land base everyone should be starting from the same page. Alberta Sustainable Resource Development will maintain the approval role for access developments but by following a common plan, conflicts between land uses should be minimized. It is ANC’s intent to follow this LTADP. If a need arises for another party to construct a road they should be encouraged to follow this plan. By doing so, road construction should be minimized.

The LTADP does not replace the “Timber Harvest Planning and Operating Ground Rules” written under ANC’s Forest Management Agreement. Rather, the LTADP should be considered a supplement to those ground rules.

Strategy:

- ✓ ANC has worked closely with Alberta Sustainable Development and other industrial users of the FMA area in the development of a Long Term Access Development Plan. We will continue this open process as further refinements are made to the LTADP. As with any long-term plan, the process is ongoing, because all future needs and conditions cannot be anticipated. Therefore, some flexibility must be inherent in the plan and in the processes that lead to the plan. With the current LTADP, ANC believes that it has created the framework that will address all present and future access issues.

- ✓ ANC will ensure that the amount of their open all weather roads will be kept to densities of less than 0.3 km/km².

5.3.2 Water Protection Strategies

5.3.2.1 Water Quality

Forestry operations may have an effect on water quality and water resources. The main effect timber harvesting operations may have on water quality is causing elevated levels of suspended sediment (Krause 1982; Rothwell 1977). When properly managed, harvested areas cause minimal levels of erosion and sedimentation. The primary contributor to sedimentation is the construction and use of roads throughout forest operating areas, particularly at road-stream crossings (Anderson et al. 1977; Rothwell 1983).

The potential for damage to aquatic systems is increased if operations are conducted immediately adjacent to streams, rivers or lakes. This practice has the potential to be detrimental not only to the aquatic systems that could see increased inputs and changes in the sediment content, but also to forest regeneration, through the loss of valuable soil materials and nutrients. Riparian vegetation buffers act to mitigate the impacts of forestry activities adjacent to stream courses. In a natural state, vegetation and forest litter protect the soil surface, providing a balance between erosional processes and soil forming processes (Swanston 1974). Vegetation within the buffer area absorbs nutrients and also provides a physical barrier to sediment transported by water in overland flow (Bunnell et al. 1995). When the vegetation is removed immediately adjacent to the stream courses, surface erosion can progress rapidly. This rapid erosion removes the surface soil available for new plant and tree establishment, along with the essential nutrients required for tree growth. Therefore, it is normally advantageous to forest managers to maintain areas of natural vegetation adjacent to waterbodies and streams and rivers in order to buffer any potential negative impacts on aquatic and soil resources.

Strategies:

- ✓ ANC Timber will update the current Timber Harvest Planning and operating ground rules considering the following guiding principles:
 1. Conditions in water-source areas may differ between sites. Therefore, buffers may be altered according to the potential of the source area within the buffer to produce surface water.
 2. Harvesting on sustained steep slopes should be carefully considered, as the potential for soil erosion is high. Under these circumstances, consideration should also be given to harvest during the time of year and in manner that will minimize the potential for soil erosion. Detailed cutblock plans should also be prepared for these areas if harvesting is to proceed.
 3. Timber operators should cooperate to plan and coordinate their reclamation activities when separate harvest operations are conducted on the same cutblocks. Plans should also be developed that would minimize or eliminate wheel or track ruts.
 4. Improperly decked logs have the potential to cause damage to soils, watercourses or water-source areas. Attention should be given to ensure that logs are properly decked and that decks placed on water-source areas during frozen periods should be removed before the ground thaws.

- ✓ Several types of hydrological and soils data from within the FMA area were organized in the development of this DFMP. This information includes suspended sediment data (collected for the Water Survey of Canada), tables and maps describing erosion risk levels, and ranks of individual stream-road crossings in terms of sedimentation events. This information will serve to establish a process for assessing the affects of ANC Timber's operations on water quality. ANC Timber will use this information to monitor and assess sedimentation events, particularly at road-stream crossings.

- ✓ In order to protect the watersheds within the FMA area, ANC Timber will ensure that suitable buffers are established around riparian areas during harvesting operations. Details of watershed protection for the purpose of protecting water quality will be developed through the new operating ground rules.

- ✓ ANC will develop specific targets for water quality in the operating ground rules following the receipt from Alberta Sustainable Resource Development of water quality indices thresholds. This approach will ensure that ANC activities are not likely to cause these indices to exceed

acceptable ranges. ANC will first negotiate the format of an annual report on the status of its operations relative to operating ground rules and then submit that report annually.

- ✓ As part of their monitoring program, ANC Timber will develop, with FWITC, a point source sampling procedure for streams. This procedure will serve to track any changes in sedimentation levels, and help to identify the causes of those changes.
- ✓ ANC will ensure that the negotiated operating ground rules identify means for managing key areas for water protection.
- ✓ ANC will prepare harvest plans, including maps and documentation for each harvest site, which will assist in minimizing negative watershed impacts.
- ✓ ANC will maintain the amount of area currently managed for water protection. Regular AVI updates will be used to track any changes in the amount of area managed for soil and water protection (e.g., buffers, springs, and recharge areas), allowing for management adjustments if any significant negative trends are observed.
- ✓ An inventory of water crossing densities within the FMA area is provided in Section 2.2.3. This information will be used by ANC to ensure that regulations and procedures are applied to each crossing, and that changes to these sites will be monitored.
- ✓ ANC Timber will adhere to the Guide to the Codes of Practice for Watercourse Crossings (Alberta Sustainable Resource Development).
- ✓ ANC Timber will ensure that all watercourse crossings are monitored for possible damage to crossings due to flooding. High risk watercourse crossing will receive added attention, as these areas are more likely to sustain possible damage, while lower risk crossings will be screened periodically.

5.3.2.2 Water Quantity

Due to the natural variability in water flows and peak flows, it is difficult to isolate specific forestry activities that directly contribute to alterations in stream flows. Seasonal temperature changes, variations in average annual precipitation, and changes in soil characteristics (e.g., moisture regime, texture, and temperature) can all influence the rate at which water flows through a given watershed, potentially masking anthropogenic effects. Furthermore, streams within this region of the province can exhibit a wide range of natural stream flows (Rothwell and Spillios 1998). Consequently, changes in flows and peaks observed following harvesting can often fall within the range of natural variability and may only be obvious when there are large differences in water storage capacity (Krygier and Harr 1972; Rothacher 1973).

Strategies:

- ✓ ANC will request data from Alberta Sustainable Resource Development regarding trends in timing of events in stream flows from forest catchments. Operating ground rules will be developed that will ensure ANC activities are not likely to cause these trends to exceed acceptable ranges.
- ✓ As part of our commitment to protecting the natural trends and timing of events in stream flows, ANC Timber will assess the value of a stream flow model, which can be applied to the FMA area's various catchments. This assessment will allow ANC Timber to select, or

develop, a model that is appropriate for the type of operations being conducted within the FMA area.

- ✓ All cutblocks will be replanted within 2 years following harvesting. This activity will reduce the potential increase in stream flow, as forested sites will retain more water than non-forested cutblocks.
- ✓ Through the use of buffers around lakes and rivers, soil erosion will be reduced and ground water retention will be maintained at levels that should not alter stream flows beyond the range of variability that would potentially result from natural processes.
- ✓ ANC Timber will adhere to the company-specific ground rules governing watercourse crossings and operating beside watercourses. By following these guidelines, there will be minimal effects on stream flow, including unrestricted fish passage on fish bearing streams, protection of watercourse banks, and minimization of soil erosion.
- ✓ ANC Timber will minimize the amount of permanent all weather roads within the FMA area. Although not directly tied to stream flow, by minimizing all weather roads within the FMA area, ANC Timber will also minimize road-stream crossings and sedimentation events. As a result, the potential impact on stream flow dynamics will be reduced.
- ✓ ANC Timber has mapped and described the location and extent of existing surface water within their FMA area (Section 2.2.3), providing the basis for the future assessment of forest management activities on these areas. The amount of surface water will continue to be recorded on an ongoing basis. This will allow ANC Timber to compare current conditions to the past extent and location of water resources. Changes may then be tracked, allowing ANC to make future management decisions to limit any losses in surface water within its FMA area.
- ✓ ANC will adhere to operating ground rules to be negotiated with Alberta Sustainable Resource Development. These ground rules will ensure that the surface area of water within the FMA area will not be reduced below the range of natural variability as a result of ANC's activities.

5.3.3 Soil Protection

ANC is committed to protecting soil resources within its FMA area during all phases of forest management activities.

The early identification of potential problems is key to ensuring protection of soil productivity. ANC has identified sensitive soil areas within the FMA area (Section 2.2.2), along with the most common physical properties that make soils susceptible to deterioration. The negative impacts of forestry operations on soils can be reduced through the application of a systematic planning and implementation program. ANC will be developing ground rules after the approval of the DFMP and in negotiations with the department. These new ground rules will identify additional areas (to the current areas), if there are any, that should be managed for protecting soil resources.

The Long Term Access Development Plan also contains strategies related to minimizing the percentage of harvested area affected by soil disturbances. One of the guiding principles of the LTADP is that existing access will be utilized as much as possible. This principle ensures that over-construction or duplication of roads within an area is avoided. Moreover, the LTADP provides a framework for making access development decisions within the FMA area. This framework will promote coordinated access development between all users of the land base, and ANC will encourage all parties to follow the LTADP, thus minimizing road construction.

Strategies:

- ✓ ANC will negotiate a set of operating ground rules with Alberta Sustainable Resource Development that ensure adequate measures are taken to protect soil productive capacity.
- ✓ Cutblocks will generally be designed to follow natural terrain features and timber type boundaries to minimize the impacts on soil and water resources. Harvest designs will attempt to prevent or mitigate any changes that could reduce the site's capacity to regenerate and grow trees. Any harvesting on steeper slopes (i.e., more than 45 percent) will be done during a time of year and in a manner that will minimize the potential for soil erosion. More detailed cutblock plans will be developed for these types of areas.
- ✓ Care will be taken during operations to minimize damage to the soil's structure, density, fertility, drainage or porosity particularly during times when it is water saturated. Planning for harvesting, reforestation, and/or reclamation activities will be coordinated between ANC staff and contractors, when operations are occurring in the same cutblock. Furthermore, ANC staff and contractors will be advised that activities causing wheel or track ruts during harvest, reforestation or reclamation operations should be avoided or stopped until conditions improve.
- ✓ During harvest, logs will be decked in a fashion that minimizes damage to soils, watercourses or water-source areas. Decks located on water-source areas during frozen periods will normally be removed prior to the ground thawing. Furthermore, erosion control structures will be in place prior to decking timber on bared surface areas along road right-of-ways.
- ✓ Existing roads, trails, landings and campsites will be used wherever possible. Where new construction is required, roads, skid trails, landings and campsites will be located and constructed so that soil erosion, damage to streambeds and sedimentation of watercourses is minimized. Roads will generally be constructed during dry weather and using mineral soil and/or gravel materials. Roads, skid trails, landings and campsites will be located where they will avoid identified unstable areas, water-source areas, springs, and seepages. Attempts will be made to follow natural high points, moderate slopes and ridges, avoid steep or constant slopes, and diminish the amount of mineral soil disturbed, compacted or exposed during construction. Disturbance to the duff and organic soil will be minimized to reduce damage to the roots of bordering trees and to provide a protective soil cover whenever materials removed from the road right-of-way are not used for grade construction.
- ✓ During road construction, the amount of bared surface area will be minimized during the period of time between subgrade construction and completion of erosion control activities. Permanent, all-weather roads will be maintained to reduce wheel or track ruts, and to minimize watercourse sedimentation from erosion and traffic during poor weather. Measures will be taken to ensure that water from roads, ditches and bared soil surfaces does not drain directly into watercourses.

- ✓ Roads may initially be reclaimed in a way that allows ATV access, depending on erosion potential, reforestation plans, further management requirements (i.e., second pass), wildlife concerns, fire control requirements, trapper or other stakeholder needs, aesthetic concerns and recreation and tourism interests. Where it has been determined that skid trails, landings and roads are no longer required, they will be permanently reclaimed using appropriate methods. Any watercourse crossings, roads, skid trails and landings that have a high risk of soil erosion, will be reclaimed and their condition monitored on a periodic basis until they have stabilized.
- ✓ Should the capability of the soil to grow trees be reduced by operations, reclamation techniques will be utilized in order to restore site productivity.
- ✓ Care will be taken to minimize potential damage to the soil's structure, density, fertility, drainage or porosity, particularly during periods when it is water saturated.
- ✓ If the potential for the site to grow trees is reduced through operations, reclamation techniques will be employed to restore site productivity.
- ✓ Care will also be taken to ensure that soil, logging debris, or other materials will not be deposited into any watercourse or water body during road construction, harvest, reclamation or reforestation operations.
- ✓ Measures will be used to ensure that water from roads, ditches and soil surfaces do not drain directly into waterbodies or watercourses. For example, roads, skid trails, landings and campsites could be located and constructed to minimize potential soil erosion, damage to streambeds, and potential sedimentation of watercourses.
- ✓ Vegetated buffers could be retained or a system of barriers (e.g. logs, rocks, and mounds) assembled to reduce the force of water, where buffers alone do not impede water and soil movement.
- ✓ Planning for harvesting and reforestation will be coordinated between ANC staff and contractors to minimize soil erosion, soil compaction, and watercourse sedimentation.
- ✓ Guidelines developed by the Land and Forest Service and the Alberta Forest Products Association to assist industry and government in the management of temporary roads, decking areas and skid trails, and to illustrate how these operations impact forest soil conditions will be followed. These guidelines are integrated and implemented within ANC's planning and operations.
- ✓ ANC will continue to monitor literature related to the impact of forestry operations on soil conditions. This will help to identify future trends in management practices. ANC is also committed to the monitoring guidelines listed in the Forest Soils Conservation Guidelines. The information obtained from monitoring programs will help to reduce the impacts of forestry operations on soil resources.

5.4 GOAL 4 - Multiple Benefits of Forests to Society

Forests provide many benefits to society. Some of these benefits have already been addressed in previous Goals. In this section we focus directly on society's expectations for forest management. We discuss groups of strategies under economic viability, timber production tracking, balancing of values, and research and development.

The economic viability of ANC provides benefits to surrounding communities and to individual employees. Timber production tracking is a direct measure of ensuring that timber taken from the forest does not exceed sustainable levels for benefits to continue to flow. Balancing of values is necessary so that non-timber uses of the forest can be accommodated without producing unwanted strain on the ecosystem. Finally, it is only through research and development that more sophisticated and accurate management and modelling initiatives can be applied to the landscape and stand level of forest management.

5.4.1 Economic Viability

A detailed explanation of how Alberta Newsprint Company intends to remain an economically healthy and viable company is beyond the scope of this detailed forest management plan. However, it is important to consider the implications of economic health. By remaining economically profitable, ANC Timber will maintain an ability to invest in forest management and development. Historically these expenditures have reached beyond fibre management interests into areas such as caribou management, fisheries management, and recreation management. By remaining profitable, ANC Timber will be in a position to continue investments in these and other appropriate areas.

Economic viability is also important to the long-term employment stability for the region. The Canadian Council of Forest Ministers recognizes the importance of this stability in ensuring sustainable management of the forest. Sustainable management is critical to protecting jobs over the long term. This linkage is as critical to the economic health of ANC as it is to the ecological health of the FMA area.

Further advances in forest management through research and development expenditures also rely on the economic health of ANC. To continue investment in new research and development, ANC must remain profitable.

Strategy:

- ✓ By remaining economically viable ANC will be able to ensure employment for local community people.

5.4.2 Timber Production Tracking

Chapter 3 describes how the sustainable level of timber harvest (the Annual Allowable Cut) was determined. In order to control how that volume is harvested, a systematic approach is important. The following sections describe how harvested timber volumes are tracked and compared to levels deemed sustainable.

Strategies:

- ✓ ANC will adhere to the cut control conditions defined in the Forest Management Agreement. ANC will ensure quadrant (5 year) removal of wood products does not exceed the amount determined to be sustainable. A quadrant allowable level is five times what is determined to be the allowable annual harvest level.
- ✓ ANC will regularly report harvest levels to Alberta Sustainable Resource Development through the Timber Return reporting system
- ✓ Annual harvest levels will be controlled by five-year, quadrant cut-control levels for each of the four sustained yield units (Pine, Smoky, Berland and Foothills).
- ✓ Timber harvested by other industrial land users is charged against the annual allowable cut. Volume harvested for these activities is calculated by determining the area cleared in hectares and multiplying that area by the average volume per hectare presently known to be present on the FMA area. Whichever forest products company receives, the salvaged wood has the AAC charged to their allocation. To date this has been exclusively ANC Timber.
- ✓ The Province of Alberta, through a quota certificate, grants quota holders within the FMA area a percentage of the annual allowable cut. The tracking and reporting of the volume harvested by the quota holders is the responsibility of the Alberta Government through Land and Forest Service (LFS). ANC Timber Ltd. relies on the LFS to monitor the quota holders' annual level of harvest and to report those harvest levels to ANC Timber for stewardship reporting purposes. The LFS will notify ANC Timber in the event of discrepancies between quota holders' actual harvest levels and what has been determined to be sustainable.

5.4.3 Balancing of Social, Economic, and Environmental Forest Values

The availability and use of recreational resources in the FMA area are consistent with Forest Management Agreement #8900026, in which the Company has made an agreement with the Province that

“S 8. (1) (a)The right of others to travel, hunt, fish, and otherwise use the said lands for recreational purposes, or to trap, subject to any necessary restrictions approved by the Minister for the purpose of prevention of accidents, fire control and seasonal protection of roads.”

Road development by ANC to access the wood supply also serves to enhance the community use of the forest, restricted by the countervailing need to protect wildlife and other environmental values of the forest.

The forest management activities described in this DFMP are in no significant way different from activities that the local communities have adjusted to since 1990. For that reason, no incremental increase in impact is expected on local communities due to the forest management activities described here.

Strategy:

- ✓ ANC will continue their ongoing support of the Regional Forest Advisory Committee to solicit comments and suggestions on the extent to which the FMA area can support, in terms of land base and reduced conflicts with forest operations, an increase in non-market use of the forest.

5.4.4 Significant Features Including Recreation

Many features of the FMA area are considered significant by people within the local community (Section 2.4).

Strategy:

- ✓ Areas within the FMA area with existing or potential recreational value will be identified for protection or enhancement in the preparation of Compartment harvest plans.
- ✓ Sources of information for determining where these significant areas are will include local community members through ANC Timber's public involvement processes (see Section 5.5.2), ANC staff knowledge gained through the development of various plans and activities, and government referrals.
- ✓ ANC Timber will keep a running track of the spatial location of significant features within the FMA area. Typically, these features will be gathered through discussions with local publics.
- ✓ ANC will maintain dialogue at open houses, one-on-one contact, and through the Regional Forest Advisory Committee. In this way, recreational opportunities will be identified. These opportunities will be recognized and considered through planning and approval processes between ANC and Alberta Sustainable Resource Development.
- ✓ ANC will maintain a significant features map that includes recreational opportunities and report the status of this map annually to Alberta Sustainable Resource Development.

5.4.4.1 Protected Areas

Through innovative, community based initiatives, ANC is confident that all needs associated with forest management can be met. The Little Smoky River Corridor Management Strategy (Appendix 5) is a case in point. ANC intends to continue with this approach of managing based on ecological principles guided by local community input. In this, we are confident that the forests will remain healthy and ecosystem representation will be ensured.

ANC Timber Ltd. is committed to sustained yield forest management and integrated resource management throughout its entire FMA area. However, the Little Smoky River Corridor warrants special attention due to the number of important resource values it contains. The Little Smoky River Corridor Management Strategy (Appendix 5) was developed to identify and protect those resource values. Resource values of special interest in the Little Smoky River Corridor include timber, caribou, wildland recreation, sport fishing, and oil and gas reserves.

Strategy:

- ✓ ANC will work with the local community to ensure appropriate protection measures are developed for the entire FMA area.

5.4.4.2 Non-Market Goods

The opportunity exists in the FMA area for utilization of forest resources for non-market goods and services, including use of the land for subsistence purposes.

ANC Timber will work with local individuals and groups through its public involvement process to identify where and how those opportunities are being utilized. Once this information is known,

ANC will work with those groups in consultation with all stakeholders, on ensuring that legal rights are not compromised. Existing government policy and legislation will be key in developing solutions to any potential issues that may arise.

Strategies:

- ✓ ANC will work with users of the FMA area to ensure their continued ability to access the FMA area for the purpose of utilizing non-market goods and services.
- ✓ ANC will request annually a report from Alberta Sustainable Resource Development on the status of non-market goods and services uses of the FMA area.
- ✓ By following legislation and policy and by maintaining an effective public communication, program ANC will ensure that opportunities for accessing non-market goods and services are not impaired.

5.4.5 Research and Development

ANC Timber is committed to continual improvement in all areas of its operations. One means of improvement is available through research and development. Researching new ideas and subsequently developing better ways to manage forest operations is an integral part of adaptive management.

Strategies:

- ✓ Ensuring money necessary for research and development is available by continuing to be profitable.
- ✓ Continuing to be involved in the forestry community in Alberta to recognize opportunities for research and development expenditures that make economic as well as scientific sense.
- ✓ Investing in forest-based research, based on company-specific needs. It is assumed that these company-specific needs will be common with the needs of other forest products companies in Alberta.
- ✓ Investigating means to increase ANC's cost effectiveness in such areas as harvesting, hauling, and reforestation will be researched over the next ten years. Ad hoc research will be undertaken as specific needs arise. Membership in the Forest Engineering Research Institute of Canada (FERIC) will ensure the delivery of new research and innovation in this area.
- ✓ Supporting research on aspects of forest renewal that continue to challenge the company. Through persistent research, improvements in forest renewal programs will be made. FERIC membership will continue to provide results in this area, as will an ad hoc approach to initiating new research and development programs. ANC also has a program of cooperation with academic institutes and we are continually seeking new partnerships in research and development.
- ✓ Exploring several avenues of research in ecologically based forest management. The Foothills Model Forest, University of Alberta, and several private sector researchers with expertise in the area of ecosystem management are being considered as research partners for new projects.

- ✓ Participating in cooperative research ventures with the Alberta Government and other industrial resource users to learn more about woodland caribou. ANC will continue to participate in the West Central Standing Committee on caribou because of its strong influence in guiding research that will best meet the needs of the companies, the government and, most importantly, the caribou.

5.5 GOAL 5 - Accepting Society's Responsibility for Sustainable Development

ANC has been given the privilege of managing the FMA area, but it is understood that this privilege is based, fundamentally, on a relationship of trust with the people who live in the adjoining communities. The Objectives under this goal are designed to respect historical use of the landbase (sites of community significance); involvement of the public in presenting issues to ANC and ANC providing appropriate forums for individual concerns to be heard; public education initiatives to involve the public in the adaptive management learning strategies that are intrinsic to ANC operations; and the role of ANC in working with all levels of government.

5.5.1 Sites of Community Significance

Strategies:

- ✓ ANC will identify the locations of unique or significant community social, cultural or spiritual sites through public involvement processes. By following legislation and policy, ANC will protect these sites. The locations of known significant community social, cultural and spiritual sites will be reported annually to Alberta Sustainable Resource Development.
- ✓ By following current legislation and policy, ANC will ensure that land continues to be available for subsistence purposes. ANC will request annually a report from Alberta Sustainable Resource Development on the status of subsistence land uses within the FMA area.
- ✓ The types and amount of various forest uses at the community level will be quantified through public involvement processes. Maintenance of the opportunity for those uses will be handled through adherence to current legislation and policy. ANC will annually report forest uses identified through public involvement.
- ✓ At the time of writing of this detailed forest management plan, the Alberta Government is in discussions with the Alberta Forest Products Association to determine what management process would best meet the needs of all parties with respect to ensuring protection of heritage resource values. These discussions are based, in large part, on an industry sponsored (ANC Timber, Slave Lake Pulp, Millar Western and Blue Ridge Lumber) heritage modelling study (Western Heritage Services Inc. 1999). It is ANC Timber Ltd.'s intent to wait until that process has been completed before deciding which approach will be taken.

5.5.2 Public Involvement

ANC Timber. is committed to ensuring the Alberta public has an opportunity to influence how their forests are being managed. Throughout the development of this plan, the public has been consulted in an attempt to collect and understand their concerns. The primary vehicle for public consultation has been the Regional Forest Advisory Committee (RFAC). ANC will continue its participation in RFAC as long as the local community feels it is necessary and effective.

The other forest product companies with timber quota allocations within the FMA area have also been consulted during the development of this DFMP. They are recognized as stakeholders who could be significantly affected by the initiatives contained within this DFMP. It is ANC's intention to continue consultations with the quota holders.

Finally, as the provincial regulatory body, Alberta Sustainable Resource Development plays a key role in ensuring that the interests of all parties are considered during the implementation of this forest management plan.

Strategies:

- ✓ ANC will maintain an open door policy and approach when dealing with local communities through the public involvement process. ANC will report annually the status and issues identified through the public involvement process.
- ✓ ANC will continue with open houses, ad hoc meetings, open door policy and the Regional Forest Advisory Committee. ANC will report annually the status and issues identified through the public involvement process.
- ✓ ANC will report annually a summary of both the public input received during the preceding year as well as an explanation of how that input influenced any Forest Management activities either planned or current.

5.5.2.1 Regional Forest Advisory Committee (RFAC)

The Regional Forest Advisory Committee was established to provide advice and recommendations to the forest industry and Land and Forest Service on matters dealing with forest management. The committee members, who represent a broad spectrum of resource interests, try to ensure the advice and recommendations are representative of the interests of all resource user-groups.

The Regional Forest Advisory Committee facilitates the identification of concerns and issues in a timely manner, so that forest companies can consider these concerns when writing management plans and delivering programs. The Regional Forest Advisory Committee helps to identify those indicators that best represent the forest and social values that need to be sustained. RFAC attempts to identify and communicate the local communities' social values. Forest companies can then use this information to ensure that forest resources are being managed in the best interests of present and future generations.

The advice and recommendations provided by the Regional Forest Advisory Committee are an integral part of ANC's forest management regime. The Regional Forest Advisory Committee does not have any decision-making powers, but it does provide valuable advice and insightful recommendations. This helps ensure that local interests are reflected in forest management operations.

A Technical Scientific Committee provides technical advice to each Regional Forest Advisory Committee. Joint meetings between the Regional Forest Advisory Committee and the Technical Scientific Committee are held at specified times. In addition, they and the Forestry Wildlife Integrated Technical Committee (Appendix 4, Terms of Reference) provide specific guidance on wildlife issues.

Membership in RFAC is not exclusive to those within the forest industry. Interested parties need to express interest in joining RFAC and will be admitted pending acceptance by the current members. Several categories of membership currently exist for RFAC and designation is determined on a case-by-case basis. A member at large (i.e., someone who does not represent a specific interest group or organization) may be considered by RFAC on a case-by-base basis. The other categories are listed below.

Active Members (Voting)

Interest groups or organizations are selected by the Regional Forest Advisory Committee (Appendix 1) from within the communities in the region.

Standing Members (Non Voting)

Standing members are representatives of Alberta Newsprint Company, Blue Ridge Lumber, Millar Western, Mostowich Lumber and Alberta Environmental Protection.

Ad Hoc (Non Voting)

Ad Hoc committees may be established from time to time. These committees focus on specific issues and allow greater community involvement by citizens directly affected by those issues. Ad Hoc committee members are invited for the duration that an issue is under consideration and are selected based on equitable representation. Ad Hoc committee members only attend specific RFAC meetings as required.

Observer Status (Non-Voting)

All RFAC meetings are open to the public. Guidelines for observing are established at the beginning of each meeting at the discretion of the Chair. The Chair may also ask for comments from observers during a meeting. Generally, however, observers are only allowed to watch RFAC and Ad Hoc meetings, without active involvement in the process. Table 5.6 lists the membership in the Committee, as of 1999.

ANC Timber is committed to remaining an active participant in RFAC for as long as the local community feels it is useful.

5.5.2.2 Annual Open Houses

ANC Timber has held annual open houses in the local communities most significantly impacted by company activities. In the past, this has included Fox Creek, Whitecourt, Grande Cache, and more recently, Mackay.

ANC Timber Ltd. intends to continue with open houses as one aspect of its community involvement. Although the locations of the annual open houses will continue to be driven by local needs, they will likely remain at Fox Creek, Whitecourt, Grande Cache, and Mackay.

Table 5.6 Current (1999) members list for RFAC

Name	Association	Member Status
Harold Bellwood	Winter Recreation	Active Member
Glen Larson	Mostowich Lumber	Standing Member
George Robertson	Land & Forest Services	Standing Member
Daryl D'Amico	Blue Ridge Lumber	Standing Member
Vacant	Oil & Gas	Active Member
Jonathan Russell	Millar Western	Standing Member
Greg Branton	Alberta Newsprint	Standing Member
Gary Pollock	Town of Swan Hills	Active Member
Ken Porter	First Nations	Active Member
Mel Knight	Municipal District #16	Active Member
Vlad Broz	Forestry/Logging Contractor	Active Member
Fred Priestly-Wright	Municipal District #94	Active Member
Richard Tipton	Municipal District	Active Member
Morris Lerohl	Summer Recreation	Active Member
Willard Strebchuk	Town of Whitecourt	Active Member
Bernie Hornby	Town of Fox Creek	Active Member
Jean Hagman	Town of Mayerthorpe	Active Member
Dwayne Alexis	First Nations	Active Member
John Frank	Trappers	Active Member
Gary Smith	Environmental	Active Member

Annual open houses will be held in locations and at times that convenience the people in their respective communities. All aspects of company business related to forest management are open for discussion, with poster-style presentations most common. Typically, subject matter involves harvesting and road building plans, as well as reforestation activities.

5.5.2.3 Ad Hoc Meetings/Tours/Visits

In the spirit of maintaining an open door policy with community stakeholders, ANC will continue to hold ad hoc meetings as the need arises. Typically, ad hoc meetings have taken place between ANC and municipal districts, town councils, recreation clubs and/or quota holders. Ad hoc meetings will continue to be an important component of ANC Timber's public involvement process.

The Little Smoky River Corridor Management Strategy is an example of how ANC Timber demonstrates its willingness to react to public concerns regarding local forest management issues.

5.5.2.4 Personal Contact

One of the cornerstones ANC's public involvement program is personal contact with concerned community members. Over the past ten years, numerous individuals have expressed an interest in how the company's FMA area is being managed. ANC has been more than willing to maintain these relationships and to consider the individual stakeholder's ideas and thoughts when developing management plans and implementing activities.

5.5.3 Public Education

ANC Timber believes that an informed public, willing to participate in forest management decisions, is critical to meeting sustainable forest management Goals and Objectives.

ANC Timber intends to focus their public education efforts at the local level through several programs. To date, these efforts have included:

- lectures by forestry staff at local schools

- articles in the company publication “The Reel Sheet”

- articles in the local papers

- open houses

- trade fairs

- RFAC sessions, etc

ANC intends to continue these types of activities during the next ten years. Alberta Newsprint Company also supports and actively participates in the FEESA Forestry Education Institute. This Institute focuses on “educating the educator” by providing non-biased, hands-on learning experiences to teachers in Alberta schools. The intent is to better prepare teachers for in-class resource management discussions with their students. Alberta Newsprint intends to maintain support for this program as long as it continues to provide its current level of service.

Strategy:

- ✓ ANC will continue to participate in appropriate educational forums, as opportunities arise. Examples to date have been FEESA, local school talks, open houses, and community trade shows, etc. ANC will report annually to Alberta Sustainable Resource Development the types of public education forums that were participated in.

5.5.4 Government Policy

The 1992 National Forest Strategy entrenched the desire of all levels of government to manage forest resources in a sustainable way. Several provinces, including Alberta, introduced new legislation as a result of the principles expressed in the National Forest Strategy. The resulting legal framework within Alberta has helped provide direction to forest managers as they developed management strategies for their FMA areas. This framework has been critical to successful forest management within the ANC FMA area, as well as for Alberta as a whole. Although tenure agreements with the Crown form the basis for defining the legal rights and obligations of ANC Timber Ltd., social, environmental and economic pressures sometimes lead to the reconsideration and modification of those agreements.

As members of the Alberta Forest Products Association, ANC Timber actively participates in a wide variety of committee work. This work is aimed at assisting the Alberta Government in developing Acts, Regulations and Policy that will influence forest management in the province and in the FMA area. ANC intends to continue this participation because we wish to play a part in the process that determines our rights to practice sustained yield forest management under

the Forest Management Agreement. ANC does not wish to see these rights diminished as a result of changing policy and/or legislation.

Strategy:

- ✓ Through participation in the Alberta Forest Products Association, individual contacts, and discussions with the Alberta government on proposed laws and regulations, ANC will provide feedback through various channels. ANC will participate in appropriate AFPA committees and provide input to the government through separate company initiatives.

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