

Coast Tsimshian Resources Limited Partnership

Tree Farm Licence 1

MANAGEMENT PLAN # 10

DRAFT #2

Term –January 1, 2004 – December 31, 2008

July 2006

PREAMBLE

This management plan was prepared by the Skeena Cellulose Inc. woodlands staff responsible for Tree Farm Licence 1. A number of parties and individuals assisted in its preparation. Sterling Wood Group Inc. completed the timber supply information package, the timber supply analysis, and the twenty-year plan. Significant contributions in completing this management plan were made by R. Brouwer, RPF, S.J. Macpherson, RPF, A. Donaldson RPF, and S.M. Smith, PhD, RPF. The text for this plan was updated in 2006 by Linda Wilson, FIT, of Coast Tsimshian Resources Limited Partnership.

Professional Forester Certification

I certify that I have reviewed this document and while I did not personally supervise the work described, I have determined that this work has been done to the standards expected of a member of the Association of BC Forest Professionals.

B. Wilson, RPF

Acknowledged and accepted on behalf of Coast Tsimshian Resources Limited Partnership

*Brendan Wilson, RPF
Coast Tsimshian Resources Limited Partnership*

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TABLE OF CONTENTS

EXECUTIVE SUMMARY	VII
1 INTRODUCTION	1
1.1 LOCATION AND DESCRIPTION	2
1.2 HISTORY AND COMMITMENTS	3
1.2.1 Licence Holder	3
1.2.2 Community Dependence	3
1.2.3 Administration	5
1.2.4 Resource Legislation	6
1.2.5 BC Timber Sales Program	6
1.2.6 Resource Issues	6
1.2.7 Management Plan 9 Performance	8
2 INTEGRATED RESOURCE PLANNING	9
2.1 STRATEGIC PLANNING	9
2.1.1 Kalum Land and Resource Management Plan	9
2.1.2 Landscape Units	19
2.1.3 Timber Supply Analysis	21
2.1.4 Twenty-Year Plan	21
2.1.5 B.C. Timber Sales Program	22
2.2 OPERATIONAL PLANNING	23
2.2.1 Forest Development Plan	24
2.2.2 Forest Stewardship Plan	25
2.2.3 Silviculture Prescription	25
2.2.4 Site Plan	25
2.2.5 Road Permit	25
2.2.6 Cutting Permit	25
3 RESOURCE INVENTORIES	26
3.1 TIMBER	26
3.2 RECREATION/ LANDSCAPE	32
3.3 BIOGEOCLIMATIC ECOLOGICAL CLASSIFICATION	33
3.4 SOILS AND TERRAIN STABILITY	37
3.5 WATER	37
3.6 PROTECTED AREAS	39
3.7 FISH HABITAT	39
3.8 WILDLIFE HABITAT	40
3.9 CULTURAL HERITAGE	42
3.10 MINERALS	42
4 SUSTAINABLE MANAGEMENT REGIME	46
4.1 MANAGEMENT OBJECTIVES	46
4.2 MANAGEMENT GOALS, DIRECTION AND STRATEGIES	46
4.2.1 Function: Management and Utilization of the Timber Resource	47
4.2.2 Function: Protection and Conservation of Non-timber Values and Resources	49
4.2.3 Function: Integration of Harvesting Activities with Non-timber Uses	52
4.2.4 Function: Road Construction, Maintenance and Deactivation	55
4.2.5 Function: Forest Fire Management	56
4.2.6 Function: Forest Health Management	57
4.2.7 Function: Reforestation and Silviculture	58
4.3 RECOMMENDATIONS AND COMMITMENTS	60
5 CONSULTATION WITH OTHER RESOURCE USERS	61

6	IMPACT SUMMARY OF MANAGEMENT PLAN IMPLEMENTATION.....	63
6.1	MANAGEMENT ISSUES.....	63
6.1.1	<i>Issues Identified by the Regional Manager.....</i>	63
6.1.2	<i>Issues Identified by the Licensee.....</i>	64
6.2	TIMBER SUPPLY ANALYSIS.....	65
6.2.1	<i>The Base Case (Current Performance):.....</i>	65
6.2.2	<i>Sensitivity Analyses.....</i>	66
6.2.3	<i>Strategies/ scenarios proposed for inclusion in the Analyses.....</i>	66
6.3	IMPACTS.....	66
6.3.1	<i>Harvest Level.....</i>	66
6.3.2	<i>Employees/ Contractors.....</i>	67
6.3.3	<i>Economic Opportunities.....</i>	68
6.3.4	<i>Protection/Conservation of Non-Timber Values.....</i>	69
7	COMPARISON OF MANAGEMENT PLANS 9 AND 10.....	70
8	SCHEDULE B PRORATE.....	72
9	PUBLIC REVIEW.....	73
9.1	REQUEST FOR INPUT.....	73
9.2	SUMMARY OF COMMENTS AND INPUT RECEIVED.....	74
9.3	MATERIAL CHANGES MADE TO THE PLAN.....	75

TABLES

TABLE 1:	KALUM LRMP RESOURCE MANAGEMENT INTENT AND DIRECTION*.....	11
TABLE 2:	TWENTY-YEAR PLAN SUMMARY.....	22
TABLE 3:	OPERATIONAL LEVEL PLANS.....	24
TABLE 4:	INVENTORY TYPE.....	26
TABLE 5:	TFL 1 LAND BASE.....	27
TABLE 6:	PRODUCTIVE FOREST AREA BY AGE CLASS (HECTARES).....	27
TABLE 7:	PRODUCTIVE FOREST VOLUME BY AGE CLASS (M ³).....	27
TABLE 8:	ENVIRONMENTALLY SENSITIVE AREAS.....	29
TABLE 9:	OPERABILITY CLASSIFICATION (HECTARES).....	30
TABLE 10:	RECREATION OPPORTUNITY SPECTRUM DISTRIBUTION (1996 BASE).....	32
TABLE 11:	EXISTING RECREATION SITES AND TRAILS.....	33
TABLE 12:	BIOGEOCLIMATIC SUBZONE.....	34
TABLE 13:	WATER LICENCES IN CLOSE PROXIMITY TO TFL 1.....	39
TABLE 14:	LOG UTILIZATION STANDARDS.....	48
TABLE 15:	FIBRE PROVIDED BY TFL 1 TO TERRACE AND PRINCE RUPERT MILL FACILITIES.....	67
TABLE 16:	EMPLOYMENT LEVELS UNDER MP 10 (ESTIMATED).....	68

FIGURES

FIGURE 1	TFL 1 KEY MAP.....	4
FIGURE 2	TFL 1 KALUM LRMP RESOURCE MANAGEMENT ZONES.....	10
FIGURE 3	TFL 1 LANDSCAPE UNITS.....	20
FIGURE 4	1:20 000 MAP SHEETS.....	28
FIGURE 5	TFL 1 OPERABILITY CLASSES.....	31
FIGURE 6	TFL 1 SCENIC AREAS.....	35
FIGURE 7	TFL 1 BIOGEOCLIMATIC ZONE.....	36
FIGURE 8	TFL 1 TERRAIN STABILITY.....	38
FIGURE 9	LRMP IDENTIFIED GRIZZLY BEAR WATERSHED UNITY.....	43
FIGURE 10	MOUNTAIN GOAT WINTER RANGE.....	44
FIGURE 11	MOOSE WINTER RANGE.....	45

APPENDICES

APPENDIX 1: THE HISTORY OF TREE FARM LICENCE 1

APPENDIX 2: MANAGEMENT PLAN 9 PERFORMANCE SUMMARY

APPENDIX 3: RESOURCE PLANNING UNITS AND RESOURCE MANAGEMENT ZONES FROM MP 9

APPENDIX 4: DESCRIPTION OF INFORMATION SOURCES

APPENDIX 5: INFORMATION PACKAGE

APPENDIX 6: TIMBER ANALYSIS REPORT

APPENDIX 7: CHIEF FORESTER AAC DETERMINATION RATIONALE

APPENDIX 8: COMMENTS RECEIVED ON DRAFT MANAGEMENT PLAN 10

APPENDIX 9: SUMMARY OF CHANGES FROM THE DRAFT TO THE FINAL VERSION OF MANAGEMENT PLAN 10

APPENDIX 10: FOREST REVITALIZATION ACT UPDATE

Executive Summary

Management Plan 10 (MP 10) provides the key directions for management of the Port Edward Tree Farm Licence No. 1 (TFL 1). Provisions are made for both timber and non-timber resource management.

Tree Farm Licence 1 covers 518,297 hectares of Crown and private land in the Skeena/Nass region around the City of Terrace, BC. Of this area, less than half contains productive forest (229,379 ha), and only 89,596 ha (17.3% of the total TFL area) contributes to the annual harvest volume for this licence.

The recommended Allowable Annual Cut (AAC) for TFL 1 during the term of MP 10 is **500,000** m³/year. This recommendation is based on a timber supply analysis that indicates that this AAC can be maintained for the next three decades, with a drop in the annual harvest level in the following decades to a long-run sustained yield of 415,000 m³/year starting 120 years from now. In addition, a twenty-year plan for the tenure indicates that this cut can be maintained for at least the next five years.

Management objectives have been introduced to reflect the philosophy of the new owners.

New operability classifications have been put into place for TFL 1, and the area of the TFL has been reduced to reflect the removal of the Nisga'a Lands in May 2000. Additional constraints have been placed on the land-base to reflect the implementation of the Kalum Land and Resource Management Plan.

Management of non-timber resources under this plan will continue to be enhanced through the application of the Kalum Land and Resource Management Plan and through new inventory information for wildlife habitat (fish and goat) and for terrain classification. TRIM II and predictive ecosystem mapping projects that were started under the last management plan will be completed during the term of MP 10, and will also improve overall forest management.

1 INTRODUCTION

This Management Plan is the tenth in a series of strategic planning documents that have provided guidance to forest management activities on the Port Edward Tree Farm Licence 1 (TFL 1) since it was established in 1948. Each successive management plan has been built on the accomplishments of the previous plan. In addition strategies and practices have been adapted and changed over time in response to an improving knowledge base as well as technological advances in sustainable forest management practices.

The term of this plan commences July 1, 2006 December 31, 2008.

Tree Farm Licence 1 is held by Coast Tsimshian Resources Limited Partnership (CTR, or “the Company”).

Submission of this plan fulfils the obligation to submit a draft management plan as per section 2.24 of the TFL document, and meets the content requirements specified in section 2.25.

Management Plan 10 (MP 10) has been prepared in accordance with the MOF Guide for Tree Farm Licence Management Plans (March 2001) and is organized as follows:

Chapter 1 Introduction. Explains the purpose, describes the characteristics and history of TFL 1, provides information about the company, the role of the government resource agencies, community interests and provides a summary of the plan.

Chapter 2 Planning. Describes the resource planning framework at strategic and operational levels from the Kalum Land and Resource Management Plan to specific site plans

Chapter 3 Resource Inventories. Describes the current status of all the timber and non-timber resource inventories and any plans for updating activities where applicable

Chapter 4 Sustainable Management Regime. Outlines the management objectives for the forest resources within the TFL.

Chapter 5 Consultation with other Resource Users. Explains the process for consultation with stakeholders and the public when preparing operational plans.

Chapter 6 Impact Summary of Management Plan Implementation. Describes the potential impact of MP 10 on the landbase and the communities

Chapter 7 Similarities and Differences between MP 10 and MP 9. Reviews key factor between the former plan and this draft plan

Chapter 8 Schedule B Prorate. Provides detail on the contribution of Schedule B and Schedule A to the allowable annual cut.

Chapter 9 Public Review. Describes the process and opportunity for public input to the plan.

Appendices. Contain the supporting statistics and technical reports used to complete the plan.

Management Plan 10 sets out the objectives, goals and strategies that Coast Tsimshian Resources Limited Partnership (CTR or “the Company”) intends to pursue in managing TFL 1 over the next five years (2006-2008). As a strategic plan providing for the sustainable management of land and resources within the TFL, this management plan has been prepared to conform to the requirements of the Tree Farm Licence document, the *Forest Practices Code of British Columbia Act*, the *Forests Statutes Amendment Act*, and the *Forest Act*. This management plan will also adhere to the new *Forest and Range Practices Act*, upon approval of the Forest Stewardship Plan.

In late 2002 the provincial government introduced significant changes to its forest legislation framework applicable to provincial forest land. The objective of these revisions is to enable government and industry resource professionals to focus on the results of environmental and resource protection rather than planning and administration process. The legislation provided a two-year transition period until April 2005 during which industry and provincial resource agencies changed from administration and regulation under the *Forest Practices Code Act* to the *Forest and Range Practices Act*. Additional changes that occurred in 2003 include the introduction of the *Forestry Revitalisation Act*, the *Forest Statutes Amendment Act (No. 1)* and *(No. 2)*, and various regulation introductions and amendments. Nonetheless, the management objectives and intent as described in MP 10 are not likely to change.

The Kalum Land and Resource Management Plan (LRMP) approved by the provincial government in 2002 provides general management direction and objectives for provincial land in the Skeena /Nass/ Kitimat region including TFL 1. While government agencies are accountable for implementation of the LRMP, it is not a higher level plan under the Code. It does provide guidance to the forest management strategies outlined in MP 10. The Kalum Sustainable Resource Management Plan (SRMP) takes elements of the Kalum LRMP and implements them as a Higher Level Plan. It was approved on April 28, 2006.

The management plan is prepared as a strategic plan, for planning at the landscape level. It is designed to provide a balanced, integrated forest land management plan that has considered the alternate levels of resource production and the suitability of the forest land for different kinds of resource use. The standards and guidelines outlined here are intended to meet the stated resource management objectives.

1.1 Location and Description

The Port Edward Tree Farm Licence covers 518,297 hectares of Crown and private forest land in the Skeena/Nass region around the City of Terrace, BC (Figure 1). Much of the licence area is located north of Terrace on the west side of the Kalum Valley extending to the lower Nass Valley, where it includes the upper portions of side valleys like the Ishkheenickh and Kiteen drainages. To the east it encompasses the lower to middle Copper River valley, and west of Terrace it includes the area south of the Skeena River near the mouth of the Lakelse River known as the Whitebottom. Of the total area, 517,662 hectares are Crown land (Schedule B land), and 635 hectares are private land owned by CTR (Schedule A land).

The licence lies east of the Coast Mountains and includes slopes and valleys formed by the Skeena Mountains and the Nass Basin. Topography varies from flat and undulating in the main valleys of the Kalum and Nass to steep and mountainous in the numerous side valleys.

The forests are predominantly old growth conifer stands of western hemlock and amabilis fir, with mixed stands of spruce, western red cedar and cottonwood occurring along the valley floors. The stands are very old and major forest fires rarely occur. As a consequence, the merchantability and timber quality is low, yielding less than 65% sawlog on average. Younger mature stands are of much better quality but are difficult to find in within the TFL. Some seral stands of lodgepole pine as well as subalpine fir occur in valley bottoms in the northern portion of the TFL in the Nass Valley.

The TFL lies within a coastal and interior climate transition zone. Temperatures are relatively mild, although extreme fluctuations in temperature are common. Commonly after a wet spring there can be a sudden dry short summer followed by heavy fall rains. The heavy rainfall and winter snowfall means that soil moisture deficits are uncommon. Although there is a winter snowpack, in a normal year the ground is not frozen. Outbreaks of arctic air fluctuate during the winter, resulting in unstable winter operating conditions.

The Nisga'a Highway runs north of Terrace through part of the TFL, providing access along the Tseax and Cedar River to the Nass Valley. Branch roads connect the TFL to Highway 37 at Cranberry Junction. This road system links rural communities with the City of Terrace. Provincial Highway 16 runs east/west through Terrace, between Prince Rupert and Hazelton, while Provincial Highway 37A runs north/south between Terrace and Kitimat. The key map illustrates the location of the licence area in relation to the main communities in the Terrace region (Map 1).

1.2 History and Commitments

TFL 1 was originally awarded in 1948 to Columbia Cellulose Company Ltd. It was the first forest management licence granted in the province. Although there have been changes in both the licence holder and licence boundaries since, the basic intent of the licence has remained the same. Today TFL 1 encompasses 518 297 hectares of primarily Crown land in the Skeena, Copper, and Kalum Valleys, as well as several watersheds that are tributaries to the lower Nass Valley.

The forests of the TFL have been managed continuously since 1948, providing a key supply of pulplogs and sawlogs and to the pulpmill at Port Edward, near Prince Rupert and to sawmills in the Terrace area. During this time the forest management program has evolved and developed, guided by management strategies contained in nine successive management plans.

Management Plan # 9 took effect January 1, 1999 and expired February 28, 2004. It provided for an allowable annual cut (AAC) of 720,000 m³ of which 29,950 m³ was allocated to the BC Timber Sales Program. When the Nisga'a Final Agreement was enacted on May 11, 2000, removing approximately 87,700 ha from the TFL, there was an interim reduction in the TFL AAC to 611,000 m³. A further reduction of 5% to 582,009 m³/year occurred upon the transfer of the tenure to the current owner.

1.2.1 Licence Holder

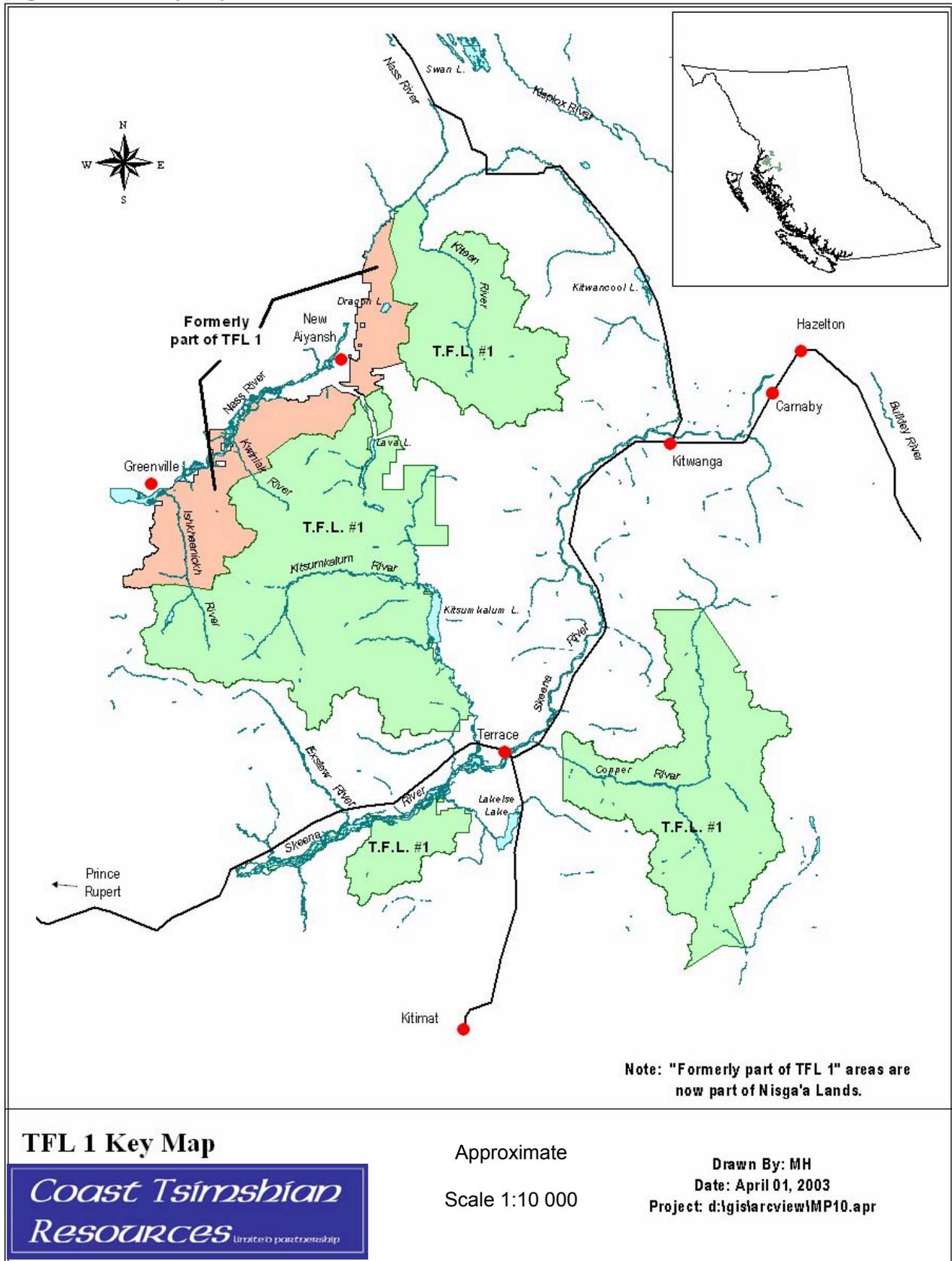
Coast Tsimshian Resources Limited Partnership is a company owned by the Lax Kw'alaams First Nation based out of Lax Kw'alaams, or Port Simpson, BC.

1.2.2 Community Dependence

Terrace is the largest community adjacent to TFL 1, with a population of 12,109 (2001 census). It is the service centre for many north-western communities, drawing shoppers from Kitimat and as far away as Smithers. The largest employer in Terrace is the service sector (e.g., department stores, supermarkets and hotels). Other major employers include the provincial and federal governments, School District #82, Mills Memorial Hospital, West Fraser Mills Ltd., Northwest Community College, and the City of Terrace. (source: 1996 Census)

Thornhill (population 4475) is a residential suburb of Terrace. Kitselas (population 133), and Kitsumkalum (population 265) are neighbouring Tsimshian communities near Terrace. Several other small communities in the Greater Terrace area possess a collective population approaching 3,000. Many of these trace their beginnings back to gold mining or railway development at the turn of the century.

Figure 1 TFL 1 Key Map



Terrace also functions as the regional centre for outlying Nisga'a communities in the Nass Valley including Gitlakdamix, (New Aiyansh) (pop. 716); Gitwinksihlkw (Canyon City) (pop. 212); and Laxgalts'ap (Greenville) (pop. 467). The Nisga'a community of Gingolx (Kincolith) (pop. 339) is also now connected by road to the region. There are also small resident European communities at Irene Meadows and Nass Camp. These rural communities are dependent on the natural resources in the Skeena/Nass region to provide jobs in forestry, fishing, mining, guiding, hunting, trapping and recreation. Arts and crafts operations, small stores, schools and local government offices provide additional employment.

Forest-based operations within TFL 1 have provided significant employment in the region for the past five decades, both from its woodlands operations and its manufacturing facilities. The work force is primarily drawn from the communities of Prince Rupert, the Greater Terrace area and the villages in the Nass Valley.

CTR prefers to employ local residents and First Nations when opportunities arise. Similarly, it also prefers to use local contractors for forestry work.

1.2.3 Administration

The boundaries of TFL 1 lie entirely within the Kalum Forest District, whose office is in Terrace. TFL 1 is gazetted as a provincial forest.

Provincial government agencies that have an administrative mandate for public forest land are:

- Ministry of Forests and Range
- Ministry of Environment
- Ministry of Energy and Mines
- Integrated Land Management Bureau

The Ministry of Forests (MOFR) is the lead agency responsible for the administration of forestry legislation. The MOFR district manager for the Kalum Forest District has the responsibility of ensuring that TFL 1 is managed in accordance with the applicable resource legislation and with the approved management plan.

The Ministry of Environment (formerly the Ministries of Water, Land and Air Protection and Sustainable Resource Management) has a mandate to administer water, wildlife, fisheries resources, and pesticide use on Crown Land. They are also responsible for providing provincial leadership in sustainable economic development of Crown land, water and resources. This includes land use planning and monitoring plans; developing resource sector strategies; and maintaining access to integrated registries, resource information and legislation to guide sustainable resource management. This involves setting land use objectives through landscape units and higher level plans, and includes the implementation of the Kalum LRMP and the Kalum SRMP. The Ministry of Environment is also responsible for managing identified wildlife, red and blue listed species, ungulate winter range, regionally important wildlife. MOE also identifies timing and measures for stream crossing and wildlife management plans. Accordingly, MOE may review and comment on operational plans prepared by CTR.

The Ministry of Energy and Mines administers mineral exploration and mining as regulated by the *Mineral Tenure Act*, *Coal Act*, and *Petroleum and Natural Gas Act*. The Minerals Division regional office in Smithers administers mineral exploration activity.

The federal Department of Fisheries and Oceans has a mandate to protect fish habitat through the federal Fisheries Act, which is administered from offices in Prince Rupert, Terrace and Smithers.

1.2.4 Resource Legislation

The *Forest Practices Code of British Columbia Act*, which took effect in July, 1995 with its accompanying regulations and guidebooks, has had a significant influence on forest management particularly with respect to the areas of operational planning, forest practices and environmental protection and enforcement. This has added administrative complexity and significantly increased the cost of Crown wood supply. There have been subsequent amendments to the Code and Regulations.

Until December 17, 2002, applicable provincial legislation for resource management of TFL 1 was the *Forest Act*, *Range Act* and the *Forest Practices Code of British Columbia Act*. After that date new provincial legislation was introduced, and was phased in between 2002 and April 2005. The new legislation includes the *Forest Statutes Amendment Acts* No. 1 and No. 2 (Bills 40 and 75) of June 2002 and attendant regulation changes of December 2002; the *Forest and Range Practices Act*, “results-based” legislation that will replace the current prescriptive format of the Forest Practices Code when enacted in 2003 or 2004; the *Forestry Revitalisation Act*; the *Forest Statutes Amendment Act (2003)*; and the *Forest (Revitalisation) Amendment Act (No. 1)* and *(No. 2)*.

The most immediate change included the *Forest Statutes Amendment Act (No. 2), 2002*, which amends the *Forest Practices Code of British Columbia Act* for the period December 17, 2002, until April 2005. The new *Forest and Range Practices Act* (enacted April 2003) completed the transition to a new legislative framework. It provided for a two-year transition period over which industry and government personnel will move from the *Forest Practices Code of British Columbia Act* to the *Forest and Range Practices Act*. After April 2005 the transition period is over and the new statutes take full effect.

The *Forest Statutes Amendment Act, 2003*, amends cut control and milling requirements. The impacts of these changes, while potentially profound, are not predictable at this time, and are therefore not covered in this management plan. The *Forestry Revitalisation Act* makes provisions for a take-back by the government of up to 20% of a TFL AAC. Final areas for take-back have yet to be finalised.

Reference is made in this plan to the standards, specifications and guidelines that are to be followed at an operational level. The standard of forest practices on TFL 1 will be in accordance with the applicable statutes. The relevant legislation is, therefore, implicit with the strategies and practices outlined in MP10.

1.2.5 BC Timber Sales Program

The Kalum Forest District Small Business Forest Enterprise Program (SBFEP), which was established in 1988, was replaced in 2003 by the BC Timber Sales (BCTS) program. BCTS has a mandate to generate revenue for the province. BCTS has an annual apportionment of 29,950 m³ per year (pre-“take-back”) from the TFL AAC and has been allocated the Limonite Creek in the central Copper River area as an operating area.

In the past, SBFEP has both undersold and undercut its allocated volume from TFL 1. In March 1998, the full-undersold BCTS' volume of 130,000 m³ was sold as a Section 21 Timber Sale Licence to encourage processing and remanufacturing in the Terrace area. Since 1998, the SBFEP/BCTS has harvested a total of 145,927 m³, which is close to its five-year AAC.

1.2.6 Resource Issues

Forest management is a dynamic process requiring issues to be dealt with as they arise. The following topics are covered in MP 10 or will be the subject of further study during the term of the plan.

Reduction in Area and Allowable Annual Cut

The area of TFL 1 has been reduced as part of the Nisga'a Final Agreement. The Kalum LRMP also has identified special management zones including a no-logging area in the Beaver (Upper Kitsumkalum) drainage. In addition, new legislation returning 20 % of the AAC may result in a reduction of the TFL area. The cumulative effect will be a reduction in timber supply and a downward pressure on the AAC. The LRMP land use strategies are included in the base case for this management plan. The extent of a change in TFL area is uncertain at this time.

High Logging Costs/ Low Sawlog Content

The low sawlog content quality of the timber resource combined with the high cost of access and logging make it difficult to maintain operations throughout the price fluctuations in the lumber and pulp market cycles. CTR must find ways to reduce the high development and logging costs while maintaining environmental standards established by the Forest Practices Code.

Economic Availability of Net Operable Landbase

The net operable landbase has been refined to reflect economic availability based on logging system, stand quality and fluctuating log values, particularly for pulplogs. This was done by reviewing the entire TFL and applying local knowledge with respect to timber quality and quantity, harvest method, and difficulty of access. If a reliable, reproducible algorithm for defining an economic landbase were developed, planning could capture the right stands at the right time. Considering the highly variable pricing of pulplogs, an economic landbase would likely be based on the viability of supplying sawlogs, with pulplogs as a by-product.

With the increasing amount of second growth on TFL 1, emphasis would be given to determine financial rotations for harvesting of the second growth, with less dependence on old growth in the future. Some amount of second growth is currently available through commercial thinning. Therefore, in conjunction with the definition of an economic landbase, an analysis of the harvest level contribution from second growth over time should also be conducted.

Due to the uncertainty arising from the recent legislative changes, particularly with respect to the possible reduction in TFL area, no specific commitment to pursue this strategy can be made at this time.

Site Productivity of Second Growth Stands

Improved prediction of site productivity (site index) for second growth stands is essential. This essential work will help justify investments in enhanced silviculture and commercial thinning. It would also provide essential stand yield information needed for developing financial rotations and commercial thinning regimes.

Kalum Land and Resource Management Plan

The land and resource planning process for the southern half of the Kalum Forest District, which includes the Kalum Timber Supply Area, Tree Farm Licence 41 and TFL 1, has been completed and approved.

Kalum Sustainable Resource Management Plan

The Kalum Sustainable Resource Management Plan is a higher level plan that defines legal objectives for portions of the Kalum LRMP.

Commercial Harvest of Pine Mushrooms

The gathering of pine mushrooms has become a commercial harvesting event every fall. This mushroom harvest is unregulated. The annual harvest has attracted large numbers of pickers in the past, which has resulted in overcrowded campsites and concentrations of temporary campers scattered throughout the northwest. The decreasing price for mushrooms has led to a slight decrease in the number of pickers, but this could increase again if prices rise during future harvests. While most of the pine mushroom harvest takes place outside of the TFL, there continues to be some activity in the area.

Cottonwood

Approximately 30,000 m³ of cottonwood was harvested from the TFL over the period of MP 9. The volume harvested varied from year to year, depending on log prices. CTR recommends that a target harvest level not be set for harvesting cottonwood in MP 10 as the market for cottonwood logs historically fluctuates on a five- to seven-year cycle.

Visual Landscape Corridors

Visually sensitive areas along the Nisga'a Highway and Highway 16 corridors constrain harvesting. Visual quality is also a concern along the Class I waters of the Upper Copper. CTR will manage visual resources in a manner consistent with the Kalum SRMP.

Forest Health

There is currently an epidemic of red-band needle rust (*Dothistroma*) in the Kispiox and Kalum Forest Districts. TFL 1 does not have a significant amount of susceptible (pine leading) stands, and therefore this disease will not have much of an impact on this management plan.

1.2.7 Management Plan 9 Performance

A summary of performance and progress made toward goals and commitments made in Management Plan 9 is summarized in Appendix 2. The implementation of Management Plan 9 was overseen by Skeena Cellulose, which later became New Skeena Forest Products (NSF). The performance was reviewed by the regional manager, with input to New Skeena Forest Products provided in his letter of November 5, 2002. NSF responded in December 2002, clarifying many of the comments or concerns.

Overall, the company performed well with respect to MP 9, particularly when the difficult economic times of the past five years are considered. Major accomplishments include:

- Completion of total chance planning, and associated operability lines
- Site Index adjustments
- Silviculture update to December 2001
- Terrain inventory completion
- Mountain Goat Winter Range inventory completion
- Fish stream inventory completion

2 INTEGRATED RESOURCE PLANNING

2.1 Strategic Planning

Landscape level planning was initiated during MP 8, and continued on during MP 9. The TFL was divided into 6 resource management zones and 13 resource planning units (RPU) (see Appendix 3 *table and map from MP 9*). The Total Resource Plans prepared for these RPUs enabled strategic analysis in support of AAC rationalization and managing for biodiversity and key resource values. The Total Resource plan was conceived and completed prior to the conclusion of the Kalum Land and Resource Management Planning (LRMP) process. With the approval of the Kalum SRMP, landscape units have been identified. These landscape units will be the management units for future analyses.

2.1.1 Kalum Land and Resource Management Plan

Preparation of the Kalum Land and Resource Management Plan (LRMP), a subregional land use plan, began in 1991. In 1996 TFL 1 and TFL 41 were included in the planning process. The Kalum LRMP was approved by the provincial cabinet in May 2002. The plan considers all resource values and a broad base of community interests in the mid-Skeena and Lower Nass and covers an area of approximately 2.2 million hectares.

The LRMP describes the overall management intent, objectives, and strategies that apply to two land use categories: General Resource Management Direction and Resource Management Zones (RMZs). The LRMP applies to the Kalum Timber Supply area, TFL 1, and TFL 41. Figure 2 shows the zonation from the Kalum LRMP in relation to TFL 1.

A summary describing the management intent and objectives for the LRMP RMZs that apply on TFL 1 are outlined in Table 1. More details are in the Kalum LRMP, which is accessible at <http://ilmbwww.gov.bc.ca/ilmb/lup/lrmp/northern/kalum/index.html>. Table 1 outlines the direction that CTR interprets as being applicable to resource values within the TFL landbase. The objectives are the critical part of the LRMP – they must be met.

As noted above, the Kalum LRMP also contains strategies for achieving the objectives: these strategies are not binding, and the Company has not committed to following them exclusively. At the time of writing, the strategies in the LRMP were the best way to achieve the intent of the LRMP direction and objectives. However, as more information and knowledge is gained, other strategies may be developed. Therefore, as the Company works toward the objectives of the LRMP, the strategies used may or may not be as described in the Kalum LRMP. Nonetheless, unless there are viable alternate strategies that the Company wishes to put forth, the Company will utilize the strategies described in the Kalum LRMP, and incorporate them into the timber supply information package.

The Kalum Sustainable Resource Management Plan (SRMP) is the document that provides legal framework for implementing the Kalum LRMP. The SRMP contains objectives and strategies that will be implemented and monitored across the landbase. CTR will manage the TFL in a manner consistent with the Kalum SRMP.

The government agencies (MoFR and MOE) are responsible for the implementation of the LRMP and SRMP and the subsequent monitoring of progress towards meeting the objectives.

Figure 2 TFL 1 Kalum LRMP Resource Management Zones

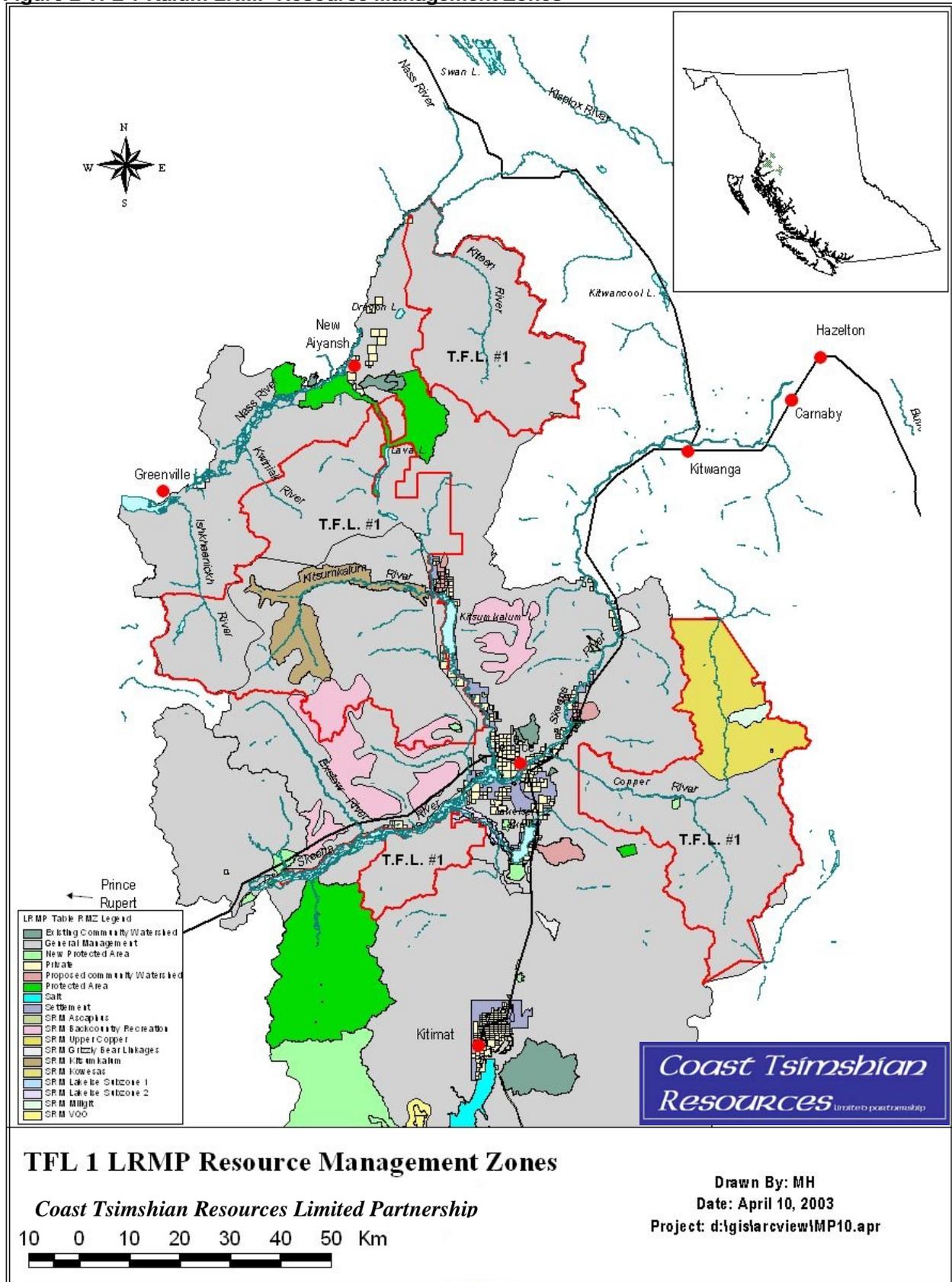


Table 1: Kalum LRMP Resource Management Intent and Direction*

Zone/Resource Value	Management Intent	Objectives
<p>General Resource Management Direction</p> <p>Applies to all Crown land within the plan area. Accommodates a mix of resource developments, and resource conservation, wildlife habitat, rare or endangered species, visual quality and community watersheds</p>		
<p>Access Management</p>	<p>Maintain opportunities for access for the full range of resource development and user needs while minimizing conflicts between the development and use of access and the conservation of sensitive environmental, recreational, and cultural heritage values.</p>	<ol style="list-style-type: none"> 1. Plan and manage access to Crown land and resources for the full range of commercial, industrial, and public user needs through development of integrated access management plans. 2. Minimize impacts of access on environmental, recreational and cultural heritage value. 3. Provide effective access for long-term resource management and development needs.
<p>Biodiversity</p>	<p>To ensure the long term sustainability and diversity of native species and populations and to maintain the natural diversity of healthy and functional ecosystems. The intent is to apply an ecosystem management approach that provides suitable habitat conditions for all native species. In this way, habitat diversity is used as a surrogate to maintain biodiversity. Implementation of biodiversity objectives will minimize or if possible avoid timber supply impacts.</p>	<ol style="list-style-type: none"> 1. Maintain a range of seral stages across the landscape to meet the needs of a wide variety of species. 2. Managed forests are to have a mosaic of stands consisting of a range in patch sizes in an attempt to have some resemblance of the natural pattern of forest disturbances. 3. It is recommended to the statutory decision maker to maintain old growth forest attributes through the designations of old-growth management areas (OGMAs) across the landscape. 4. To help conserve the natural species abundance and diversity, maintain the natural composition of dominant tree species across the landscape. 5. Develop practical approaches to minimize potential problems of fragmentation of habitats and populations. 6. In managed forest stands, provide or restore important structural attributes which contribute to habitat and species diversity. The intent is to work to achieve stand structure attributes to the extent possible. 7. Encourage extension services to assist private land owners, municipalities and regional districts in the management of biological resources. 8. Over time, inventory landscapes for biodiversity values and enhance or restore lowered values where appropriate.
<p>Botanical Forest Products</p>	<p>To maintain opportunities for the commercial, recreational, and traditional harvest of botanical forest products by reducing resource user conflicts and managing the harvest in an ecologically sustainable manner.</p>	<ol style="list-style-type: none"> 1. Improve the knowledge and information base related to botanical forest product ecology. 2. Manage Pine Mushroom habitat in support of commercial and recreational pine mushroom harvesting. 3. Reduce resource user and conservation conflicts between botanical forest product harvesting and forest management. 4. Manage for the ecological sustainability of botanical forest products

Zone/Resource Value	Management Intent	Objectives
Cultural Heritage	Identification and conservation of select cultural heritage resources.	<ol style="list-style-type: none"> 1. Manage for archaeological resources. 2. Identify and conserve selected cultural heritage resources. 3. Minimize negative impacts to cultural heritage resources associated with resource development. 4. Aboriginal rights and/or title will not be unjustifiably infringed upon by land and resource management activities of the Crown or its licensees. 5. Encourage development of cultural heritage interpretative facilities and programs.
Fish and Fish Habitat	<p>Conservation of indigenous fish species and habitats reflective of their requirements throughout their life histories (e.g. spawning, rearing, estuarine, refuge).</p> <p>Maintenance of opportunities for the consumptive and nonconsumptive human use of fish.</p>	<ol style="list-style-type: none"> 1. Prevent or minimize the effects of development activities on fish populations and fish habitat. 2. Manage existing populations of vulnerable and/or distinct fish stocks and species for their healthy perpetuation. 3. Rehabilitate fish populations and/or habitat where degraded and, where appropriate, undertake enhancement projects. 4. Provide a range of opportunities for consumptive and non-consumptive use of fish. 5. Manage for a quality angling experience on classified waters (i.e. class 1 and class 2 water as defined in the fishing regulation).
Fresh Water	Maintain or enhance the quality and quantity of ground and surface water to maintain flora and fauna aquatic and terrestrial habitat, and to provide for domestic, commercial and industrial uses.	<ol style="list-style-type: none"> 1. Manage resource development activities to minimize negative impacts on surface and ground water quality for flora, fauna, domestic, commercial and industrial users. 2. Manage human activities to maintain hydrological stability. 3. Protect life and property from hydrological events 4. Manage human activities to maintain or enhance water quality and minimize water pollution. 5. Manage lakes for water quality, fisheries, wildlife, recreation and other resource uses.
Grizzly Bear	<p>Guided, in part, by agreed-to habitat effectiveness targets for identified watersheds and the population objective for the LRMP, the management intention is for:</p> <p>Maintenance or restoration of grizzly bear habitats through access management and forage supply for the identified watersheds</p> <p>Conservation, mitigation or restoration of critical patch habitats at the stand level no matter where they occur</p> <p>Maintenance of current grizzly bear population density, distribution and genetic diversity in each Grizzly Bear Population Unit to ensure viability</p> <p>Recovery of the local grizzly bear population where appropriate</p>	<ol style="list-style-type: none"> 1. Maintain or restore grizzly bear habitats in the watersheds identified in Figure 9. (For access management direction refer to <i>Access Management</i> strategy 1.1) 2. Provide an adequate supply of berry feeding in the watersheds identified in Figure 9. 3. Protect (see strategy 3.1 f) or restore critical stand level patch habitats where they occur. 4. Establish an effective monitoring and evaluation program for grizzly bear management practices and related implications 5. Bear mortality from all human causes will not exceed 4% of the estimated population, that less than 30% of the kill is female and that the total kill is not area concentrated. 6. Provide hunter harvest opportunities. 7. Monitor the overall effectiveness of applying the Grizzly Bear Best Management Practices.

Zone/Resource Value	Management Intent	Objectives
Outdoor Recreation	<p>Manage for a wide range of outdoor recreational activities and experiences.</p> <p>Recognize commercial recreation as a valid and appropriate use of Crown land, subject to the acquisition of required tenures/permits and conformance with approved management plans.</p> <p>Recognize support and desire from the Table for a commitment by the BC Forest Service to continue to provide and maintain the existing Recreation Site and Trail infrastructure.</p>	<ol style="list-style-type: none"> 1. Retain the existing known outdoor recreation opportunities identified on the Recreation Activities map in the LRMP. 2. Manage for opportunities to experience regionally significant recreation biophysical features such as views, trails and cultural amenities. Note: Alternatively LUs possessing these features could be listed 3. Provide and enhance opportunities for outdoor recreation activities through the development of new and the enhancement of existing infrastructure such as recreation trails and sites. 4. Provide and enhance opportunities for outdoor education through the development of new and the enhancement of existing demonstration and community forests.
Timber Harvesting and Silviculture	<p>Identify and secure a forest landbase and sustainable rate of cut</p> <p>Maintain a sustainable and economically viable flow of timber to local manufacturing facilities and forestry based industries which support local communities</p> <p>Maintain and where possible enhance the productivity of forest land</p> <p>Manage for a positive economic return on silviculture investments</p> <p>Maintain indigenous tree species diversity</p> <p>Provide opportunities to acquire timber for a variety of uses</p> <p>Promote research into exotic species and genetics to increase yields</p> <p>Conduct forestry operations to maintain other forest values including fish, wildlife, water, recreation, scenery and botanical forest products.</p>	<ol style="list-style-type: none"> 1. Provide opportunities for value-added manufacturing, wood based cottage industries, cultural uses of wood, and woodcraft. 2. Manage for a sustainable rate of timber harvest employing appropriate harvesting and silviculture practices 3. Maintain and where possible enhance the productivity of the forest landbase. 4. Manage second growth stands to produce a variety of products. 5. Maintain long-term ecological values such as a diversity of age classes and stand structures. 6. Provide opportunities for increased use of partial cutting systems. 7. Maintain a secure land base for timber management. 8. Minimize the loss of productive forest land 9. Identify potential stands to maintain or enhance silviculture opportunities. 10. In conjunction with 9. above, strive to increase stand volume and value
Tourism	<p>To maintain a wide spectrum of public recreation and commercial tourism values and opportunities.</p>	<ol style="list-style-type: none"> 1. Identify recreation/tourism features, facilities and activities, and evaluate opportunities. 2. Maintain recreation/tourism features, facilities and activities identified in the <i>Recreation Activities</i> map, FRTOS (features only) and Commercial Recreation tenures (BCAL). 3. Provide opportunities for recreation/tourism use in both frontcountry and backcountry settings. 4. Maintain visual resources of importance to recreation/tourism.
Trapping	<p>To maintain opportunities for a viable trapping industry and ensure the continuance of the social and cultural aspects of trapping by First Nations and non-aboriginal peoples through provision of trapping opportunities within all designated trapping tenure areas.</p>	<ol style="list-style-type: none"> 1. Maintain trapping opportunities for the trapping industry. 2. Maintain the viability of fur bearer populations through habitat management. 3. Strive for the continuance of the social and cultural aspects of trapping, and recognize the cultural history associated with the trapping industry, for both First Nations and non-aboriginal peoples.

Zone/Resource Value	Management Intent	Objectives
<p>Ungulate Winter Range -</p> <p>Mountain goat</p> <p>Moose</p>	<p>The Kalum LRMP recognizes the need for special management of ungulate winter range. Ungulate winter range will be managed to provide food, shelter and security for mountain goat and moose populations during the critical winter season. Where possible, mountain goat and moose winter range will be incorporated into biodiversity ecosystem networks.</p>	<p>Mountain Goat</p> <ol style="list-style-type: none"> 1. Maintain winter forage production in timber stands adjacent to escape terrain that provides the winter habitat. 2. Minimize human disturbances to goats on their winter range. <p>Moose</p> <ol style="list-style-type: none"> 1. Manage the Skeena, Nass and Beaver Moose Winter Ranges to sustain the over-wintering moose populations. 2. Maintain and where desirable, enhance the quality, quantity and distribution of moose winter forage in the Skeena, Nass and Beaver Moose Winter Ranges. 3. Provide a steady long-term supply and distribution of thermal cover in primary moose winter range as identified on the LRMP Moose Winter Range Map. 4. Provide security for wintering moose populations for identified primary and secondary moose winter range as identified on the LRMP Moose Winter Range Map. In secondary range, the associated strategies will be based on operational feasibility. 5. Encourage forage production and maintain/enhance forested thermal cover on secondary moose winter range.
<p>Visual Resources</p>	<p>Maintain the aesthetic values (e.g., scenic areas, lakeshores and streams, significant recreational areas and natural features, travel corridors, and community views) of the forest landscape to provide a secure environment for tourism operators and ensure a quality natural environment experience for Tourism and local and First Nation communities</p> <p>Minimize visual impacts through appropriate landscape design of harvest openings and industrial development.</p> <p>Established VQOs may change over time due to new inventory information and changing public values.</p> <p>While the intent of forest management is to maintain the integrity of Scenic Areas, catastrophic events (e.g. fire, blowdown, and infestation) may compromise visual quality from time to time.</p> <p>Known Scenic Areas with established Visual Quality Objectives (VQOs) will be identified in accordance with the Ministry of Forests Visual Landscape Inventory process and management guidelines.</p>	<ol style="list-style-type: none"> 1. Manage the landscape in areas of importance to local and First Nation communities, tourism and recreation to retain existing scenic values. 2. Within existing Known Scenic Areas integrate the management of scenic resources with other resource values and uses such that the Established Visual Quality Objectives are met. 3. Evaluate and where deemed necessary manage the landscape, on a site-specific basis, in the following locations: <ul style="list-style-type: none"> • Upper Kitimat • Onion Lake Ski Trails • Terrace to Kitimat Rail route • West side of Lakelse Lake • Furlong Beach

Zone/Resource Value	Management Intent	Objectives
Wildlife and Wildlife Habitat	Maintain the quantity and quality of wildlife populations and habitats, including plant communities, within the planning area. Improved wildlife population and habitat inventories and application of appropriate resource stewardship activities will assist in achieving this intent.	<ol style="list-style-type: none"> 1. Maintain naturally occurring species and their habitats, including plant communities. 2. Conserve vulnerable (blue-listed), rare, threatened and endangered (red-listed) species and their habitat and plant communities. 3. Maintain a diversity of habitats. 4. Maintain linkages and connectivity within and between watersheds. 5. Maintain consumptive and non-consumptive uses of wildlife. 6. There should be consistency among strategic plans.
RESOURCE MANAGEMENT ZONE DIRECTION		
<p>Developed to provide direction for geographically specific areas where resource values warrant management emphasis. GRM direction applies in these zones, however additional objectives and strategies were developed to reflect the specific values in each zone.</p>		
Proposed Protected Areas		
<p>Areas to be protected for their natural (biophysical), cultural heritage and/or recreational values. Logging, mining, hydroelectric dams, and oil & gas development are prohibited. One set of objectives and strategies were developed for the whole Proposed Protected Area package (includes existing Provincial Parks, Recreation Areas, Ecological Reserves and 20 new Protected Areas)</p>		
Protected Areas	<p>Goal 1, Ecosystem Representation: To protect viable examples of the natural diversity of the province, representative of the major terrestrial, marine and freshwater ecosystems, the characteristic habitats, hydrology and landforms, and the characteristic backcountry recreational and cultural heritage values of each ecosection.</p> <p>Goal 2, Special Features Protection: To protect the special natural, cultural heritage and recreational features of the province, including rare and endangered species and critical habitats, outstanding or unique botanical, zoological, geological and paleontological features, outstanding or fragile cultural heritage features, and outstanding outdoor recreational features.</p>	<ol style="list-style-type: none"> 1. To maintain ecosystem representation and integrity, and protect resource values and special natural and cultural features (Goal 1 and Goal 2 areas). 2. Protect key species and their habitats. 3. Provide a range of recreation opportunities from primitive to intensive recreation 4. Plan and manage parks in a manner which reflects the cultural heritage of those areas. 5. Maintain ecosystem representation, and conservation, recreation and cultural heritage values within the new protected areas. 6. To recognize the legal rights of existing tenure holders and landowners within newly established parks, and to deal fairly with those interests. 7. To increase co-operation between resource users adjacent to parks and park managers with respect to management of resource values within and adjacent to protected areas. 8. Maintain, where possible, opportunities for recreation and traditional (i.e. First Nations) hunting within protected areas

Zone/Resource Value	Management Intent	Objectives
<p>Settlement Zone</p> <p>Areas reflecting existing community boundaries and anticipated growth areas. These areas are primarily planned and managed by local governments under the Municipal Act.</p>		
<p>Settlement Zones</p>	<p>Maintaining existing settlement, utilities and transportation areas, sites and corridors as well as providing opportunities for the future expansion of these uses.</p>	<ol style="list-style-type: none"> 1. Maintain opportunities for settlement, utility, communication, and other site specific uses on crown land. 2. Recognise environmental conservation and other land use and resource management objectives when making decisions on the disposition of Crown Land for settlement or other purposes.
<p>Special Resource Management Zones</p> <p>Resource development and extraction opportunities (e.g., logging, mineral exploration and mining development) exist and are acceptable activities within the SRMZ designation within the constraints of identified conservation values.</p>		
<p>Non-Motorized Backcountry Recreation SRMZ</p> <p>An area for which the conservation of a non-motorized backcountry recreation experience is emphasized. Management direction provides for a variety of non-motorized recreational experiences.</p>	<p>Maintain access to public recreation areas Maintain and enhance existing marine and backcountry recreation opportunities Develop potential opportunities for marine and backcountry recreational activities Maintain and protect marine and backcountry recreation values associated with sites or features of recreational significance To secure opportunities for non-motorized backcountry recreation experiences that are alpine in nature and are highly attractive in Summer and Winter months for those interested in enjoying a more primitive and quiet form of recreation</p>	<ol style="list-style-type: none"> 1. Provide a variety of nonmotorized and/or nontenured commercial heliski/hike backcountry recreation opportunities. 2. Maintain mineral exploration and development opportunities.
<p>Community Watersheds</p> <p>Areas that require additional conservation measures to maintain a high level of water quality and quantity for purposes of human consumption.</p>	<p>Maintenance of water quality/quantity for purposes of human consumption and safety in areas of intensive community water is a primary desire of the communities within the plan area.</p>	<ol style="list-style-type: none"> 1. Maintain water quality to meet Canadian Drinking Water Standards through minimising water turbidity, sediment and other contaminants. 2. Manage access to community watersheds to maintain water quality 3. Maintain the quantity and flow of water in community watersheds within their natural range.

Zone/Resource Value	Management Intent	Objectives
<p>Grizzly Bear Benchmark and Linkages SRMZ</p> <p>These areas are established to place emphasis on the management of grizzly bear populations. Grizzly bear hunting will be prohibited in these areas</p>	<p>A Skeena-Nass Benchmark Grizzly Bear Management Area and two small Linkage Grizzly Bear Management Areas (Skeena and Kitimat) are established as Special Resource Management Zones. This Benchmark places emphasis on management of the grizzly bear population and grizzly bear habitats in the Khutzeymateen Grizzly Bear Population Unit as opportunities in this Population Unit. Included in this intent are the following conditions:</p> <p>No hunting for grizzly bears applies to all people If hunting is re-instated for all or any portion of the GBMA that portion of the GBMA must be opened to all people for hunting, and the remainder must be assessed for effectiveness as a GBMA</p> <p>Hunting of other wildlife species is not affected by the GBMA direction in the LRMP</p> <p>The GBMA establishment order should make reference to the LRMP Management Intent to ensure that the understanding of the LRMP agreement is reflected</p>	<ol style="list-style-type: none"> 1. Designate a Skeena-Nass Benchmark Grizzly Bear Management Area as a Special Resource Management Zone to: <ol style="list-style-type: none"> a. protect grizzly bears from hunting b. control recreational activities and human uses of grizzly bear habitats c. manage the area to sustain a benchmark, naturally regulated grizzly bear population representative of the Coast and Mountains Ecoprovince 2. Prevent population fragmentation and genetic isolation by designating and managing a Skeena Linkage Grizzly Bear Management Area and a Kitimat Linkage Grizzly Bear Management Area through Special Resource Management Zones
<p>Upper Kitsumkalum SRMZ</p> <p>An area designated for the conservation of its important biological attributes and ecosystem representation</p>	<p>To conserve moose winter range, fish and wildlife habitat values, biodiversity values, and water quality</p> <p>For moose management objectives and strategies, cross reference to moose ungulate winter range SRMZ language</p>	<ol style="list-style-type: none"> 1. Manage for biological diversity and provide for ecosystem representation in the Upper Kitsumkalum valley.

Zone/Resource Value	Management Intent	Objectives
<p>Upper Copper River SRMZ</p> <p>The Class 1 water of the Copper watershed is known for its high quality steelhead angling opportunities. This area was established to conserve its high value fish and fish habitat and a quality angling experience.</p>	<p>The management intent is to maintain and, where possible, restore the resource attributes associated with the designation of the Zymoetz River Class 1 portion. The resource attributes to be considered in the implementable objectives and strategies include, but are not limited to:</p> <ol style="list-style-type: none"> 1. good water quality that is river specific and reflect natural variances of turbidity and siltation 2. exceptional fisheries as defined by angler success rate 3. uncrowded angling experience with a personal feeling of remoteness 4. pristine or near pristine river viewscape 5. minimal noise disturbance caused by industrial activity 6. abundance of flora and fauna diversity and viewing experience 	<ol style="list-style-type: none"> 1. Maintain natural water quality by ensuring that human induced soil erosion, turbidity and sedimentation is prevented, mitigated and closely monitored.
<p>Miligit Valley SRMZ</p>		<ol style="list-style-type: none"> 1. Conserve the recreation and conservation values associated with the Miligit watershed.

*Excerpt summarized from Kalum LRMP

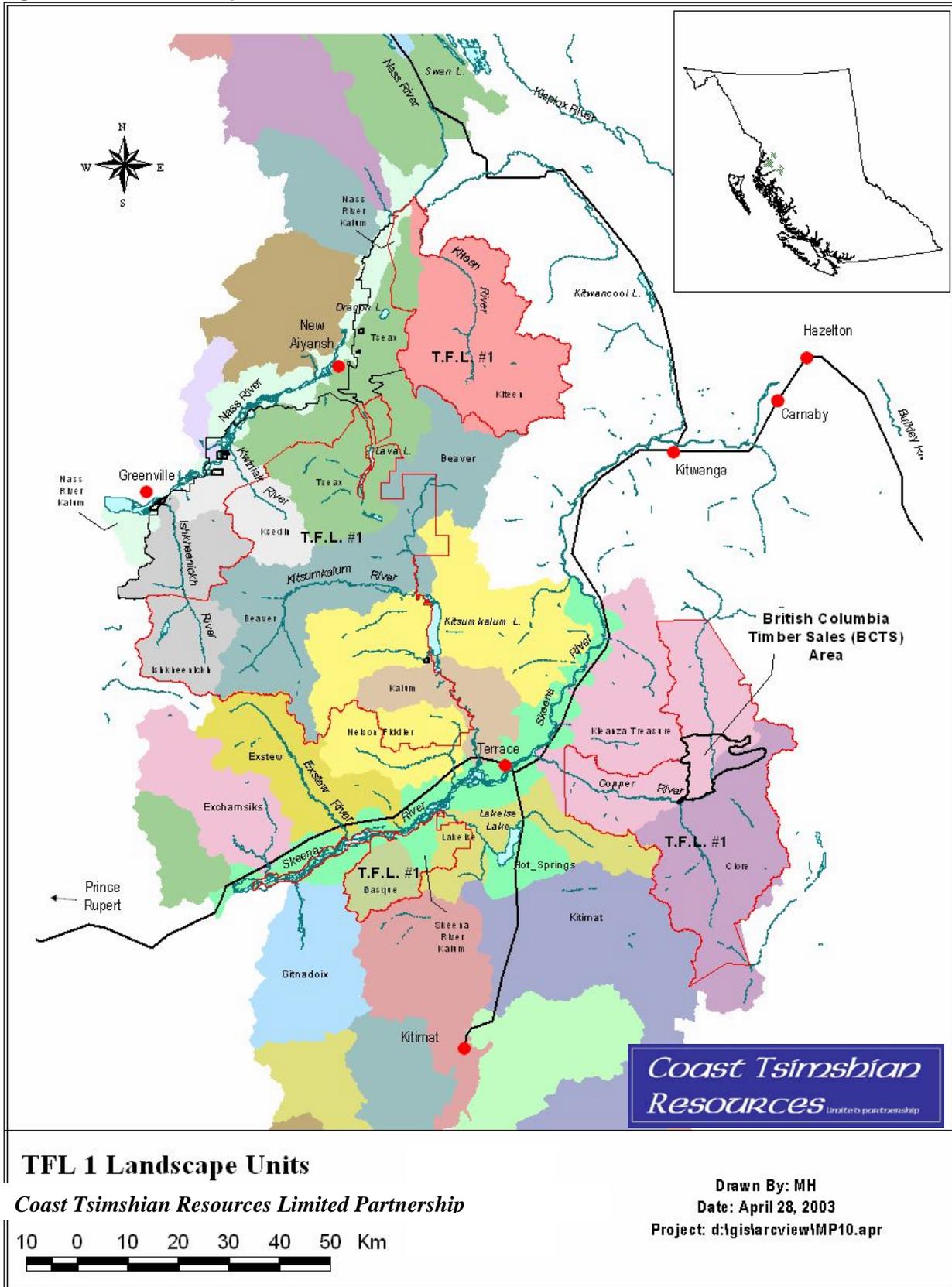
2.1.2 Landscape Units

In 1997 the Ministry of Forests began landscape level planning, and proposed landscape units (LU) for the Kalum Forest District. These landscape units were to be the building block on which detailed integrated resource planning is based and are somewhat similar to the RPU's used in previous management plans. Landscape units and Biodiversity Emphasis Options have been established through the Kalum SRMP.

There are some limitations on the use of landscape units in this plan. The boundaries of the LUs are not fully within TFL 1, so biodiversity and old growth constraints may not be able to be fully met by the TFL. This factor will be considered as the timber supply analysis is carried out.

There are 13 landscape units that cover TFL 1, as shown in Figure 3. The BC Timber Sales' Limonite operating area is included within the Kleanza-Treasure and Clore LUs.

Figure 3 TFL 1 Landscape Units



TFL 1 Landscape Units
 Coast Tsimshian Resources Limited Partnership

10 0 10 20 30 40 50 Km

Drawn By: MH
 Date: April 28, 2003
 Project: d:\gisarcview\MP10.apr

2.1.3 Timber Supply Analysis

A timber supply analysis was conducted to provide the provincial Chief Forester with harvest level projections and options for determining the AAC for MP 10. An explanation of the structure, database, factors and management assumptions used in the analysis is outlined in the Information Package (Appendix 5).

A forest landbase can produce different harvest rates depending on the management assumptions and the operable landbase chosen. The analysis provides different landbase tests, and the results are tested by sensitivity analyses (e.g. varying the timber harvesting landbase and management constraints).

Analysis Options

Current Management. The net operable area covers the conventional and non-conventional operability areas. Current management includes the silviculture and harvesting systems being used at this time, existing legislation, and the current strategic planning environment. The management assumptions were therefore structured to match the Forest Practices Code and the Kalum LRMP management zones. This differs from MP 9, which used a five-zone system. Area reductions (netdown) and constraints will be applied for adjacency and green-up, visuals, riparian reserve zones, landscape and stand level biodiversity, environmentally sensitive areas, roads and other non-merchantable areas.

Report

The timber supply analysis report, (Appendix 6) describes the results of the analysis. The harvest level for the current management option is provided and covers a 250-year period.

Based on the results of the timber supply analysis, CTR proposes an Allowable Annual Cut (AAC) for TFL 1 to apply for the next five years (see section 4.3). The provincial Chief Forester will review this proposed AAC and make his determination. The AAC Rationale document will be included as Appendix 7.

2.1.4 Twenty-Year Plan

A twenty-year plan for the period 2004 - 2023 is also required. This strategic level plan illustrates one feasible pattern of development for the next twenty-year period. The plan is prepared based on the proposed AAC level. The twenty-year plan will illustrate spatially, the results of the non-spatial timber supply analysis prepared for MP 10 and the operational requirements of the Forest Practices Code and FRPA.

The intent of the twenty-year plan is to demonstrate that at the proposed AAC level there is sufficient volume of timber available to meet the volume target over the next 20 years. The twenty-year plan has to be approved by the Kalum Forest District Manager.

Table 2 provides a summary of the twenty-year plan. It lists the projected volumes scheduled by Landscape Units for each quarter of the twenty-year period. Thematic maps are provided in a map folio to illustrate the spatial distribution of the cutblocks in each draft Landscape Unit.

Generally, cutblocks in the first period are taken from the current forest development plans for TFL 1 and BC Timber Sales. The remaining cutblocks come from the total chance mapping recently completed by NSF for the TFL. Blocks are scheduled using an iterative approach to satisfy timber adjacency and green-up requirements. A report detailing the results of the twenty-year plan report is provided in Appendix 8.

The twenty-year plan indicates that a volume of 500,000 m³ per year can be maintained for the first five year period, with a reduction to 420,000 m³ per year in the remaining three periods. This differs from the timber supply analysis, which indicates that the harvest level can be set at 540,000 m³ per year for the next ten years before dropping to 486,000 m³ per year.

This disparity is a result of spatial constraints on the TFL that become apparent in the twenty-year plan. These constraints are dictated through the Kalum LRMP, and by the Ministry of Forests' policy that blocks cannot be harvested until any adjacent areas have plantations that are at least three-meters high ("three meter green-up").

Table 2: Twenty-year Plan Summary

Landscape Unit		Gross Area	Volume Schedule by Period (m ³)				TOTAL
			2004-2008	2009-2013	2014-2018	2019-2023	
1	Nass River-Kalum	2,118	61,401	18,144	23,003	29,180	856,325
2	Ishkheenickh	28,572	155,815	98,799	50,498	58,006	1,505,556
3	Ksedin	21,225	41,322	51,306	80,834	66,190	114,929
4	Tseax	50,211	137,630	159,868	545,486	258,729	363,118
5	Kiteen	83,916	715,972	319,268	293,151	392,892	192,250
6	Beaver	85,001	114,023	173,218	292,819	276,265	1,721,283
7	Nelson-Fiddler	57,380	99,127	108,458	198,134	193,046	1,826,006
8	Kalum	14,271	10,238	39,904	45,016	97,092	239,651
9	Skeena River-Kalum	10,569	16,759	34,868	81,227	52,331	128,417
10	Dasque	15,325	7,110	19,718	13,455	74,646	131,728
11	Lakelse	4,441	84,543	21,181	11,958	10,735	598,765
12	Kleanza-Treasure	68,255	577,409	523,725	347,483	377,390	185,185
13	Clore	77,014	493,197	570,999	200,133	241,226	1,101,712
TOTAL TFL 1		518,297	2,514,546	2,139,457	2,183,197	2,127,726	8,964,926

Another factor that has limited the twenty-year plan volume is the operability classification, in which only the Forest Operability Class 1 (see Table 9 and Figure 5 for Operability Class Information) area and those areas identified on the current forest development plan were allowed to be accessed in the first five years of the twenty-year plan. This is to reflect the current economic reality, in which the low-volume, non-conventional, or marginal stands are not currently being accessed. It is worth noting that while preparing the twenty-year plan, the low-volume classification was discovered to contain areas with greater than 300 m³/ha: over the term of the next management plan, these areas should be examined for incorporation into operability class 1.

2.1.5 B.C. Timber Sales Program

BC Timber Sales has a volume of 29,950 m³ that can be sold annually as Timber Sale Licences (TSL) to independent logging contractors. Once TSL areas have been harvested and reforested, the areas are returned to CTR for longer-term management. Close co-operation between BC Timber Sales and CTR is essential to ensure that planning and administration of the BCTS program is carried out in unison with the overall operation of the TFL.

Since its inception in 1988, the Small Business Forest Enterprise Program on TFL 1 has been undercut and undersold for its first three cut-control periods. (See section 1.7). The Ministry of Forests has sold Timber Sale Licences (as bid proposals) to more than 100% of the entire allocation for the current cut-control period (e.g., 2002-2006) to meet the five-year cut control target. However, the actual amount harvested from this area, while meeting the current five year cut control, did not cover the carry forward of the undersold volume.

BC Timber Sales has been allocated an operating area in the central Copper between Nogold and Limonite Creeks. The twenty-year plan completed for this area in the previous management plan indicated that there was sufficient volume for this program over the next 20 years and beyond.

Administration Responsibilities

The administrative responsibilities of BC Timber Sales for its Nogold operating area within TFL 1 are:

- Planning
- Prepare a Forest Stewardship Plan for the BC Timber Sales operating area that is in accordance with this Management Plan.
 - Update the forest development plan or stewardship plan before December 2006 to reflect the requirements of the *Forest and Range Practices Act*.
- Development
- Carry out design and construction of all primary access roads when they are to be used exclusively by BC Timber Sales contractors.
 - Enter into cost-sharing agreements for the design, construction and maintenance of primary access roads that will be used jointly with CTR.
- Silviculture
- Fulfil basic silviculture obligations on the TSL areas within TFL 1.
 - Silviculture activities are to conform to the reforestation strategies and stocking standards referred to in this management plan.
 - Carry out all post-harvesting activities including slash disposal until free growing status is reached.
 - Proposed prescribed burning plans will be discussed with the CTR prior to implementation.
- Annual Report
- By January 31st every year, provide CTR with information on the activities completed for the previous year. (note that this information has not been received in recent years)

2.2 Operational Planning

It is the goal of CTR to maintain an economically viable Standing Timber Inventory. Previously, this would have been considered to be equivalent to two years of AAC volume in approved cutting permits. Currently, however, the viability of each cutting permit needs to be evaluated – for instance, helicopter logging areas that were planned and approved when pulplogs were selling for nearly \$100.00/ m³ are not viable when the pulplog price is below \$60.00/ m³ (personal communication, D. Curtis, April 8, 2003). The combination of poor pulplog prices, a weak Asian economy, and the US countervail duty on softwood lumber, means that much of the TFL 1 area is of marginal viability. As a result, CTR will refrain from harvesting obviously uneconomic areas, even if approved for logging, and will target viable areas for approval and harvest.

Operational planning will be completed as a prerequisite to receiving cutting permit and road permit approvals from the MOFR. The operational plans and permits prepared are summarised in Table 3. The *Operational Site and Planning Regulation* outlines the content requirement for operational plans.

Table 3: Operational Level Plans

Type	Purpose	Renewal
Forest Development Plan	Indicate proposed harvest cutblocks and road construction scheduled for a five-year period	<i>Will be replaced with Forest Stewardship Plan by December 31, 2006</i>
Forest Stewardship Plan	Shows Forest Development Units (FDU's), which are broad areas in which forest operations may take place. FSP's identify management strategies to be applied within the FDU's. <i>FSP currently being developed – to be implemented by December 31, 2006</i>	Updated every five years
Silviculture Prescription	Prescribes silvicultural system and regeneration plan for harvesting and reforesting a cutblock	<i>Amended as required</i>
Site Plan	Provides information on silvicultural system, logging method and regeneration plan for cutblock. <i>New, replaces Silviculture Prescription</i> <i>Note: not an operational plan as defined under the Code</i>	Amended as required.
Deactivation Prescription	Prescribes road deactivation work to be undertaken for unstable or potentially unstable terrain.	As needed
Road Permit	Authorizes new road construction under specific terms and conditions with approximate road location needs to be shown on FSP Exhibit A map. Road layout and design required for District Manager approval in two situations 1)road in riparian area and 2) on unstable slopes requiring sidecasting	Issued as needed
Cutting Permit	Approved application authorises the logging identified cutblocks under specific terms and conditions	Renewed as needed
Oil Spill, Erosion and Fire Pre-organization Plan	Action plans that details the operational readiness to deal with oil spills, prevent erosion, and prevent, detect and suppress forest fires <i>Note: not an operational plan as defined by the Code</i>	Annually
Special Use Permit	Application to use or occupy Crown land for gravel pit, sort yard or facility <i>Note: not an operational plan as defined by the Code</i>	Annually

2.2.1 Forest Development Plan

A forest development plan is intended to implement the goals and strategies described in the management plan at a tactical level. It outlines details of proposed harvesting schedules by year for a minimum five-year period, describes regeneration and protection plans and the provisions made for non-timber values.

All forest development plans in the province have been extended to December 31, 2006, at which time they are to be replaced by forest stewardship plans as defined in the Forest and Range Practices Act. Amendments to development plans have to be in place before December 31, 2006 and reflect adjustments resulting from field verification of proposed cutblocks, the collection of new data, and revisions resulting from comments received from resource agencies and the public.

2.2.2 Forest Stewardship Plan

CTR is currently developing a Forest Stewardship Plan for TFL 1. The plan will be advertised and made available for public viewing late summer 2006, and any comments and issues received will be taken into account before it is finalized.

2.2.3 Silviculture Prescription

Silviculture prescriptions only apply to blocks approved before December 18, 2002. After this date, a site plan is required instead. A silviculture prescription provides a detailed classification of the ecological site series and a description of non-timber resource values. It also prescribes the silviculture system, harvest method, reforestation treatments and stocking standards needed to produce a free growing crop and the measures to accommodate non-timber resource values.

2.2.4 Site Plan

Site plans are required before harvesting commences on blocks that did not have an approved Silviculture Prescription in place by December 17, 2002. A site plan provides core information on a block, including classification of the ecological site series, the silviculture system, reforestation treatments and stocking standards needed to produce a free growing crop and the measures to accommodate non-timber resource values. It is important to note that site plans are not considered operational plans under the current legislation.

2.2.5 Road Permit

Road permits provide the authority for harvest of right-of way wood and for construction activities. Applications for road permits will be submitted to the district manager to obtain approval for new road construction. Road applications may contain the road plan and design, including bridges or major crossings and describe any special construction techniques.

2.2.6. Cutting Permit

Cutting permits provide the authority for harvesting and in-block road construction. Cutting permit applications are submitted to the Ministry of Forests throughout the year. They will be in accordance with the approved forest development plan or forest stewardship plan. Sufficient cutting permit applications will be submitted to enable CTR to deliver a continuous and adequate log inventory for markets over an operating year. As operations progress, amendments to approved cutting permits will be prepared as needed. Where required, this will include amendments to the forest development plan or forest stewardship plan, and to specific silviculture prescriptions. The objective is to have adequate approved volume to allow for operational flexibility and response to market fluctuations (generally estimated as two years of AAC).

3 RESOURCE INVENTORIES

A comprehensive set of resource information has been assembled for TFL 1, both timber and non-timber inventories. The status of these various inventories is summarized in Appendix 4.1. CTR will continue to acquire new resource inventory data for the TFL and to upgrade existing information. Inventory information is available for the following:

Table 4: Inventory Type

Inventory Type	Description
Forest	Strategic (productive/non-productive), operational, growth and yield
Operability	Conventional, non-conventional, non-harvestable.
Access	Roads and bridges
Silviculture	Silviculture activities
Terrain	Environmentally sensitive areas, terrain hazard mapping,
Ecological	Biogeoclimatic zone, subzone, variant, site series, natural disturbance types,
Aquatic	Fish habitat, streams, lakes, wetlands
Cultural	Parks, protected areas, recreation, visuals, archaeological
Wildlife	Grizzly bear, ungulate winter range, red- and blue- listed species
Biodiversity	Landscape units, biodiversity emphasis options, connectivity,
Administration	Guide-outfitters, trappers, mineral claims, legal and administrative boundaries

3.1 Timber

The re-inventory completed in 1992 has been kept current. An update for silviculture history to December 31, 2001 was completed. The re-inventory meets and exceeds Ministry of Forests standard inventory specifications. The classification of immature forest cover types has been improved, as well as the reliability of the forest cover maps.

The 1995 MOF Resources Inventory Branch (RIB) audit report on the 1992 re-inventory for the immature component of the inventory suggested an acceptable level of accuracy for site index assignment in young stands. However, low inventory site index assignment may potentially result from under-estimation of regenerated stand heights. The issue was addressed in the vegetative resource inventory (VRI) sampling project, which was completed in 2001. For the field sampling of polygons, 150 VRI plot clusters were established in productive stands during the 1999 and 2000 field season (118 in TFL 1 and 32 in Nisga'a area). Second growth stands sampled ranged in inventory stand age from ten to 110 years. The compiled plot results were used to adjust age, height, and site index for stands aged 30 to 110 years, and age and height for stands aged 10 to 29 years old in the inventory database.

The 1:20,000 UTM map grid is depicted in Figure 4. The gross area of the TFL 1 by land category is in Table 5. The productive forest area is summarized by age class and volume in Tables 6 and 7 respectively.

Table 5: TFL 1 Land Base

	Area (ha)	Volume (m ³)
Total Area	518,297	87,096,148
Non-Forest	274,042	1,927,776
Forested Area	244,255	85,168,372
Non-Productive Forest	14,876	656,543
Productive Forest	229,379	84,511,829
Reductions for Low Site, ESAs, operability (net of NSR)	139,783	55,594,269
Net Productive Forest*	89,596	28,917,560

*Includes future roads

Table 6: Productive Forest Area by Age Class (hectares)

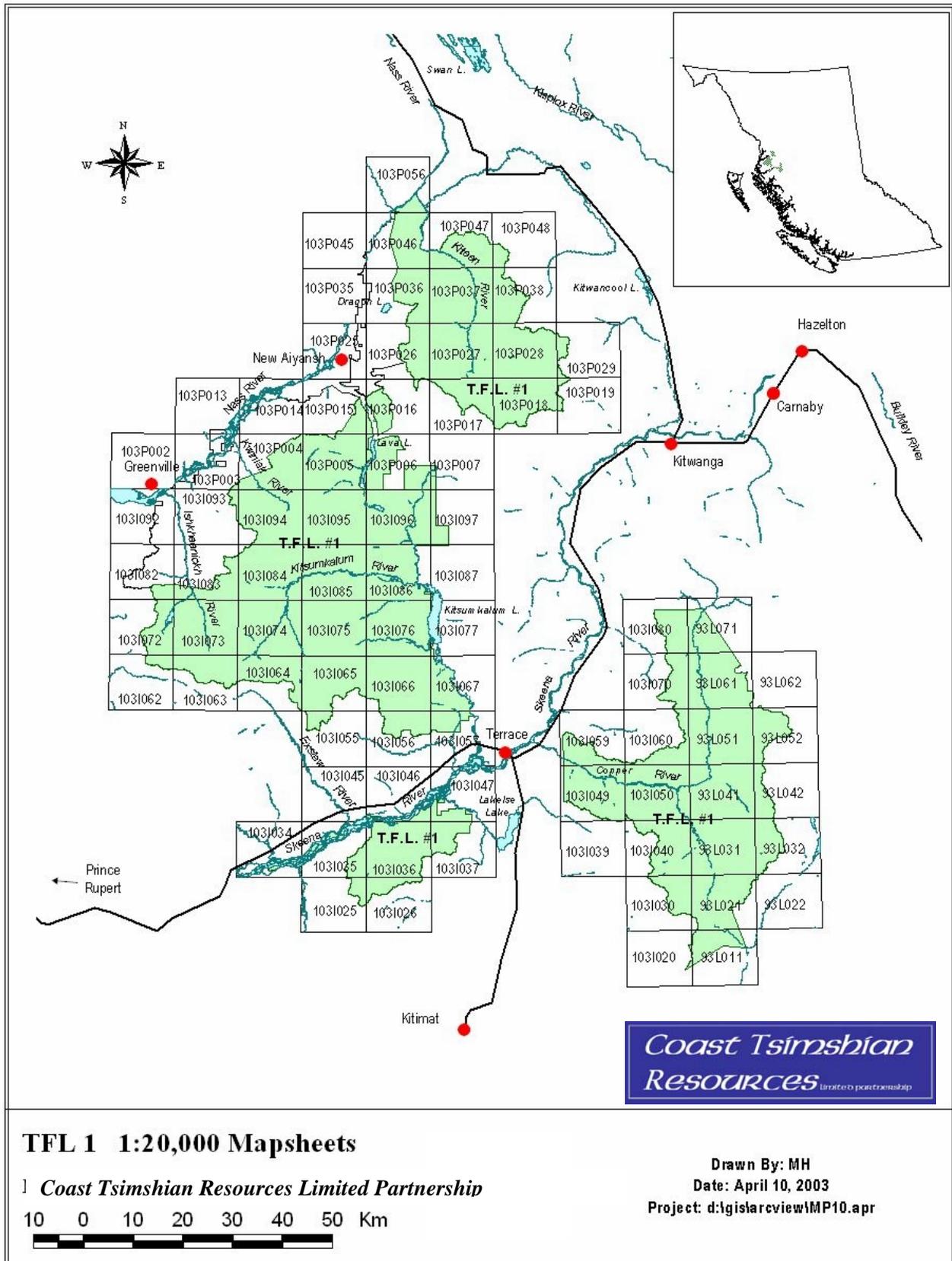
Type Group	1	2	3	4	5	6	7	8	9	Other	TOTAL
Conifer types	16,334	20,887	8,524	1,222	1,743	6,778	1,802	18,482	142,791	0	218,563
Deciduous	837	2,219	1,665	387	297	239	112	621	85	0	6,462
NSR	0	0	0	0	0	0	0	0	0	3,881	3,881
NCBr	0	0	0	0	0	0	0	0	0	473	473
TOTAL	17,171	23,106	10,189	1,609	2,040	7,017	1,914	19,103	142,876	4,354	229,379

Table 7: Productive Forest Volume by Age Class (m³)

Type Group	1	2	3	4	5	6	7	8	9	Other	TOTAL
Conifer types	1,228	927,499	1,382,240	265,424	520,549	2,229,624	568,724	7,606,307	70,283,211	0	83,784,806
Deciduous	4,971	36,860	278,961	81,220	73,839	41,494	30,801	159,612	19,265	0	727,023
NSR	0	0	0	0	0	0	0	0	0	0	0
NCBr	0	0	0	0	0	0	0	0	0	0	0
TOTAL	6,199	964,359	1,661,201	346,644	594,388	2,271,118	599,525	7,765,919	70,302,476	0	84,511,829

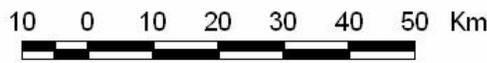
The volumes have been compiled using the VDYP model. Utilization standards are close utilization minus decay, waste and breakage.

Figure 4 1:20 000 Map Sheets



TFL 1 1:20,000 Mapsheets

1 Coast Tsimshian Resources Limited Partnership



Drawn By: MH
Date: April 10, 2003
Project: d:\gis\arcview\MP10.apr



Inventory Maintenance

The inventory is loaded on an ARC/INFO GIS system and will be updated periodically to represent changes due to logging depletion, other disturbances and regeneration status during the management plan period.

Environmentally Sensitive Areas

Environmentally Sensitive Areas (ESA) have been identified using photo interpretation and ground sampling techniques. The ESA classification for the TFL was completed in 1992 for all classes except wildlife habitat, Ew. No additional updating is required. ESA category and class are summarized in Table 8.

Table 8: Environmentally Sensitive Areas

ESA Category	ESA Class	Rating	Definition	Productive Area (hectares)
Soil	Es ₁	High	Area showing extremely fragile or unstable soils.	10,097
	Es ₂	Moderate	Area showing significantly fragile or unstable soils.	43,826
	Esp ₁	High	Areas of extreme steepness and fragile soils with potential severe regeneration problems.	12,666
Regeneration Difficulty	Ep ₁	High	Severe regeneration problems caused by climatic factors.	31,768
	Ep ₂	Moderate	Severe regeneration problems caused by biotic factors.	4,986
Snow Avalanche	Ea ₁	High	Areas having severe snow chute and avalanche problems.	144
Watershed	Eh ₁	High	Very high water values and high sensitivity.	0
	Eh ₂	Moderate	High water values and high sensitivity.	0
Recreation	Er ₁	High	Exceptionally high recreation values.	0
	Er ₂	Moderate	High recreation values.	278
Wildlife*	Ew ₁	High	Areas having critical importance to wildlife.	11
	Ew ₂	Moderate	Areas having high value for wildlife.	215
Combination	Esa ₁	High	Soil and avalanche areas.	0
	Esh ₂	Moderate	Soil and water areas.	0
	Esp ₂	Moderate	Soil and regeneration problem areas.	1,961
	Esr ₂	Moderate	Soil and recreation areas.	1
				88,307**

* Not mapped to Ministry of Forests Inventory standards. Since they do not result in netdowns, Ew areas are not included in the table in the Timber Supply Information package.

** Individual ES areas do not add up to total due to overlapping ES categories

Wildlife habitat is accounted for in the timber supply analysis with netdowns for wildlife tree patches and riparian reserves, and by modelling of biodiversity and seral/ green-up constraints for all LRMP management zones including mountain goat winter range and identified grizzly bear habitat.

Operability Classification

The productive forest area is classified into operability classes and was updated in 2002. These classes are based on combinations of accessibility, harvesting systems, and merchantable volume. A coarse filter approach is applied to the economic feasibility of logging. Operability classes (Figure 5) are used to stratify the productive forest area and to enable a netdown to an operable landbase for use in yield analysis.

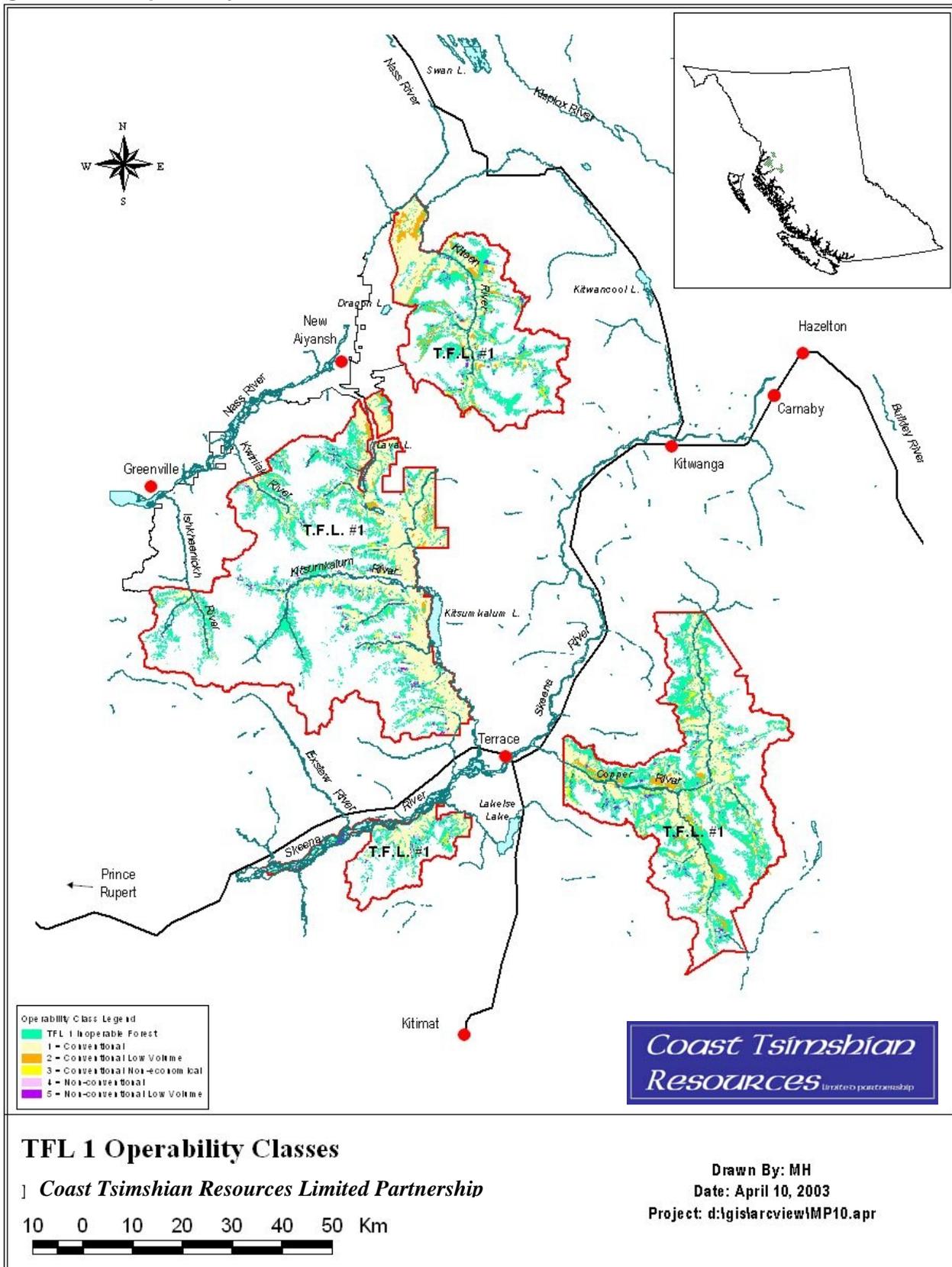
Table 9: Operability Classification (hectares)

Operability Class	Definition	Volume* (m ³ /ha)	Total Productive Forest (hectares)	Timber Harvesting Land Base (hectares)
	Note: "Class" refers to the operability class as determined in the Company's Total Chance Planning project of 2001-2002			
C Conventional	Harvestable by ground skidding, cable, skyline systems. Class 1: Economically available (base 2002) Class 3: Non-economic, currently unavailable (base 2002)	>250	102,443	85,237
L Non-conventional	Harvestable by helicopter, or multi-span systems Class 4: Economically available (base 2002) Class 5: Non-economic, currently unavailable (base 2002)	>350	7,936	4,359
V Low Volume	Marginal areas with volumes not high enough to log feasibly Class 2: Conventional, low volume (base 2002)	<250	11,233	0
X Non-harvestable/ Other	Areas that are inaccessible, or are not suitable for harvesting due to low stocking, very poor quality. Alpine types are not included in this class.	Variable	107,767	0
			229,379	89,596

* Volume per hectare is used only as a general guideline for viability when operability was being determined. Operability designations are also based on local knowledge of site conditions and wood quality.

During the term of MP 9, logging consistently took place in the non-conventional (L) and low volume (V) areas. Approximately 145,000 m³ was logged from within these categories. In the updated operability classification, skyline areas have been incorporated into the conventional category

Figure 5 TFL 1 Operability Classes



Growth and Yield

The purpose of the growth and yield program is to improve the reliability of estimates of growth rates and volume yields of the second growth forests. A series of permanent sample plots (PSPs) were established in the late 1950s and early 1960s by Columbia Cellulose Company Ltd. Unfortunately, only some of the records and data from these installations have been kept. The program was refocused in 1991 with the establishment of 11 permanent sample plots in natural regenerated hemlock stands. Additional PSPs have been established in both unmanaged and managed stands (stands that have been spaced during the last 10 years). The growth and yield program is now managed by the MOFR in co-operation with the Forest Productivity Council.

Establishment of more plots is needed in spaced stands so that the range of type groups, ages and site series is represented in the database. The collection, analysis and validation of growth and yield data is a long-term program. The continual addition of new and periodically re-measured installations will allow CTR to make revisions and refinements to yield predictions. It will improve the confidence in the long-term fibre supply projections for the TFL

Site Productivity Assessments

The VRI project completed during 1999-2001 resulted in age and height adjustment for stands aged 10 to 110 and site index adjustment for stands aged 30 to 100 years in the CWH, ICH, and MH subzones.

A more reliable field verified assessment of site productivity strengthens the utility of the second growth timber inventory in several ways by:

- Enabling more accurate growth projections of second growth stands
- Identifying stand management and/or future harvesting opportunities.
- Carrying out long-term planning and yield analysis.

3.2 Recreation/ Landscape

Recreation Inventory

The original recreation resource inventory was completed in 1987, and updated in 1997 (see *Recreation Analysis and Management Strategy Report, Tree Farm Licence 1*, July 1997 by RRL Recreation Resources Ltd.). Coded symbols for mapsheet polygons describe biophysical features, recreational activities and significance, and management class.

Recreation opportunity spectrum classes (ROS) describe the types and range of potential recreational experience available within specific areas. Table 6 provides a summary of the distribution of area by ROS classes within TFL 1 as of November 1996. Note that changes will occur to the ROS class distribution over time as a result of the ongoing road development and harvesting. In addition, the TFL boundary has changed. However, the current distribution of the classes on a percentage basis is not expected to be significantly different from those shown in Table 10.

Table 10: Recreation Opportunity Spectrum Distribution (1996 base)

ROS Class	Percentage
Primitive	22%
Semi-primitive non-motorized	42%
Semi-primitive motorized	2%
Natural roaded	2%
Modified roaded	30%
Rural	2%
Total	100%

Popular recreation activities include angling, boating, camping, canoeing, cross-country skiing, fishing, hiking, hunting, kayaking, mountain biking, mountaineering, mushroom picking, trail bike riding and wildlife viewing. The existing recreation features described in Table 7 are campsites and trails in the TFL.

Table 11: Existing Recreation Sites and Trails

Feature	General Description
Pine Lake	6.1 km loop trail around the lake. Picnic and campsite. There are 2 - 3 campsites each with the capacity for approximately 2 -3 vehicles. (Trail takes 3 hours to walk). Potential for expansion of camping sites.
Sleeping Beauty Trail	6 hours round trip hike to lower meadows. Peak is a further 7 km. Excellent views of Terrace and Kitsumkalum Lake. Opportunities for extensive hikes to adjoining peaks and ranges.
Copper Fossil beds	Two semi-open campsites (one is overgrown). Potential for expansion to include more campsites and a trail down to the river. Jurassic Age fossils. Located 45 km from Highway 16 along the Copper River FSR.

A recreation analysis, which is a process for assessing recreation strategies and options, was updated in 1997. No updating of the inventory or analysis is planned as recreation use is projected to remain stable during the next five years.

The waterfall in the Miligit Valley (Upper Copper) has been recommended for designation as a known "recreation feature" in the Kalum LRMP.

Landscape Inventory

The initial forest landscape inventory was completed in 1987 and consists of 54 mapsheets at a scale of 1:20,000. This inventory was subsequently updated in November of 1996. The landscape inventory and visual sensitivity information was used in the recreation analysis report.

Landscape polygons were mapped from three major road travel corridors. These three travel corridors are the Nisga'a Highway, the Nass Forest Service Road, and Highway 16. People travelling these roads can see the visual effects of development activities (e.g., road construction, harvesting, plantations, second growth forests and silvicultural treatments). In 1999, and 2000, Scenic Areas along these corridors were made "known" by the District Manager, with associated Visual Quality Objectives.

The completed visual landscape inventory identified recommended visual quality objectives (VQO), visual sensitivity (VS), visual absorption capability (VAC) and existing visual condition (EVC) along the major travel corridors within TFL 1.

In 1999, Skeena Cellulose Inc. generated a visual sensitivity map for the Upper Copper area, using viewpoints along the Copper River. In 2002, the Kalum LRMP also recommended that the Miligit Valley (in the Upper Copper) be given Scenic Area status. Figure 6 shows scenic areas and the Upper Copper visual area.

3.3 Biogeoclimatic Ecological Classification

Four distinct biogeoclimatic zones predominate the land base: Coastal Western Hemlock, Interior Cedar-Hemlock, Mountain Hemlock, and Alpine Tundra. There is also a very minor component of Engelmann Spruce – Subalpine Fir. The biogeoclimatic zones are illustrated in Figure 7. The ecosystems within these range from the nutrient-rich, moist alluvial sites beside the Skeena, Nass, Lakelse, and Kitsumkalum rivers to high-elevation alpine meadows.

Coastal Western Hemlock Zone (CWH) is the wettest biogeoclimatic zone in the province and is characterized by abundance of western hemlock, amabilis fir and, to a lesser extent, western red cedar and sitka spruce. Red alder is widespread on disturbed sites while black cottonwood is typically found along large rivers with extensive flood plains.

Interior Cedar-Hemlock Zone (ICH) is characterized by the highest diversity of tree species of any zone in the province. White/sitka spruce hybrids, subalpine fir, western red cedar, and cottonwood comprise climax stands. Engelmann spruce, white spruce, various spruce hybrids, and subalpine fir are often climax species on specific soil types. Lodgepole pine, trembling aspen, and paper birch are common seral species.

Mountain Hemlock Zone (MH) is characterized by short, cool summers and long, cool winters, with heavy snow cover for several months. Mountain hemlock, subalpine fir, amabilis fir (balsam), and yellow cedar are the most common tree species. Forests are not continuous in the Mountain Hemlock zone, and are largely confined to lower elevations.

Alpine Tundra Zone (AT) is cold, windy and snowy, with low growing-season temperatures. This zone is often dominated by stunted vegetation. The most common stunted tree species are subalpine fir and mountain hemlock.

The approximate distribution by area of the biogeoclimatic zones and associated subzones is shown in Table 12.

Table 12: Biogeoclimatic Subzone

Zone/Subzone	Variant	Gross Area	%	Productive Area	Timber Harvesting Land Base Area
AT	Alpine Tundra	123,923	24	3,870	0
CWHvm	*Coastal Western Hemlock Very Wet Maritime Subzone	2,000	<1	668	0
CWHws ₁	Coastal Western Hemlock Wet Submaritime subzone	68,960	13	56,416	35,026
CWHws ₂	Coastal Western Hemlock Wet Submaritime subzone	114,838	22	88,696	34,718
ESSFmk	*Engelmann Spruce -SubAlpine Fir Moist Cool Subzone	747	<1	213	54
ESSFwv	*Engelmann Spruce - SubAlpine Fir Wet Very Cold Subzone	267	<1	58	6
ICHmc ₁	Interior Cedar Hemlock Moist cold subzone	3,388	1	3,239	2,148
ICHmc ₂	Interior Cedar Hemlock Moist cold subzone	16,994	3	14,861	9,635
MHm ₁	Mountain Hemlock Moist Maritime (Forested) subzone	12,640	2	2,544	58
MHm ₂	Mountain Hemlock Moist Maritime (Forested) subzone	174,540	34	58,815	7,951
Total		518,297	100	229,379	89,596

* Very minor occurrence - less than 1% gross area.

Note: Individual Zone/Subzone/Variant gross areas may not add up to total gross area due to rounding of decimals.

Figure 6 TFL 1 Scenic Areas

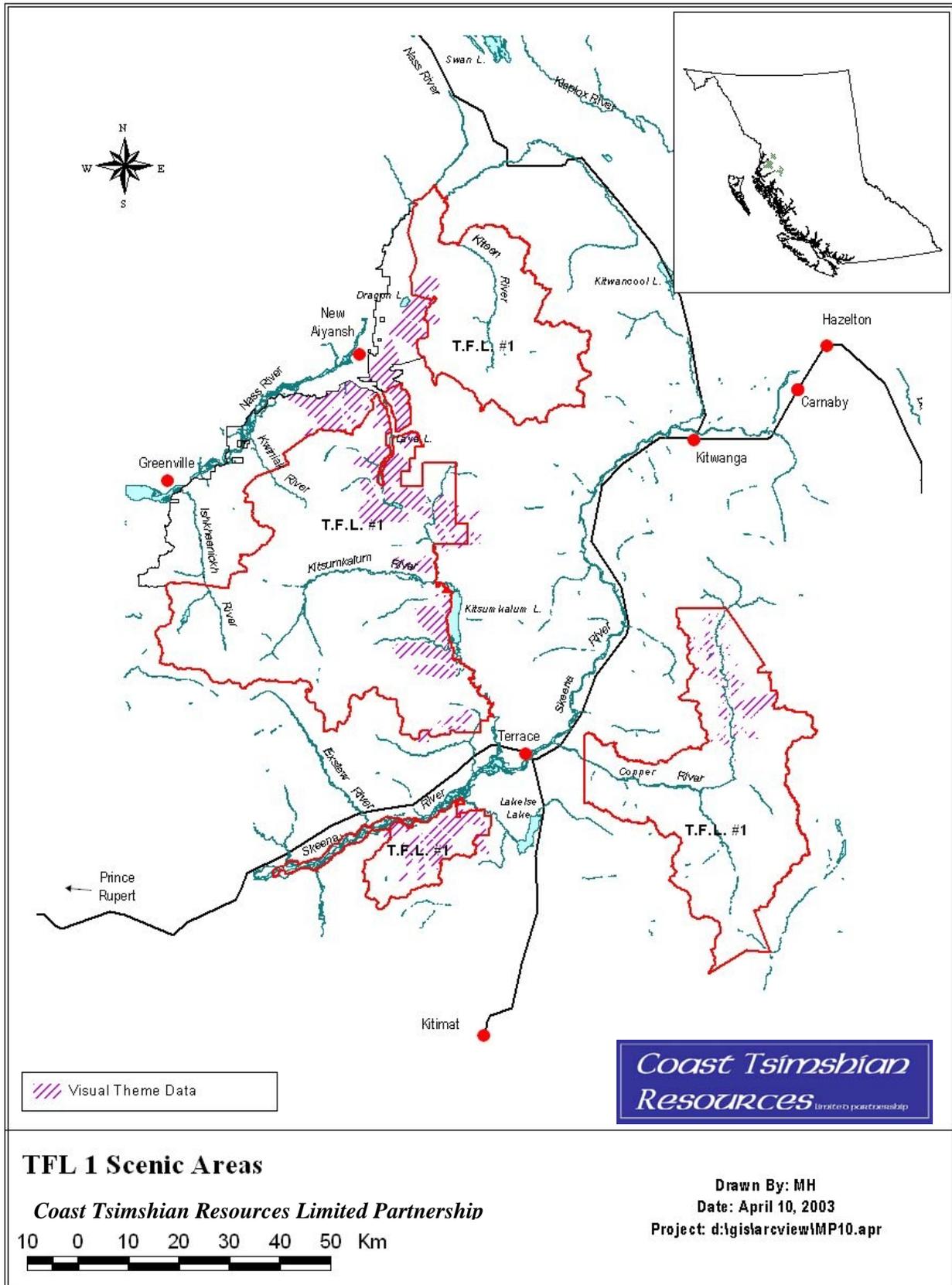
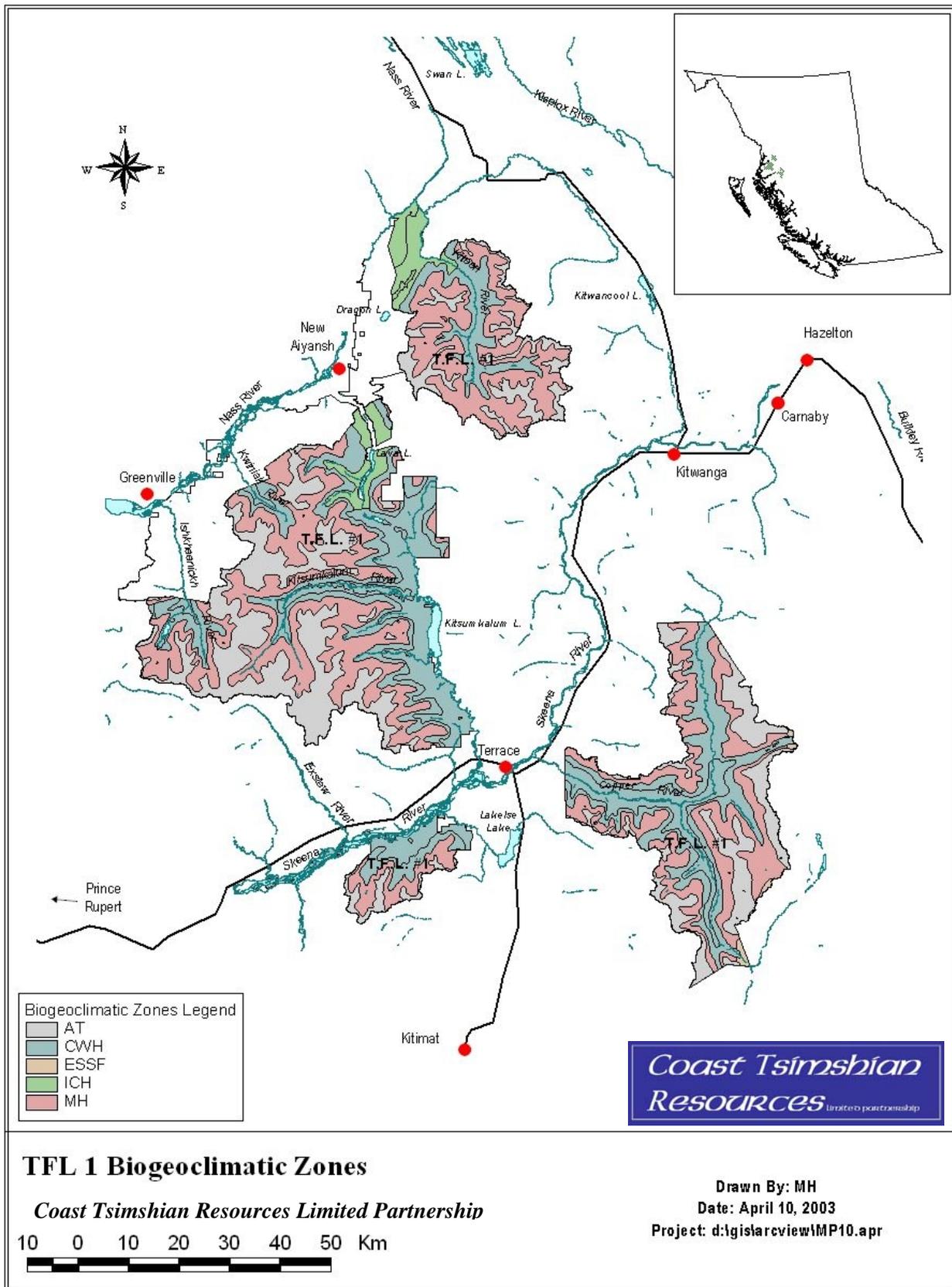


Figure 7 TFL 1 Biogeoclimatic Zone



3.4 Soils and Terrain Stability

Soils are described by their occurrence in the four main biogeoclimatic zones. Each zone has its own characteristic soils:

Soils

Alpine Tundra Zone (AT) is an area of active frost shattering, colluviation, soil creep and frost churning. Soils in this high elevation environment are primarily orthic and humic regosols, although brunisols can dominate in drier alpine areas. Wet habitats are usually characterized by ferro-humic podzols.

Mountain Hemlock Zone (MH) soils are predominantly ferro-humic and humo-ferric podzols and folisols with mor humus forms. Dominant processes affecting soil development are the heavy snowpack and continuously cool, wet conditions. Soils are acidic and highly leached, and fungal decomposition dominates. Many soils show signs of mottling or gleying because they remain moist or saturated throughout the year. Organic matter builds up because decomposition rates are slow. Wetlands with acidic, organic soils occur where terrain is less steep and the climate is particularly humid.

Coastal Western Hemlock Zone (CWH) is characterized by cool wet weather and granitic parent materials which combine to produce strongly leached, nutrient deficient mineral soils with thick acidic forest floor layers. The most common are ferro-humic and humo-ferric podzols with humimor and hemihumimor humus forms. Folisols dominate.

Interior Cedar Hemlock Zone (ICH) soils have developed mainly from morainal parent materials, although fluvial and colluvial materials are also common. Although there is less leaching and organic matter accumulation than in the CWH Zone, these processes are still very important. Orthic humo-ferric podzols with hemimor humus forms predominate, although brunisolic or podzolic gray luvisols occur on finer-textured morainal materials. Dystric brunisols may be found on coarse-textured colluvial or fluvial materials, while gleysols and regosols occur on wet and/or productive alluvial ecosystems. Organic soils are uncommon.

Terrain Stability Mapping

Terrain and soil erosion hazard classification and terrain stability Level C mapping has been completed for approximately 60% of the TFL landbase, as shown in Figure 8. This covers almost all the critical portions of the TFL: the remaining areas are minor in nature, do not require this type of mapping, or are the responsibilities of BC Timber Sales.

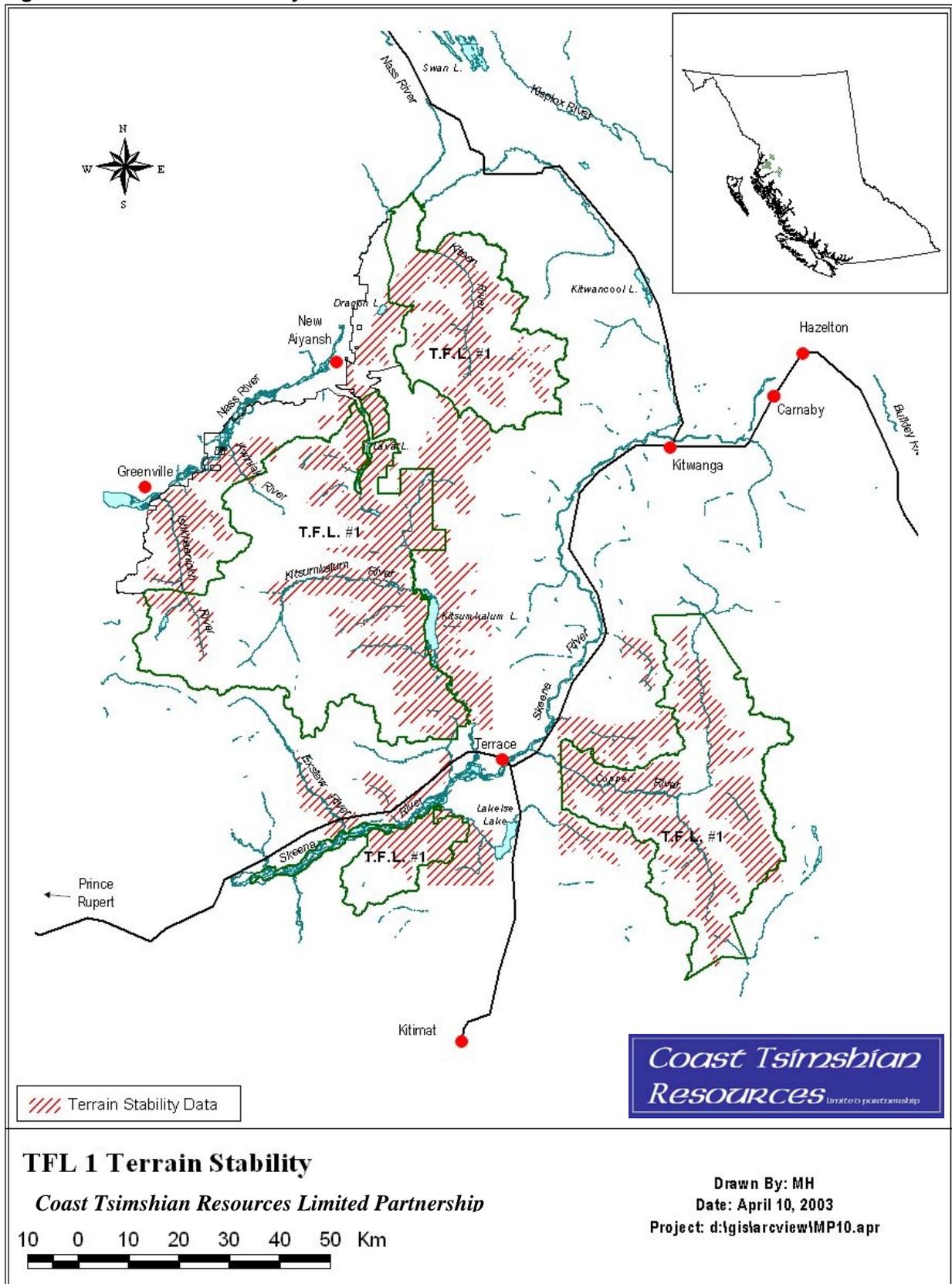
3.5 Water

TFL 1 is within the watersheds of the Skeena and Nass River systems, both of which are major provincial river systems. The landbase is an integral part of the catchment basin of these rivers. There are several regionally important drainages with headwaters within the TFL that are tributaries to these rivers. Notable tributary rivers to the Skeena River are Lakelse River, Kitsumkalum River, and the Copper River. Tributary to the lower Nass River are the Ishkheenickh, Tseax and Kiteen Rivers. The primary value of these waterways is in the aquatic habitat and the fishery resources it provides. The Skeena River system has four of five Class 1 waterways and 13 of 42 Class 2 waterways in the province.

Community Watersheds

Through the SRMP process 1 community watershed was identified within TFL 1. The Rosswood (Clear Creek) Community watershed is 1294 ha in size. This community watershed and any future designated community watersheds will be managed and monitored in accordance with the Kalum SRMP.

Figure 8 TFL 1 Terrain Stability



Domestic Water Supply Intakes

There are no active water licences within TFL 1. Several are in close proximity to the TFL boundary. There are no impacts expected on these water licences as a result of forest management activities on TFL 1.

Table 13: Water Licences in Close Proximity to TFL 1

Licence No.	Point of Diversion No.	General location
C026199	PD35891	Lakelse River
C035185	PD36044	Kalum River
C035186	PD36045	Kalum River
C108902	PD70316	Cedar River
Inactive	PD67959	Kofoed Creek
Inactive	PD69184	Red Sand Lake

3.6 Protected Areas

The Kalum LRMP has made provision for a number of protected areas. These have been identified for their natural cultural heritage and/or recreational values on accordance with the Provincial Protected Areas Strategy. (Their locations are depicted in LRMP map # 15)

Existing protected areas and newly protected areas adjacent to or in close proximity to the TFL boundary are:

- Gitnadoix Recreation Area
- Kitsumkalum River Park
- Nisga'a Lava Beds Memorial Park
- Skeena Islands Ecological Reserve
- Sleeping Beauty Mountain
- Swan Creek (Copper Valley)

3.7 Fish Habitat

The Skeena River is well known as a major sport and commercial fishery and has provincially significant fish populations. The islands along the lower Skeena River are considered to be the richest growing sites in the Kalum Forest District and provide provincially rare habitat. The Skeena Islands Ecological Reserve protects portions of this rare habitat. Flood plains along the river also provide areas of important biodiversity.

The Nass River system supports important sport, commercial and eulachon fisheries. It also provides wildlife habitat along the lower Nass flood plain, the Nass River estuary and the Nass Islands. The Gingietl Ecological Reserve is situated on the west side of the river.

At least 11 species of anadromous and resident fish are found in the streams and lakes. They include pink, chinook, chum, sockeye and coho salmon, steelhead trout, rainbow trout, cutthroat trout, Dolly Varden, char, kokanee salmon, and mountain whitefish. Pink salmon is the most prevalent salmonid species in most rivers, with lesser numbers of the other three species.

Stream and fisheries inventories are in place for all of the TFL 1 area. At times, the inventories can classify sections of streams in accordance with the Riparian Classification of the *Forest Practices Code* (i.e. S1 – S6). However, while the inventories determine the presence of fish species throughout a study area, riparian classes can change quite often depending on stream width. This level of classification is best left at an operational level. CTR is updating these inventories as additional samples are gathered.

3.8 Wildlife Habitat

Terrestrial Ecosystem Mapping/ Predictive Ecosystem Mapping

Terrestrial ecosystem mapping (TEM) has occurred in some of the drainages both within TFL 1 and its adjoining Forest Licence A16835. By 1998 mapping was completed for parts of areas including the North Kalum, South Kalum and the Whitebottom, and field sampling was underway for the Kiteen and Ishkheenickh. This work was undertaken before the establishment of current RIC standards.

The purpose was to classify and map the natural ecosystems according to existing classification schemes and to provide interpretations for habitat values and use by wildlife. The intent is to use the information in planning for wildlife and biodiversity management. The draft report *General Ecosystem Descriptions and Wildlife Interpretations for Portions of TFL 1 and Forest Licence A16835* by Madrone Consultants Ltd., 1997, summarized general information collected and interpretations made based upon four years of data collection and terrestrial ecosystem mapping. Since that time, the standards for TEM have changed to the point that upgrading of current inventories and acquiring new TEM coverage was prohibitively expensive.

Rather than upgrade and acquire new TEM, CTR has embarked on a program of acquiring predictive ecosystem mapping (PEM). This provides a similar product to TEM, and is more financially prudent than trying to complete TEM. The PEM project has been funded through FRBC and more recently through the Forest Investment Account. PEM information for the entire TFL should be acquired by spring 2004 with accuracy testing being completed during the summer of 2006.

Wildlife Species

Animals and birds inhabit a diversity of habitats throughout the licence area. These include large mammals such as black bear, grizzly bear, moose, mule deer, mountain goat, wolves, and fur-bearers such as marten, fisher, beaver and wolverine. Although precise inventories of the wildlife are not available, hunting and trapping data may be used to estimate populations and/or frequency of encounters. Bird species found include bald eagle, hawks, cavity nesters, owls, and other raptor species, as well as woodpeckers, water fowl and upland game birds such as grouse.

MOE manages wildlife by sub-region management units (MU). TFL 1 is in Skeena Region 6 with sections of MUs 6-9, 6-10, 6-14 and 6-15 within its boundaries.

Grizzly Bear

Management of the local grizzly bear population was one of the more contentious issues discussed in the Kalum LRMP. Currently, management is focused on maintaining the grizzly bear population in the area. Grizzly Bear Management Areas have been mapped for the Kalum LRMP, and the west Kalum part of the TFL is part of the Skeena-Nass Grizzly Bear Benchmark area.

In order to facilitate management of the grizzly bear, the Kalum LRMP designated specific Grizzly Bear Watersheds (Figure 9). These areas require special management of critical habitat to maintain forage and denning opportunities for the grizzly bear.

In 2000, Skeena Cellulose Inc. modeled the potential impact of this management, determining that there would be a minimum 10% impact on timber supply in the first decade. This impact would increase, until there was more than a 50% impact in the fifth decade (*The Impact of the Kalum Local Resource Management Plan on TFL 1, Sterling Wood Group, March 2000*). At least partially in response to this report, a possible seral stage strategy for grizzly bear management was revisited, and was determined to apply specifically within the Copper grizzly bear watershed.

In the grizzly bear watersheds, the LRMP provides for the application of reduced stocking standards on certain site series within the Coastal Western Hemlock wet sub-maritime and very wet maritime variants (CWHws, CWHvm). This reduced stocking has not been modeled in the timber supply analysis, for two reasons:

- The data for the TFL does not represent biological and ecological classification to the site series level, making modeling difficult and potentially inaccurate
- The target levels of reduced stocking is still within the acceptable minimums for normal stocking, so the calculated yield from the stands should still be adequately represented by the yield curves in the timber supply model.

Ungulate Winter Range

Ungulates of management interest in the region include mountain goat and moose. Management for each species centres on management of winter range, as this is seen to be the most limiting factor in the habitat needs for each species.

Mapping of critical winter range for mountain goat was completed in 2001, and is scattered throughout the TFL, primarily in high elevation mountainous terrain. Figure 10 shows the Mountain Goat Winter Range in the TFL. The Ungulate Winter Range Order for Mountain Goat came into effect on January 12, 2005. Management strategies are described in section 4.2.2.3. All development under CTR's FSP will be managed in accordance with Ungulate Winter Range Order #U-6-001.

Moose winter range has been mapped at a coarse scale, primarily in the bottomlands of the Nass, Beaver, Kitsumkalum and Whitebottom areas. Forestry activities within primary winter range have been managed on a site specific basis. Figure 11 shows the Moose Winter Range from the LRMP.

Red and Blue Listed Species

Red-listed species include any indigenous species or subspecies considered to be extirpated, endangered or threatened in British Columbia. The red-listed species that may be found in the Kalum Forest District are the American Peregrine Falcon, Marbled Murrelet, and Short-Eared Owl.

Blue-listed species include any indigenous species or subspecies (taxa) considered to be vulnerable in British Columbia. There are 11 vertebrate animals and 17 vascular plants blue-listed in the Kalum Forest District, including grizzly bear, stone sheep, fisher, wolverine, bald eagle, trumpeter swan, coastal tailed frog and bull trout. In addition, there are almost 40 rare plant communities that may be found within the Kalum Forest District.

A complete updated listing of red- and blue-listed vertebrate animals and vascular plants, as well as rare plant communities can be requested accessed from the *BC Species and Ecosystems Explorer* at <http://env.gov.bc.ca/atrisk/toolintro.html> or the *Conservation Data Centre* at <http://env.gov.bc.ca/cdc/>.

Wildlife Habitat Areas

Wildlife Habitat Areas (WHA's) are currently being identified in the Kalum Forest District for some red and blue listed species with critical habitat factors within the TFL. Currently, coastal tailed frogs, *Ascaphus trueii* are the only species with designated WHA's. The WHA's for coastal tailed frogs contain core zones that are considered "no harvest", and have buffer zones around the core areas that have Best Management Practices that apply to the buffer zones. CTR will observe these WHA's and operate in accordance with the management strategies identified for them.

3.9 Cultural Heritage

The *Heritage Resource Overview for TFL 1, Terrace*, (January 1995) by I.R. Wilson, assesses heritage potential and sensitivity within the area. The purpose was to define known cultural resources and to develop a model to predict the archaeological potential of unsurveyed areas. An archaeological overview assessment (AOA) was undertaken by the Ministry of Forests in 1996 for the Kalum Forest District included TFL 1. The Archaeology and Forests Branch of MOE maintains a register of known archaeological sites for the Skeena Region.

3.10 Minerals

Although mineral deposits have been identified within TFL 1, especially in the Copper River and Kiteen River valleys, none are of sufficient size or quality to warrant exploitation. There are no active mines within the TFL.

The Ministry of Energy, Mines and Petroleum Resources maintains a database of mineral tenure holders containing information regarding client and tenure type, location, size and status of the mineral deposit. A database search in 1998 for mineral tenures within TFL 1 indicated that there were no active mines in the area, although there were eight past producers. At the time, there were 98 documented showings and six mineral prospects within the TFL. Currently, there is only one known area with significant mineral exploration and development activity occurring on TFL 1, investigating a deposit in the alpine area near Mayo Creek.

Figure 9 LRMP Identified Grizzly Bear Watershed Unit

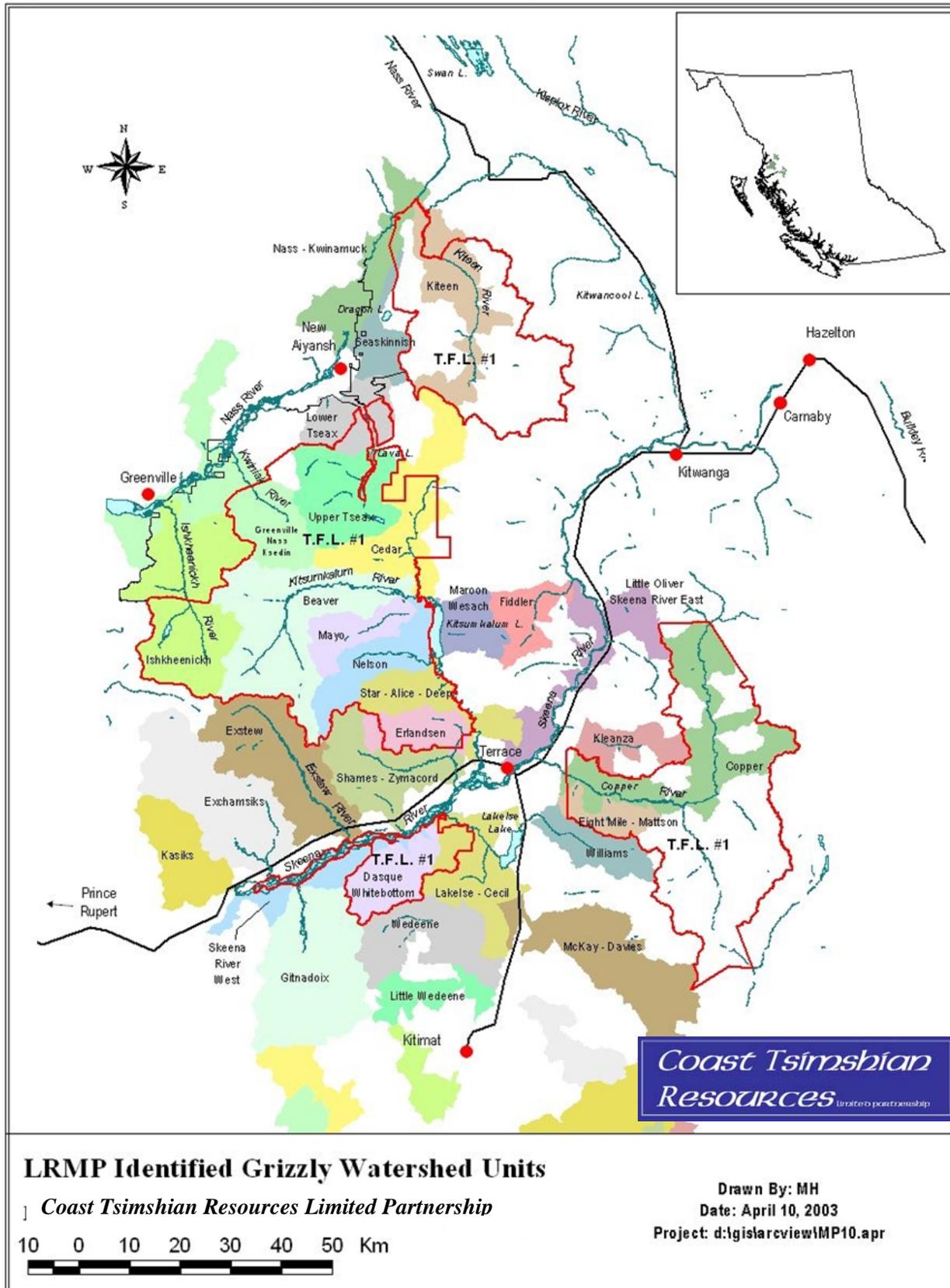


Figure 10 Mountain Goat Winter Range

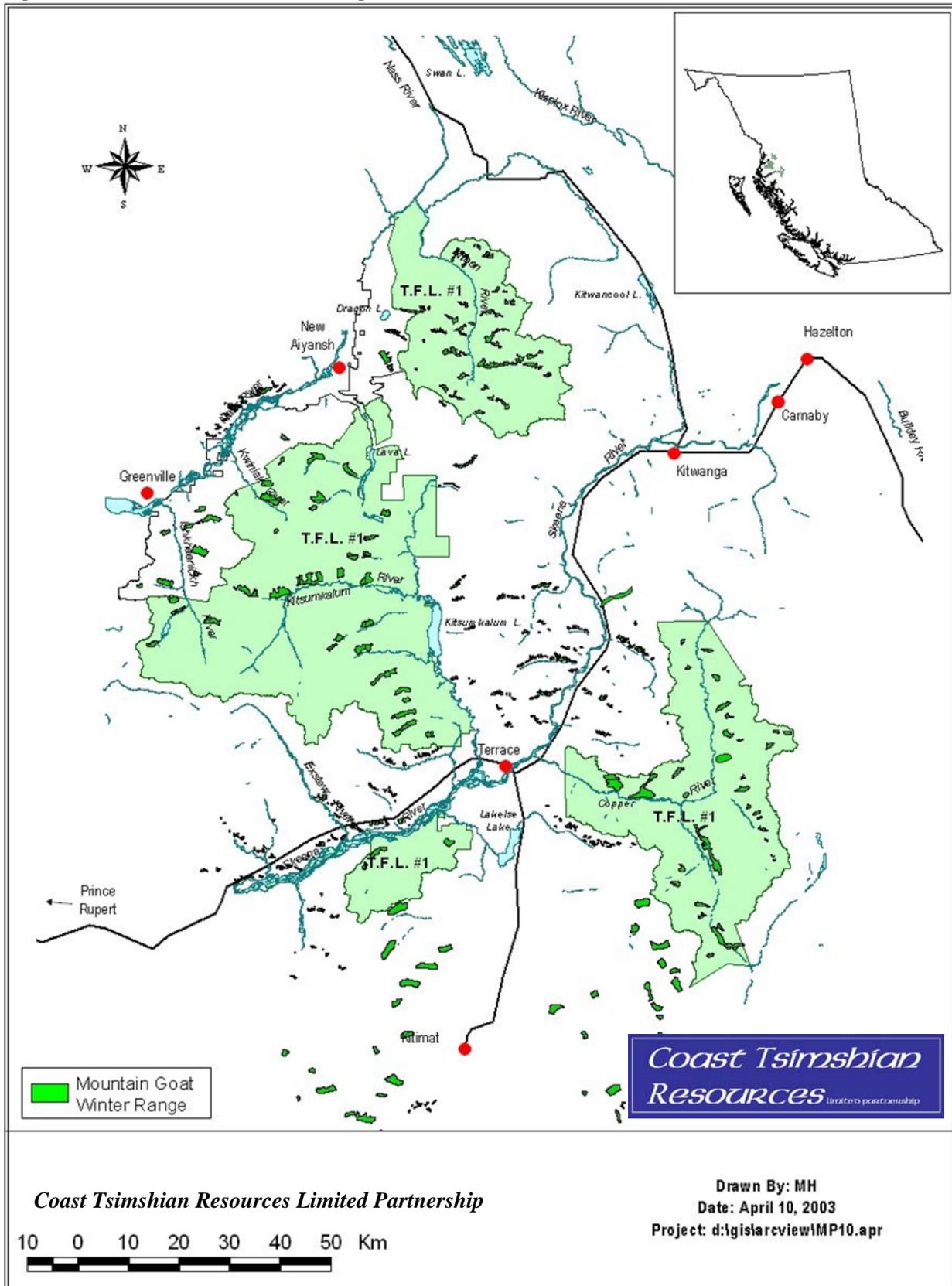
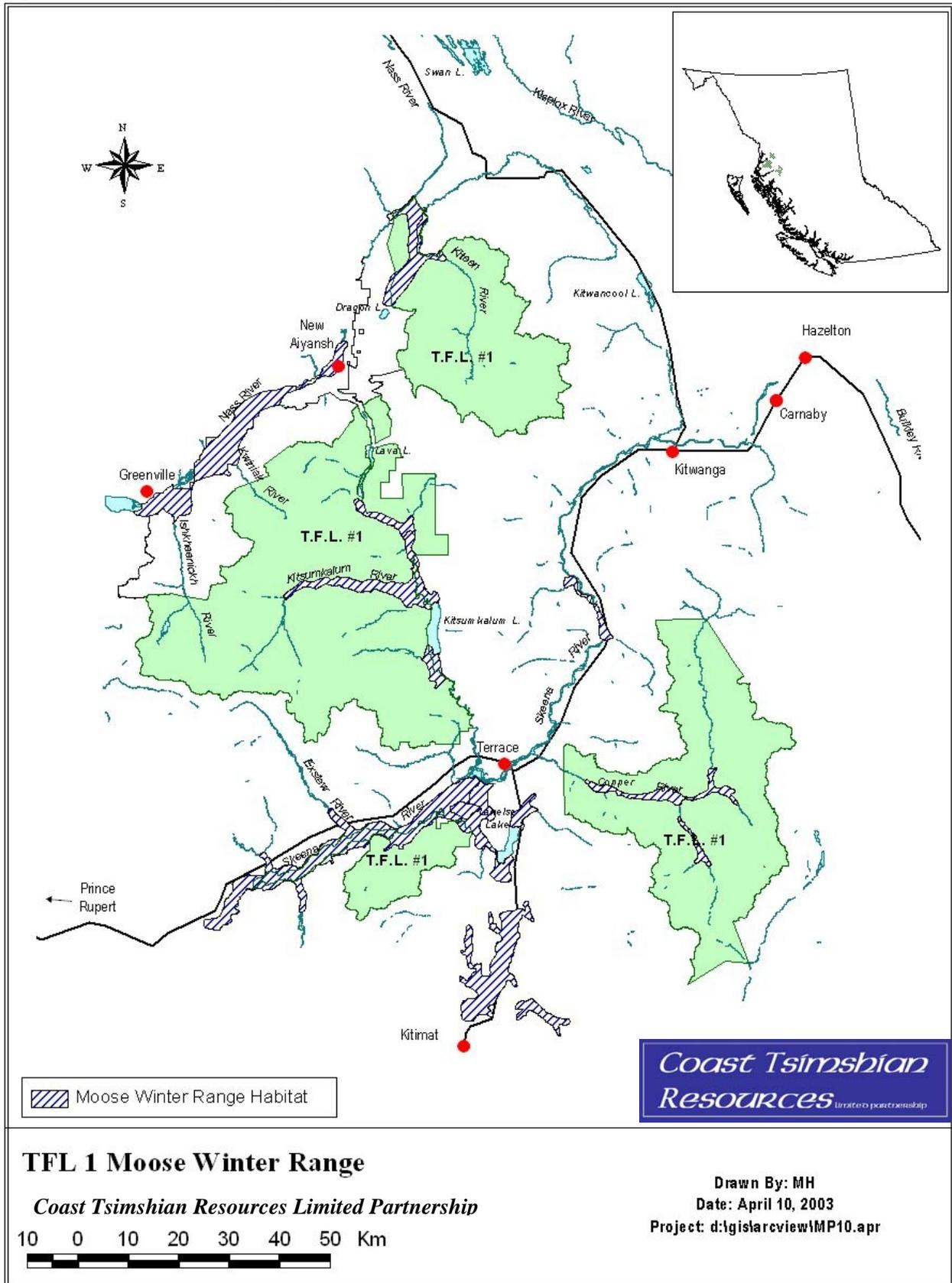


Figure 11 Moose Winter Range



4 SUSTAINABLE MANAGEMENT REGIME

The natural resources of the Tree Farm License area are being managed within the framework and management intent of the Kalum LRMP.

4.1 Management Objectives

Coast Tsimshian Resources' objectives that together make up a forest management regime are:

1. **To maximise a return on capital.**
2. **To carry out responsible forestry and environmental management, and to conduct business activities in an acceptable and safe manner.**
3. **To manage and protect the forest resource through the practise of environmentally balanced, sustainable resource use within the context of government resource statutes**
4. **To pursue forest management and harvesting strategies that will maintain the forest productivity and ensure a sustainable long-term fibre supply and**
5. **To involve local communities and First Nations in key resource decisions that affect management of the TFL.**

4.2 Management Goals, Direction and Strategies

The management goals, directions, and their associated strategies have been prepared for the key functions involved in managing the natural resources of the TFL:

- management and utilization of the timber resource;
- protection and conservation of non-timber values and resources;
- integration of harvesting activities with non-timber uses;
- road construction, maintenance and deactivation;
- forest fire management;
- forest health management; and
- reforestation and silviculture

This section is organised to address each key function.

Goals describe what is to be achieved.

Directions describe how to get to the goals. Wherever possible, they should be measurable.

Strategies follow all the goals and directions are described with ways that the Directions can be followed, thereby achieving CTR's goals and objectives.

While the strategies described are current with respect to CTR's plans, they are not meant to restrict CTR from finding other ways or using other methods to achieve a goal.

4.2.1 Function: Management and Utilization of the Timber Resource

The goals, directions, and strategies described below relate to Objectives 1, 2 and 3.

Goal: Minimum harvest levels will be based on the volume of timber that is economic and of a value that will at a minimum, cover the costs of planning, road construction and maintenance, logging and hauling, deactivation, and silviculture.

Direction: Utilize forward planning to calculate the value of stands within TFL 1 so that the right stands can be harvested at the right time.

Measured by: Average stand value indicated at least at break-even.

Goal: Restrict harvest level over the 5-year cut control period to within 110% of the AAC approved for TFL.

Direction: In the 5-year cut control period, timber volume harvested will be to a maximum of 110% of the AAC.

Measured by: Harvest over the cut control period at less than 110% of AAC.

Goal: Plan and implement harvesting to optimize the value of the timber resource without compromising environmental objectives.

Direction: Utilize forward planning to calculate which systems and methods optimise the value of stands within TFL 1

Measured by: Average stand value indicated at least at break-even.

Strategies

Harvesting Priority

Set harvesting priorities and patterns according to the merchantability and economic viability of candidate stands by considering:

- *Log profile, volume and fibre requirements for available markets.*
- *Logging contractor equipment requirements and limitations.*
- *Timber and operational profile*

Silviculture System

Choose silviculture systems after assessing ecological characteristics, tree species, terrain, forest management constraints, net merchantable volume, economic factors and regeneration requirements.

Planning

Base harvesting priorities to develop a balanced age class of second growth stands by addressing:

- *Merchantability and economic viability of candidate stands.*
- *Harvest profile requirements*
- *Biodiversity requirements.*
- *Forest health, including salvage of blowdown, disease or fire damaged timber.*
- *Recognition of environmentally sensitive areas.*
- *Recognition of visual quality and recreation values.*
- *Recognition of critical wildlife and fisheries values.*
- *Phase-in of commercial thinning and second growth.*
- *Changes in economic conditions*

Harvesting patterns are determined after collecting information on all resource values. Cutblock size and shape is determined by the topography of the area and information available on all resources values at both a forest landscape and stand level.

Net cutblock size will range from 1 to 250 hectares. Cutblock sizes greater than 60 hectares may occur in Natural Disturbance Types 1 and 2 as defined in the Biodiversity Guidebook. The opening size may vary, providing the needs of other resource values can be satisfied

Where multi-pass cutting patterns are employed, the first pass should not exceed 40% of the operable area in a logical landscape-based unit.

The scheduling of adjacent leave areas (second or third pass cutblocks) is dependent on the regeneration of the first harvested cutblock reaching the free growing stage. In general, the timing of the second and third pass requires that the adjacent regeneration have reached a minimum of three metres in height. Modifications to these adjacency requirements should be discussed with resource agencies before implementation.

Cutblock shapes will be designed to incorporate visual quality and wildlife habitat requirements at a landscape level. The boundaries will also be designed to minimize edge blowdown on the adjacent leave areas.

Maintain a geographically dispersed harvest pattern throughout the TFL that is economically feasible.

Give a higher priority to timber stands whose structure is breaking down from blowdown, fire damage, or epidemic outbreaks of pests or diseases, as long as those stands are economically viable.

Plan to minimize site degradation and set maximum site disturbance limits for each cutblock depending on the specific terrain and soil conditions and the harvest system chosen.

Use a range of logging methods to provide the flexibility to log the variety of sites and terrain conditions encountered required to select the appropriate logging method for specific site conditions

Utilization

Use the log utilization standards outlined in table 14.

Table 14: Log Utilization Standards

Utilization Standard	Cottonwood (and other Deciduous species, if utilised)	Pine	All Other Species
Minimum tree diameter – dbh	22.5 cm	15.0 cm	20.0 cm
Stump height:	30.0 cm	30.0 cm	30.0 cm
Minimum log length:	3.0 metre	3.0 metre	3.0 metre
Minimum top diameter:	15.0 cm	10.0 cm	15.0 cm
Minimum log volume:	50% sound fibre	50% sound fibre	50% sound fibre

These standards are used in cruise compilations and cutting permits to ensure consistency is achieved across all levels of planning.

Utilization standards may be varied for situations such as salvage logging, selection cutting, including commercial thinning, and for deciduous species. Utilization of lumber rejects (Grade 04) to a 15.0 cm top diameter will generally be considered mandatory. Discretionary utilization applies to dead and dry sawlogs (Grade 03), dead and dry lumber reject (Grade 05), undersized logs (Grade 06) and firwood rejects.

Cutting permits specify a 15 cm top diameter and the AAC volume is based on a 10 cm top diameter: the difference in volume must be included in cut control reporting. For cut control purposes, scaling will measure to a 10 cm top. Residue surveys will measure the volume between 10 to 15 cm top remaining. The volume will be included in the AAC cut control record without any stumps payable.

Residue Surveys

Complete residue surveys or estimates annually on a sample of cutting permits and cutblocks to provide estimates of residue and waste for both inventory depletion and the cut control record. For cut control purposes, residue surveys will measure the volume between a 10 cm top and a 15 cm top. The volume will be included in the AAC cut control record without any stumps payable. Avoidable waste volumes will be reported annually to the Ministry of Forests.

4.2.2 Function: Protection and Conservation of Non-timber Values and Resources

The goals, directions, and strategies described below relate to Objectives 3 and 4. They also relate to the key functions of: *Road construction, maintenance and deactivation*; and *Integration of harvesting activities with non-timber uses*.

Goal: Ensure that forest management and operational activities consider and account for risks to:

- Water quality
- Fish habitat and Riparian areas
- Critical wildlife habitat
- Soil conservation

Direction: Identify areas of unacceptable risk; avoid such areas and netdown in timber supply analysis.

Measured by: Timber supply analysis includes net downs for sensitive sites: riparian areas, known identified wildlife areas, unstable soils.

Direction: Identify areas of risk within the landbase, plan operational activities that are appropriate.

Measured by: Operational plans address and account for sensitive sites: Riparian areas; Known identified wildlife habitat; unstable soils.

Water

Goal: Practices will minimize the potential for any adverse effects on streams pertaining to water quality, quantity and flow, fish and wildlife habitat, recreation, aesthetics and designated water users

Direction: Conduct forest planning and operations in a manner that ensures the existing water quality is maintained.

Strategy

Use information and recommendations from Level 1 watershed assessments for the Copper Valley, the Nass, and the Kalum Valley regarding cumulative forestry impacts on riparian and adjacent upslope areas, and the potential impact of proposed development when preparing operational plans.

Fish Habitat

Discussion: The Regional Manager identified a concern regarding “not retaining generally more than zero percent basal area retention in riparian management zones”. This concern has been addressed in a letter from the Company to the Regional Manager (Dec. 16, 2002), and New Skeena Forests’ response is reproduced here:

Plans often include a range of allowable basal area retention of 0 – 100% for the RMAs of S5 and S6 streams. This is more than is actually required, but provides operations staff with the flexibility to retain basal area in differing ways, including dispersed retention, retention in clumps or in WTPs, or by retention of non-merchantable stems. The FDP for TFL 1 has indicated a 25% BA retention target on the RMAs of S4 streams – again, this is achieved through the methods described above. A recent Forest Practices Board audit indicates that the company’s riparian practices meet Code requirements.

Goal: Maintain the aquatic biological productivity of all anadromous and resident fish bearing waters within TFL 1.

Direction: Complete riparian assessments, careful planning and adhere to standard operating procedures designed to avoid damage to fish habitat.

Strategies

Continue to undertake riparian assessments to provide information regarding forestry impacts on riparian areas.

Consider the outstanding angling potential of the Upper Copper (Nogold) river and the Big Cedar, Copper and Clore rivers in any proposed development. If not at an additive cost or environmental risk, maintain four wheel drive access in these areas to promote the angling experience.

Continue use of standard operating practices and measures to maintain streambank integrity and protect fish habitat, including basal area retention as appropriate. Review site specific riparian management issues with contractors prior to the commencement of road building and/or logging operations. Regular road maintenance, prompt repair and cleaning of debris from culverts and streams, and careful logging practices will all ensure that fish habitat is not adversely impacted by forestry operations.

Wildlife

Discussion: The Regional Manager identified two wildlife concerns, regarding

“maintaining goat and moose winter range habitat”, and

“maintaining critical habitat for grizzly bears and berry-feeding opportunities on wet and richer sites”

Mountain Goat and Moose: During the term of management plan 9, goat winter range mapping for TFL 1 was completed. Coarse filter mapping of moose winter range was also completed for the Kalum LRMP. The LRMP describes management strategies for the maintenance of winter range for mountain goat and moose. Best management practices have been identified for moose winter range and mountain goat winter range. The Ungulate Winter Range Order #U-6-001 protects mountain goat winter range. All forest activities under CTR’s forest stewardship plan will be managed in accordance with the BMP’s for mountain goat and moose in these UWR’s.

Grizzly Bear: Current population and habitat requirements for grizzly bear were a topic of significant debate in the Kalum LRMP. The management intent for grizzly bear habitat as described in the LRMP is clear; however, the management strategies require further work. One concern is that with recent staff cutbacks, the MOF and the MOE will not be able to meet their commitment to coordinate and fund the work necessary for strategy implementation. The Grizzly Bear

management strategies have been modelled in the timber supply analysis for MP 10, with the exception of the reduced stocking standards as previously discussed in section 3.8. The Kalum SRMP identifies objectives and strategies for the management of grizzly bears and forest activities will be managed in accordance with these strategies.

Goal: Maintain a diversity of wildlife habitats capable of supporting naturally occurring wildlife populations

Direction: Conduct forest planning and operations in a manner that ensures the existing wildlife habitats are appropriately managed.

Direction: Plan for the specific habitat requirements of identified wildlife species as required. It is important that critical habitat requirements for identified wildlife species are identified, classified and managed at both the forest landscape and stand levels

Strategies

Landscape level biodiversity

Plan for biodiversity by varying cutblock size, shape and pattern, both temporally and spatially, in accordance with the patch size targets outlined in the Kalum SRMP.

Stand level biodiversity

Relevant stand level wildlife habitat features and information will be collected in the field and detailed for each cutblock in site plans. Feedback from trappers and hunters will also be useful to help recognize and plan for important habitat values.

Valuable wildlife cover and browse can be provided for within riparian reserves and riparian management areas with special retention requirements. Wildlife tree retention patches will be incorporated into cutblocks as required.

Habitat for Identified Wildlife

The predictive ecosystem mapping (PEM) has been completed for the Kalum Forest District. The accuracy tests will be completed in 2006 and, if successful, will provide an improved tool for wildlife habitat mapping abilities.

The Kalum LRMP provides management intent for grizzly bear, which will be reviewed. The Kalum SRMP identifies objectives and strategies to meet the management intents outlined in the Kalum LRMP.

The Kalum LRMP provides winter range management strategies for mountain goat and moose. The Ungulate Winter Range Order #U-6-001 identifies specific areas of mountain goat winter range.

Wildlife Habitat Areas have been identified for coastal tailed frogs. These areas have been implemented.

Agency liaison

Cooperate with MOE in providing any information that may be useful for refining the hunting regulations for Skeena Region management units within the TFL.

Provide information regarding big game habitat use to MOE, consulting with trappers and guides where possible.

Soil conservation

Goal: Minimize site disturbance and maintain the long-term productivity of forest soils.

Direction: Use practices that will not degrade soil productivity or destabilize slopes, and employ measures to maintain natural soil function and protect soil properties.

Strategies

Pay close attention to matching the logging system and equipment configurations to the season of logging and soil conditions encountered. The careful placement of landings is also essential to minimize site disturbance.

Conduct terrain stability field assessments as necessary where soil sensitive areas/ steep slopes are indicated on overview maps, or where indicators of potential slope instability are observed during road location surveys, cutblock layout, or data collection for site plans.

Evaluate the sensitivity of sites to soil degrading processes (e.g., soil compaction and puddling, soil displacement, forest floor displacement, surface soil erosion, mass wasting).

Set maximum site disturbance levels for each cutblock in site plans. The degree of site disturbance will be assessed after logging is complete. Undertake rehabilitation if required for spur and temporary roads, backspar trails, skid trails and landings to ensure conformance to site disturbance targets

Avoid locating roads through sensitive soils, and/or employ special road construction techniques (e.g., full bench construction, end-haul, pullback of oversteepened slopes and landings) to minimize potential impact

Observe precipitation related shutdown criteria for heavy rainfall and saturated soil conditions.

4.2.3 Function: Integration of Harvesting Activities with Non-timber Uses

The goals, directions, and strategies described below relate to Objectives 4 and 6. They also relate to the key functions of: *Management and utilization of the timber resource; Protection and conservation of non-timber values and resources; and Road construction, maintenance and deactivation.*

Goal: Ensure forest management and operational activities consider the impact on:

- Recreational opportunities in known recreational areas, including visual quality in known scenic areas
- Licensed Guide Outfitter areas
- Trapline areas
- Water licences and community watersheds
- Known cultural features
- Known resource features

Direction: Use known information and inventories to identify areas of overlapping use; engage resource users in a dialogue to arrive at a mutual understanding of the plan for the overlap area; plan operational activities that are appropriate to the overlap.

Measured by:

Inventory of other resource users/ uses; documentation of interaction with user groups. Operational plans identify and address cultural (archaeological) and resource (wildlife trails, mineral licks, mushroom) features.

Direction: Enable the public to pursue their recreational interests and ensure that a broad range of recreational opportunities continue to be available:

Direction: Manage visual quality along high-use highway corridors when planning harvesting.

Strategies

Recreation

Provide access to recreation sites and general recreation areas by keeping roads open and maintained.

Landscape

Identify harvest blocks within visually sensitive areas and undertake visual impact assessments.

Design cutblock boundaries to blend in with the viewed landscapes, limit clearcut size to correspond with logical landscape features.

Registered Trapline Holders and Guide Outfitters

When an interest is expressed, make direct contact where proposed operations will materially affect trapper/ guide interests. Otherwise, rely on forest development plan notices and advertisements to act as notice of activities. After the FSP is approved, notification will go to registered trapline holders when cutting permits are being developed.

Cultural Features

Provide copies of each forest development plan or forest stewardship plan for referral to local First Nations, requesting that significant cultural heritage or sustenance sites be identified (This may be done in conjunction with the Ministry of Forests, or separately). Use knowledge of such areas to allow for the protection of cultural and archaeological heritage features when undertaking operational planning. After FSP's are in place, hold ongoing meetings with First Nations to describe potential activities within their traditional territories and offer opportunities to comment at that time.

Use the archaeological overview assessment to assess areas in the TFL where cultural or archaeological heritage features or evidence of aboriginal activity is most likely to be found.

Conduct site-specific cultural/archaeological surveys where evidence is found of significant historic aboriginal use or activity.

Minerals

There are presently no active mines or mineral exploration. It is expected that the MOF will advise the company of any mineral exploration plans that will impact on the operations of the TFL 1.

It is expected that mineral claim holders will respond to public notices in local newspapers or radio advertisements concerning operational plans and come forward to express any specific concerns. There is no directed effort to refer operational plans or to contact and advise mineral claim holders of planned forest developments.

Public and Stakeholder input – Management Plan 10

Advertise and make the draft MP 10 available for comment.

4.2.4 Function: Road Construction, Maintenance and Deactivation

The goals, directions, and strategies described below relate to Objectives 4 and 6. They also relate to the key functions of: *Management and utilization of the timber resource; Protection and conservation of non-timber values and resources; and Road construction, maintenance and deactivation.*

Goal: Ensure that the road network operates efficiently, is safe to use, and meets the environmental standards of the legislation.

Direction: Maintain the road system to the standards required for the safe operation of logging trucks and to provide access for operational activities as well as for the public.

Measured by: Kilometres maintained without incident

Direction: Maintain and restore natural drainage patterns and water flow by deactivating roads not required for active use.

Measured by: Kilometres of roads deactivated in calendar year

Direction: Construct and maintain primary access roads and crossings using recognized engineering practices.

Measured by: Kilometres new construction without incident.

Direction: Consider access need of other resources users and the public in annual maintenance plans. This includes access to traplines, aboriginal sustenance areas, mushroom picking, camping, hunting and fishing, hiking and snowmobile trails.

Strategies

Road and Bridge Construction

Design and construct roads and drainage structures in accordance with the Forest Road Regulation.

Choose route locations wherever possible to avoid environmentally sensitive areas and to minimize stream crossings.

For road sections where terrain stability is suspect, carry out terrain stability field assessments to assist in determining the best location and design

Road and Bridge Maintenance

Carry out road maintenance and bridge/crossing inspection regularly for all active roads within the TFL. Have qualified bridge inspectors complete inspections of bridges and major culverts. Bridge inspection status is tracked in an internal ledger. Regular and periodic inspections will be made of road surfaces and the drainage structures based on usage and environmental risk.

Develop annual road and bridge maintenance schedules for categories: surface maintenance, structural maintenance and bridge and stream culvert replacements.

Maintain all active primary roads to a hauling standard and secondary operational roads to pickup access standard. The frequency of grading is dependent on the usage, traffic, sensitivity and condition of the road surface.

All other roads will be fail-safed when activities cease in the area.

Roads not active for forest operations will be considered wilderness roads and will not be maintained for access.

Charge industrial users of the road network a road use fee to recover some portion of the maintenance costs. Public access and road usage is free and at their own risk

Deactivation

Decommission or rehabilitate secondary and temporary roads not required for long-term access

Fail-safe operational roads when they are no longer required for active hauling. Road deactivation plans will be covered in the forest stewardship plan.

Consider environmental risk and recreation and fire protection access requirements when assessing the need for deactivation.

Access Management

Maintain an open road policy with respect to public use of the road network. All road users assume a certain obligation for the use of roads, including the risk of accidents or injury.

Apply access restrictions in some circumstances such as during the fire season, if the fire hazard reaches High, to protect contractors' logging equipment behind locked gates, or to restrict hunter access if requested by the Ministry of Environment.

4.2.5 Function: Forest Fire Management

The key function of Forest Fire Management describes management regimes for fire prevention and suppression, prescribed fire, and fuel management.

The goals, directions, and strategies described below relate to Objectives 3, 4 and 5. They also relate to the key function of forest health, including disease and pest management

Goal: Ensure that forest management and operational activities consider the risk of losses from fire.

Direction: Identify areas and activities at risk for damage from fire; maintain an active fire prevention program to minimize losses of forests and timber volumes from forest fires

Measured by: Fire history, fire tool inspections.

Strategies

Maintain a high standard of fire preparedness and an efficient fire fighting organization for the duration of the fire season.

Reduce the fire hazard and the risk of forest fire by containing or reducing the accumulations of slash and woody debris.

Use prescribed burning as a fuel management tool and follow the Open Burning Smoke Control Regulation as required.

Prepare a Fire Preparedness Plan combined with a Spill Response and Erosion Control Plan annually, submit to the NorthWest Fire Control office in Smithers, and distribute copies to woodlands operations staff as well as contractors.

Continue to train woodlands staff and contractors in fire prevention/suppression techniques.

Maintain fire equipment in good operating condition and check the inventory regularly during the fire season. Communications and traffic related to or involved in fire suppression activity will have first priority in all dealings.

During the fire season, as the Fire Weather Index approaches a high hazard rating maintain regular communication with the North West Fire Control Duty Officer.

As the fire hazard rating increases to high, forest closures and travel restrictions will be applied. Logging operations are placed on early shift on the third day of high hazard and shut down when the hazard reaches extreme.

Ground and air fire patrols will be carried out co-operatively with North West Fire Control during periods of extreme fire hazard and after lighting storms.

4.2.6 Function: Forest Health Management

The key function of Forest Health Management describes management regimes for forest health, including disease and pest management.

The goals, directions, and strategies described below relate to Objectives 3, 4 and 5.

Goal: Ensure that forest management and operational activities consider the risk of losses from forest health factors such as wind, animal pests, or disease.

Direction: Monitor forest health as part of ongoing planning and inspections; take action as appropriate if forest health factors or issues are identified.

Measured by: Pest outbreaks as recorded through beetle overflight records, probing, or site plan data collection.

Strategies

Pro-actively pursue the detection and control of pests and diseases noted in second growth and mature stands, as well as regenerated stands. (For example, in 2003, an infestation of Dothistroma, or Red-Band Needle Blight, has infected pine-leading stands throughout the ICH portion of the Kispiox and Nass TSAs. The Company is actively working with the Regional Pathologist and other licencees under the umbrella of the Forest Investment Account to deal with this issue).

Initial reconnaissance of proposed cutblocks will include data collection on present and potential pest activity for use in preparing harvesting plans and site plans.

For regenerated stands, monitor forest health status through silviculture surveys.

In areas with known windthrow risk, design blocks to limit perpendicular exposure to prevailing wind patterns. In areas of high risk, and where feasible, 'feather' block edges. Promptly salvage windthrown, diseased and pest damaged timber where economically feasible.

Undertake annual monitoring of areas with known pest, insect or disease problems and use the results to prepare actions plans and control treatments.

Carry out surveys of affected areas where required for preparing control plans or silviculture and stand management prescriptions; more intensive detailed ground surveys and transect lines will be used where necessary to assess small mammal populations and occurrences of insects and disease.

Aim pest management strategies to maintain incidence at endemic levels by preventing conditions that favour disease build-up and spread. These strategies include: practising known biological control techniques, reforestation with ecologically suited species mixtures for the site, sanitation spacing and density control in managed stands, acquiring and maintaining knowledge regarding pest control technology, and applying new techniques as appropriate.

4.2.7 Function: Reforestation and Silviculture

The goals, directions, and strategies described below relate to Objectives 3 and 5.

Goal: Ensure that all logged or denuded forest lands are regenerated, with an emphasis on establishing ecologically suitable and commercially viable species.

Direction: The silviculture systems that will primarily be used on TFL 1 are clearcut, and clearcut with reserves. Other silvicultural systems may be used, but only when ecologically necessary and economically viable.

Measured by: Percentage of area harvested with clearcut and clearcut with reserves systems.

Direction: Stands will be regenerated according to the regulations.

Measured by: Percentage of harvested stands that are regenerated by the regeneration date.

Direction: Stands will be managed to achieve free growing status within the legislated requirements.

Measured by: Percentage of harvested stands that achieve free growing status within free growing period.

Direction: Reforestation will be carried out to ensure that there is no increase in areas requiring reforestation.

Measured by: Average age of stand establishment (i.e. regeneration delay declaration) is less than 4 years.

Direction: Stands that will provide a positive economic benefit will be considered for enhanced silviculture activities.

Measured by: Value of enhanced silviculture treatment calculated and indicates at least a break-even effect on stand value.

Strategies

Basic Silviculture

CTR will bear the cost of silviculture for blocks harvested after October 1987.

Balance harvesting and reforestation so that the area reforested each year either by planting or recruitment of natural regeneration would be equivalent to the area harvested each year.

Use a combination of artificial (planting) and natural regeneration to reforest on average all cutblocks within four years after the completion of harvesting.

Monitor regenerating cutblocks and take corrective action to ensure that regeneration and free growing target dates are met.

Prescribe natural regeneration on sites where potential vegetation competition is low, an adequate seed source exists and/or sufficient advanced regeneration is expected to remain following harvesting

Choose mixed wood and/or hardwood management strategies over softwood management strategies on ecologically suitable sites. The hardwood management strategy is aimed at growing merchantable deciduous on a short rotation.

Prepare accurate ecological site classification as part of site plan and the basis for the stand regeneration on TFL 1

Use Stocking Standards consistent with those approved for the Kalum Forest District. Make requests for variances from these stocking standards to the district manager for specific site plans.

Use site preparation to prepare sufficient numbers of suitable microsites for the establishment of ecologically suitable species. This is to break up slash accumulations, remove competing vegetation, improve soil growing conditions.

Conduct cone collections from natural stands to maintain a sufficient seed supply for each species to meet the projected seedling requirements for a five to seven year period.

Undertake silviculture surveys of regenerating cutblocks to monitor progress towards achieving free growing status. Information collected includes species, total and well-spaced numbers of seedlings, distribution, competing vegetation and qualitative remarks. Use results to prescribe follow-up silvicultural or pest management treatments as necessary.

Control the growth of woody and herbaceous vegetation that is competing with crop trees. Brushing may be necessary to ensure that new plantations achieve the specified free growing stocking standards.

On sites where brush competition is considered detrimental to seedling survival or growth performance, manual methods of vegetation control are normally prescribed, as opposed to herbicides, provided such treatments can be carried out safely and at a reasonable cost. Herbicides have not been applied in the past decade due to public opposition. Manual treatments will continue to be favoured as long as they remain reasonably cost effective

Enhanced Silviculture

Enhanced silviculture is any stand level treatment that will maintain or increase future stand value. Potential treatments on the TFL include pre-commercial thinning, pruning, fertilization and commercial thinning. These treatments are in addition to basic silviculture and are not a mandatory requirement of the Timber Harvesting and Silviculture Practices Regulation (except for post April 1, 1994 regenerated stands with more than 10,000 stems per hectare at free growing, for which juvenile spacing is considered a basic activity). Scheduling of enhanced silviculture treatments are conditional upon Forest Investment Account funding.

Stand tending has been an integral part of the silviculture program on TFL 1 for two decades. More than 10,000 ha of young stands have been thinned since the early 1980's, and more than 600 ha pruned

Any enhanced silviculture projects or treatments should be undertaken within the context of:

producing small (e.g. 35-40 cm) dbh sawlogs within the shortest time possible;

increasing total merchantable stand volume, including recovering thinning volumes; and

producing higher quality clear wood on select growing sites generally where the site index ($SI \geq 25$ m)

4.3 Recommendations and Commitments

Coast Tsimshian Resources **recommends** the following:

- That an AAC of **500,000** m³/year be set for the term of the next management plan.
- That the recommended AAC be applied retroactively to May 11, 2000 (the date of the removal of the Nisga'a lands from TFL 1).
- That the undercut that was carried forward from 1998 for the Small Business Forest Enterprise Program within TFL 1 (now BC Timber Sales) not be carried forward into 2004.

Coast Tsimshian Resources **commits** to addressing the following within the next eight years:

- Analyse the potential contribution of second growth stands to current harvest regimes (i.e., include and model commercial thinning)
- Review the “three metre green-up” rule
- Review the “low-volume” (class 2) operability classification to determine if it includes areas that are of operable volume (class 1)
- Review current site index adjustments with respect to confirming their accuracy.

5 CONSULTATION WITH OTHER RESOURCE USERS

This section describes the ongoing consultation that is necessary with stakeholders, First Nations, and the general public.

Much of the public input into strategic forest planning for TFL 1 has occurred, at least partially, through the Kalum LRMP process, which had an extensive public involvement process, including a community resources board. Since this management plan reflects the LRMP, CTR does not expect that there will be any concerns with current strategic planning, and additional public input into the ongoing management of TFL 1 will generally relate to specific plans or initiatives (e.g. MP 10). The only likely exception to this will be with respect to First Nations, who were not actively involved in the preparation of the LRMP.

Goals, directions, and strategies are defined to ensure that consultation with other resource users will be thorough and complete.

Goal: Maintain a dialogue with the First Nations bands regarding management of areas of known traditional activity, and identification of opportunities of mutual benefit

- Gitanyow Band Council
- Gitsan Treaty Organisation and/or Gitsan House Chiefs
- Kitsumkalum Band Council
- Kitselas Band Council
- Lax Kw'alaams Band and Allied Tsimshian Tribes Association (ATTA)
- Metlakatla First Nation
- Nisga'a Lisims Government

Direction: Use known information and inventories to identify areas of high archaeological potential or traditional use; discuss these areas with First Nations and plan operational activities that are appropriate.

Measured by: Archaeological Overview Assessment in place and up to date; use of traditional use study information or Archaeological Impact Assessments in areas of high archaeological potential; culturally modified tree (CMT) sampling; documentation of information sharing opportunities with First Nations.

Direction: Maintain an open-door policy with First Nations regarding mutually beneficial opportunities.

Measured by: Documentation of formal and informal interaction with First Nations.

Goal: Provide an opportunity to the public and stakeholders for input into the strategic planning for TFL 1.

Direction: Maintain an open-door policy with stakeholders and the general public, inviting input and feedback respecting forest management.

Measured by: Documentation of formal and informal interaction with public and stakeholders.

Strategies

Advertise and make the forest development plan, forest stewardship plan and major amendments available to the public for comment.

Make referral copies of forest development plans, forest stewardship plans or major amendments available for First Nations.

Advertise and make the draft MP 10 available to the public for comment

Contact First Nations and stakeholders to invite their input into the draft MP 10:

6 IMPACT SUMMARY OF MANAGEMENT PLAN IMPLEMENTATION

6.1 Management Issues

Before the impact of implementing MP 10 could be determined, various issues needed to be addressed. This section identifies those issues that (a) required study or analysis and what studies or analysis were carried out; or (b) will be addressed during the term of MP 10 as outlined in the text of the plan

6.1.1 Issues Identified by the Regional Manager

The Regional Manager provided an assessment of Management Plan 9 in a letter dated November 4, 2002. A summary with New Skeena Forests' responses are provided in Appendix 2. Issues identified by the Regional Manager that require review and analysis in MP 10 are:

- Maintaining goat and moose winter range habitat. (See the discussion in section 4.1.2.)
Discussion: The Kalum LRMP has provided management strategies to address this concern. The Kalum SRMP delineates areas of mountain goat winter range and primary and secondary moose winter range. For additional information, see the discussion in section 4.1.2 - Wildlife.
Status: Goat winter range has been mapped. The timber supply information package indicates that an 82% removal of goat winter range will be modelled. Where necessary, both goat and moose winter range assessments have been carried out by qualified professionals.
- Maintaining critical habitat for grizzly bears and berry-feeding opportunities on wet and richer sites.
Discussion: The Kalum LRMP has provided management intent and strategies to address this concern. However, there are some concerns with these strategies. For additional information, see the discussion in section 4.1.2 - Wildlife.
Status: Modelling of strategies specific to TFL 1 is included in the timber supply information package. Grizzly bear stocking standards have been implemented. FIA funding is being pursued to quantify critical patch habitat.
- Defining an economically feasible timber harvesting land base;
Discussion: Operability lines for the TFL were revised and the inventory database for TFL 1 was updated. The operability classifications included economic considerations.
Status: The revised operability lines have been used in the timber supply analysis and the twenty-year plan. During this process, it was determined that the "low-volume" (Class 2) portion of the operability classification may actually include areas that are fully operable. As indicated in section 4.3, this will be reviewed.
- Addressing the trend of not retaining generally more than zero percent basal area retention in riparian management zone
Discussion: A rationale was provided to the MoF. For more information, see the discussion in section 4.1.2 – Fish Habitat.
Status: Strategies to address this issue are noted in section 4.1.2 – Fish Habitat.

6.1.2 Issues Identified by the Licensee

The following items identified by CTR are in addition to those noted by the Ministry of Forests.

Issue: There is a significant area of regenerated or young or second growth (< 30 years) stands in the operable landbase on TFL 1. Site index assignments for this second growth may be out of date, suspect or underestimated. Several reports have been prepared, including a report on site indices on second growth, and a Type II Analysis.

Discussion: An update of age, height, and site index attributes for the second growth on TFL 1 was necessary. Ages and heights were adjusted for stands 10 to 110 years old. Site index was adjusted for stands 30 to 110 years old (see TFL 1 Vegetation Resources Inventory Adjustment report, available with final timber supply analysis report). The assigned site indices have been revised using data from the VRI inventory update. It was applied in the timber supply analysis database for MP 10.

Status: No further action required.

Issue: A Type II Silviculture analysis has been prepared for TFL 1. The analysis presents findings and recommendations for enhancing the value of the forests on the TFL.

Discussion: Use the Type II analysis and/or other applicable information to review and determine direction and strategies for enhanced silviculture treatments over the term of MP 10.

Status: Follow-up required during the term of MP 10.

Issue: In May 2000, the Nisga'a Final Agreement took affect, with the subsequent withdrawal of the Nisga'a Lands from TFL 1. This in turn resulted in a decrease in the AAC for TFL 1 from 690,050 m³ to 581,050 m³. The upper Ishkheenickh drainage, (lower Nass) remains within TFL 1 but because of its distance from the Terrace sawmill, has high log transportation cost. The return on investment for harvesting timber from this area may be greater if the timber is sold into the open market rather than trucked and delivered to the sawmill.

Discussion: A preliminary analysis to review and remodel the AAC calculation on the TFL 1, treating the Ishkheenickh as a separate unit, was done. This analysis identified that this area would not be able to stand on its own as a supply unit.

Status: No further action required on this topic.

Issue: In April 2001, Cabinet approved the Kalum LRMP, which included land use zoning, and special management zones with restricted or no-harvesting. While the LRMP has not been declared a higher-level plan, the potential effects of full implementation of the LRMP should be considered. SRMP takes elements of LRMP and enforces them as a higher level plan.

Discussion: In 2000, the effects of the Kalum LRMP on TFL 1 were modelled (*The impact of the Kalum Local Resource Management Plan on Tree Farm Licence 1*, March 2000, Sterling Wood Group). The Upper Kitsumkalum (Beaver) no-logging zone; Upper Copper & Miligit Creek recreation management; proposed Rosswood community watershed; and Grizzly Bear/ Mountain Goat/ Moose Winter Range management were modelled. The potential total impact of the Kalum LRMP was identified as being as high as a 15% downward pressure on the long run sustained yield for the TFL. A separate report prepared for the Ministry of Sustainable Resource Management indicated that the total LRMP impact on TFL 1 was expected to be five to ten percent (*Socio-Economic & Environmental Assessment: Final Report*, January 2002; Holman and Terry). Subsequent to this analysis, the Kalum LRMP was signed into force by the BC government.

Status: The Kalum LRMP is being modelled as part of the base case for MP 10. Sensitivity analyses of the various land use prescriptions will be run.

Issue: The provincial government is phasing out the *Forest Practices Code of BC Act* and replacing it with the *Forest and Range Practices Act*. The government has also enacted the *Forestry Revitalization Act*, which describes potential reduction to AACs and to TFL area. There may be timber supply impacts resulting from these changes.

Discussion: Monitor the legislative changes to determine if there will be additional factors incorporated into the next Management Plan. Due to the timing of the legislative changes, no modifications or changes to the information package or scenarios examined will be made in this management plan.

Status: Legislative changes to be incorporated into the next management plan (MP 11).

Issue: After the removal of the Nisga'a Lands from TFL 1, the prime area for pine mushroom harvesting is no longer within TFL 1 boundary.

Discussion: A review of the extent of pine mushroom harvest areas remaining on TFL 1 needs to be done, including an assessment of the need for specific management strategies. This has been considered as a project for FIA funding; however, the Investment Rationale steering committee has not made this a high priority. The potential to classify potential mushroom ground will be improved after PEM mapping becomes available.

Status: Wait on PEM mapping before considering the need for a review of pine mushroom habitat on TFL 1. Follow up on this item during the term of MP 10.

Issue: There are several First Nations that have filed claims to land within the boundary of TFL 1.

Discussion: When treaty settlement offers are being prepared, impacts on the TFL should be modelled and addressed. Monitor treaty negotiations.

Status: Monitor this item during the term of MP 10.

Issue: None of the SBFEP undercut from before 1998 has been harvested.

Discussion: From 1998 to 2002, the SBFEP has harvested a total of 145,927 cubic meters, which matches closely with its five-year AAC of 145,750 cubic meters. None of the SBFEP undercut from before 1998 has been harvested. With the changes in legislation adding more cut to BC Timber Sales, it is unlikely that this undercut will be successfully harvested.

Status: Recommend that SBFEP undercut from before 1998 not be carried forward under the BC Timber Sales program.

6.2 Timber Supply Analysis

6.2.1 The Base Case (Current Performance):

To be able to determine the impact of implementing MP 10, improved information was used to determine a base case harvest level:

- Update of operability lines and development potential
- Updated TFL 1 boundary (to reflect removal of Nisga'a Lands)
- Updated silviculture status information
- Updated Site Index information/ VRI adjustment
- Updated inventory information: Fish Stream Classification, Terrain, Goat Winter Range
- Inclusion of Kalum LRMP resource management zones and direction

6.2.2 Sensitivity Analyses

Variations to the base case will be analysed to determine their potential impact on timber supply:

- Current management assumptions with unadjusted age, height, and site index
- Increase and decrease the THLB by 10%
- Increase and decrease projected volumes by 10%
- Site Index adjustments
- Current landbase with MP 9 management assumptions, yield curves, and operability

6.2.3 Strategies/ scenarios proposed for inclusion in the Analyses

Additional scenarios will be analysed to determine their viability:

- Separate timber supply analysis for the Ishkheenickh portion of TFL 1 to allow it to be managed as a stand-alone unit. This option was reviewed and will not be pursued.

6.3 Impacts

6.3.1 Harvest Level

Coast Tsimshian Resources is proposing an AAC for MP 10 of 500,000 m³. This is based on both the timber supply analysis and twenty-year plan. This AAC is 82,009 m³ less than the 2003 AAC, primarily due to several factors:

- The reduction in the timber harvesting land base that occurred as a result of the removal of the Nisga'a Lands was disproportionate to the total area reduction.
- New operability classifications that were set over the TFL productive forest, including a "low-volume" class that for the most part is considered to not contribute to the AAC. (However, analysis has shown that this class may actually include areas that should not be considered low-volume – this should be investigated during the next management plan period.)

Over the long-term, the harvest level will be reduced in a step-wise fashion to a long-run sustained yield (LRSY) that is currently projected at 415,000 m³ per year. Several other factors will affect the LRSY for TFL 1:

- The timber harvesting land-base.
- The implementation of the Kalum LRMP, particularly with regard to grizzly bear management
- The contribution of commercial thinning operations on stands greater than 40 years old or of partial cutting in constrained mature stands
- Forest legislation and policy.

While the proposed AAC is 82,009 m³ less than the 2000-2003 AAC, the impact of this reduction is limited as harvest levels have already been low on TFL 1 in 2002 and 2003 due to economic considerations. Nonetheless, as indicated by the objectives described in section 4.0, annual harvest levels may vary from year to year. The upper limit on the potential harvest is 150% of the recommended AAC. Therefore, the real impact of this reduced AAC is that it lowers the overall harvest level over the cut control period, and therefore the potential economic recovery for the region. The lower limit for harvesting will be dependent on many things, but the primary factor will be whether harvesting from TFL 1 makes sense for CTR when considering market conditions and alternate fibre sources.

Logs from TFL 1 were primarily destined for a Terrace sawmill and the Port Edward pulpmill. However, the temporary closures of the Terrace sawmill and the permanent closure of the Port Edward pulpmill has forced CTR to look at alternative market options for its wool. Table 15 indicates the requirements of these facilities and the proportion that TFL 1 provides.

Table 15: Fibre provided by TFL 1 to Terrace and Prince Rupert Mill Facilities

6.3.1.1.1.1.1.1.1 Terrace Sawmill					
Annual fibre requirement	1,400 m ³ / shift @ 2 shifts/day	2,800 m ³ /day	250 days	700,000 m ³	
Proportion of fibre provided by TFL 1 under MP 9	Sawlogs	582,009 m ³ AAC	65% sawlogs	378,306 m³	54.0 %
Proportion of fibre that will be provided by TFL 1 under MP 10	Sawlogs	500,000 m ³ AAC	65% sawlogs	325,000 m³	46.4 %
Port Edward Pulpmill					
Annual fibre requirement	1,100 tonne/day @ 5.27 m ³ /tonne	5,797 m ³ /day	350 days	2,028,950 m ³	
Proportion of fibre provided by TFL 1 under MP 9	Pulplogs	582,009 m ³ AAC	35% pulplogs	203,703 m ³	
	Chips from sawmill	378,306 m ³ of TFL1 sawlogs	34% convert to chips	128,624 m ³	
	Total			332,327 m³	16.4 %
Proportion of fibre that will be provided by TFL 1 under MP 10	Pulplogs	500,000 m ³ AAC	35% pulplogs	175,000 m ³	
	Chips from sawmill	325,000 m ³ of TFL1 sawlogs	34% convert to chips	110,500 m ³	
	Total			285,500 m³	14.1 %

Harvest systems will continually be evaluated for their economic viability. While harvesting operations will generally continue to use the same configuration of logging equipment and logging systems, some cable areas will be converted to ground-based, using methods such as feller-buncher, hoe-chuck, or clambunk. There have been some small-scale conversions of skyline systems to multi-span harvesting, and this will continue where possible. Investigation into alternative harvest and silviculture systems will be ongoing, and several small-scale studies or trials will likely occur.

6.3.2 Employees/ Contractors

The economic situation for forest workers and local communities during the past seven years has been extremely difficult. This includes a portion of the MP 8 period as well as MP 9. Contractor employees in particular have been impacted as the work available is constantly in a state of flux, being uncertain and sporadic for lengthy periods. Certainty and the return to full time steady employment requires the company to achieve a competitive cost structure as well as a buoyant market demand for the CTR's logs.

The potential number of people that can be directly and indirectly employed is to a large extent a function of the AAC (to be determined). The employment level in any given year will be dependent on the actual harvest level that year.

Historically, there have been approximately 300 persons employed in the forests as a result of harvest activities. This includes planning, road and bridge construction and maintenance, logging, and silviculture. Employment levels in the area that will result from activities on TFL 1 are not predictable due to the uncertainties in current markets, and the upcoming shifts in legislation.

CTR contracts out all of its woodlands activities. The contractors that have regularly carried out these activities will also be impacted by any changes to the harvest levels during the term of MP 10. Silviculture survey and brushing contractors will not feel the impact of changes in harvest levels until five to ten years after those changes occur.

Table 16: Employment levels under MP 10 (estimated)

		Employment Levels (FTE)						
		Staff	Hourly	Contractors	Silviculture	Total	% dependence on TFL 1 ⁽¹⁾	Jobs dependent on TFL 1 ⁽¹⁾
Woodlands	Terrace Operations	5	6	50	1	325	54.2 % ⁽²⁾	176
TOTAL		59	585	274	50	968		342

(1) Based on the recommended AAC for MP 10

(2) Terrace woodlands manages several Forest Licences in addition to TFL 1 with a total AAC of 923,037 m³

The proposed awarding of the undercut from TFL 1 by the Ministry of Forests may provide opportunities for road and logging contractors impacted by variations in the harvest level. However, this may also create longer-term difficulties. CTR has made blocks of timber available to local contractors, but the sale price of the blocks, plus the price that local mills or marketers have been paying for logs, indicates that there is a limited amount of economically viable timber available in the current market conditions. With the undercut awarded to Kitselas and Kitsumkalum First Nations, there is an increased pressure to log the highest quality timber now – the result will be a poorer timber profile left behind.

Overall, employment and contracting opportunities are greatest if there is no decrease in proposed AAC and market conditions and economics enable the local processing facilities to start up and operate continuously.

6.3.3 Economic Opportunities

With the poor economic situation during the past seven years and the resultant reduction in work and wage levels, a large part of the economic engine for the region is broken. Opportunities for local entrepreneurs have been limited, and the disposable income of the high-wage forest worker has not been available to fuel retail expansion. The demise of Forest Renewal BC, which provided stable short-term jobs through a multi-year funding agreement, has added to a feeling of general uncertainty. The Forest Investment Account, with its year to year budgeting, cannot replace the perceived security that was provided through FRBC.

The potential for opportunities still exists, and other factors that may result in improved economic opportunities include:

- *Improved road infrastructure 1* – with the improvements and paving of the Nass highway (which was originally established as a logging road for TFL 1), there is the potential for increased tourism, as well as for bringing more of the Nisga'a people to Terrace, and vice-versa;
- *Improved road infrastructure 2* – with the continued construction of forest access roads throughout TFL 1, mining exploration potential will increase, as will the potential for wilderness tourism/ guiding/ fishing.
- *Second growth* – the extensive advanced second growth in the Kalum valley will likely result in additional or new milling opportunities.

- *Specialisation* – as operations move towards more constrained or second growth areas, the potential exists for establishing specialty contractors in commercial thinning and partial cutting/ selection logging.

6.3.4 Protection/Conservation of Non-Timber Values

Non-timber values in TFL 1 are identified and managed for as part of the forest management regime carried out on TFL 1. This management plan provides for a reasonable level of protection of these resources, through implementation of the Kalum LRMP, SRMP, and CTR's adherence to forest legislation. An independent audit of the management of TFL 1 was carried out by the Forest Practices Board in 2001, and only one concern was raised regarding the wording of prescriptions for riparian areas – this has since been addressed.

While the impacts of implementation of this management plan on non-timber values will generally be inconsequential, there are some items that may restrict or limit the protection/ conservation of non-timber values. Most of these are out of the direct control of CTR:

- *Carry-forward of Small Business Forest Enterprise Program undercut to the BC Timber Sales program, and award of the TFL 1 undercut* – See the discussion above in section 6.3.2
- *Uncertainty around the implementation of new provincial forestry legislation, and federal legislation like the Species at Risk Act* – The new suite of legislation includes a completely revised planning framework, and a take-back of 20% of licensees' AACs.
- *Continued uncertainty around the treaty negotiation process, and the issue of consultation and accommodation* – This leads to a continued question regarding the land ownership, and licensee rights and obligations. The result is that there is a limited appetite to invest in an asset that may not be viable before that investment can be paid off.

Overall, however, CTR feels that there will be a subtle improvement in protecting non-timber values in MP 10. This is due to

- *Completion of the Kalum LRMP and the SRMP, and the start of implementation* – These plans have been approved and implemented and provide additional tools in the sustainable forest management regime for TFL 1.
- *Improved performance based on results rather than on prescriptive measures* – The “results-based” code as planned under the new *Forest and Range Practices Act* should allow more adaptive management and the opportunity for licensees to be more efficient
- *Improved resource information including forthcoming TRIM II mapping and Predictive Ecosystem Mapping* – This information will allow better long and short-range planning, and will also allow easier implementation of the Kalum LRMP.
- *Preparation and implementation of a forest health strategy and a hardwood management strategy* – These strategies will provide for a consistent approach to forest management issues with potentially large timber supply impacts, and will enable refinement of landscape level planning for the planning units.

7 COMPARISON OF MANAGEMENT PLANS 9 AND 10

This section summarizes the key similarities and differences between MP 10 and the previous MP 9. It covers the topics required in section 2.25 of the TFL document. The comparison is somewhat limited due to the removal mid-term in MP 9 of the Nisga'a Lands from the TFL. It is also made in advance of the AAC determination by the Chief Forester.

The forest management goals and strategies in MP 10 and MP 9 are similar. While the issues attendant to operating a business typified by a low quality timber resource, high logging costs and government regulations remain the same, the focus in MP 10 more directly deals with survival and recovery of CTR.

Harvest Level

The total landbase decreased by 92,394 hectares from that in MP 9 (just over 15%). The area changes occurred from a recalculation of the TFL boundary after the Nisga'a Lands were removed. However, the net productive landbase decreased by 35 % in MP 10 due to higher netdowns than in MP 9.

It is expected that CTR will continue to use the same configuration of logging equipment and logging systems. Some cable areas will be converted to ground-based, using methods such as feller-buncher, hoe-chuck, or clambunk. There have been some small-scale conversions of skyline systems to multi-span harvesting, and this will continue where appropriate. Investigation into alternative harvest and silviculture systems will be ongoing, and several small-scale studies or trials will likely occur.

The AAC for management plan 9 (including Small Business) was 720,000 m³/year, which was subsequently reduced to 611,000 m³/year in 2000 to approximate the effect of the removal of the Nisga'a Lands. Subsequently, a further reduction to 582,009 m³/year in 2003 reflected the 5% take-back for the licence transfer to the new owner. CTR has proposed an AAC for MP 10 of **500,000** m³/year, a reduction of 82,009 m³/year.

Employees/Contractors

The number of people directly and indirectly employed is to a large extent a function of the AAC, which will be determined by the provincial Chief Forester and global markets for pulp and lumber. Employment levels in the area are not predictable due to the uncertainty in current markets. Employment opportunities are greatest if there is no decrease in proposed AAC and market conditions and economics enable the local processing facilities to operate continuously.

Based on the information provided in table 16, the reduction in AAC from MP 9 to MP 10 represents 57 direct jobs.

Economic Opportunities

The economic situation during the past several years has been extremely difficult for the companies involved with the TFL. This included a portion of the MP 8 period as well as MP 9. Contractor employees in particular were impacted as the work available was constantly in a state of flux, being uncertain and sporadic for lengthy periods. Certainty and the return to full time steady employment require CTR to achieve a competitive cost structure as well as a buoyant market demand for its logs. The demise of Forest Renewal BC that provided stable short term jobs, through a multi-year funding agreement, has added to a feeling of general uncertainty. The Forest Investment Account, with its year to year budgeting, cannot replace the perceived security that was provided through FRBC.

Protection/Conservation of Non-Timber Values

During the term of Management Plan 9, there were several significant events regarding the protection of non-timber values: implementation of the Kalum LRMP began, projects were started to attain TRIM II and Predictive Ecosystem Mapping, and initial legislation to establish a result-based code was introduced.

- CTR feels that there will be improvements in protecting non-timber values in MP 10, primarily as a result of the continuation of the processes started during MP 9 and through the full implementation of the Kalum LRMP and SRMP. This should result in more clarity and improved performance based on results rather than on prescriptive measures; and better planning using improved resource information. In addition, the preparation and implementation of a forest health strategy and a hardwood management strategy will enable CTR to continue to refine landscape level planning for the planning units.

8 SCHEDULE B PRORATE

Schedule B land is the Crown land that is part of the tree farm licence. A company's private lands or Timber Licences that are incorporated into a TFL are considered Schedule A lands.

There are 517,662 hectares of schedule B land within TFL 1. Less than half this amount (44%) is considered productive forest, while only 89,230 hectares (17%) are part of the current timber harvesting land base (THLB). This is equal to 99.6% of the total THLB of 89,596 hectares. Based on this proportion, the Schedule B lands contribute 497,957 m³ to the recommended allowable annual cut for TFL 1 of 500,000 m³/year.

9 PUBLIC REVIEW

This chapter describes the input received from other resource users and the public and used in preparing this plan.

9.1 Request for Input

Input into MP 10 is solicited from the stakeholders, first nations, and the general public. This is done through

1. Advertising that the draft MP 10 will be available for review for a maximum 60 day period. This advertising will occur over two consecutive weeks in the local newspaper.
2. Send letters of invitation to, and make contact with, First Nations to request their comments and input.
3. Send letters of invitation to user/ interest groups.

The following first nations and stakeholders were contacted to invite their input into the draft MP 10:

Local Government:

- City of Terrace
- Kitimat-Stikine Regional District
- City of Prince Rupert

Local First Nations:

- Gitanyow Hereditary Chiefs Office
- Gitxsan Treaty Organisation
- Gitxsan House Chiefs whose territories lie within TFL 1
- Nisga'a Lisims Government
- Kitselas Band Council
- Kitsumkalum Band Council
- Lax Kw'aalams Band Council and Allied Tsimshian Tribes Association
- Metlakatla Band Council

Local User Groups:

- Trapline holders (63)
- Guide Outfitters (3)
- B.C. Wildlife Federation
- Northwest Chapter of the Steelhead Society
- Northwest Loggers Association
- Terrace and District Chamber of Commerce
- Terrace Rod & Gun Club
- Terrace Snowmobile Club

Government Agencies:

- Kalum Forest District
- Northern Interior Forest Region
- Ministry of Forests – Forest Analysis Branch (Timber Supply Information Package)

Overall, 83 letters were sent requesting input on the draft management plan: 3 local governments, 8 community groups, 6 First Nations, 3 guide-outfitters, and 63 trappers (representing 36 traplines). Of these, 17 letters were returned (all trapline holders).

9.2 Summary of comments and input received

Copies of the comments received regarding Draft Management Plan 10 are provided in Appendix 8.

Upon request, more information was provided to:

- Nisga'a Lisims Government (electronic copy of MP 10)
- E. Guno, Trapper: (1) Map of trapline area with respect to TFL 1 boundary, and specific extracts from the management plan regarding wildlife and access; (2) Information regarding the timing of operations within his trapline area
- G. Wesley, Trapper (electronic copy of MP 10)
- City of Prince Rupert (electronic copy of MP 10)
- Regional District of Kitimat-Stikine (electronic copy of MP 10)

Written comments were received from:

- Kalum Forest District (J. Perras): comments on the format and content of the draft MP 10.
Various clarifications and corrections were made as a result of these comments (see section 9.3 and Appendix 10)
- Forest Analysis Branch (A. Prasad): comments on the technical aspects of the timber information package
Various clarifications and corrections were made as a result of these comments (see section 9.3 and Appendix 10)
- Regional District of Kitimat-Stikine (A. Webber): indicated that private land within the TFL should not be sold without first being covered by local government zoning
No change to the Management Plan was necessary as a result of this comment.
- Kitsumkalum First Nation: not willing to comment on, or participate in, any planning process until consultation and accommodation with respect to TFL 1 transfer to NWBC is complete.
No changes were made to the text of MP 10 as a result of these comments. While it is the First Nation's decision to not provide input, this missed opportunity to make a real contribution to the management regime on lands to which they assert title is still disappointing.

Verbal comments were received from:

- S. Warner, Trapper: comments involved maintaining access in the Copper River area, and maintenance of movement corridors for animals
No changes were made to the text of MP 10 as a result of these comments. Access in the Copper area is expected to remain good; movement corridors for animals have not specifically been mentioned within this Management Plan, but it is a precept of the Biodiversity Guidebook.
- O. Lindstrom, D. Kenna, Trappers: comments revolved around access and the possible location of trapper cabins
No changes were made to the text of MP 10 as a result of these comments. Access to their trapline area is not expected to change much during the term of this Management Plan.
- R. Milligan, Guide-Outfitter: primary concern was maintaining or increasing access
No changes were made to the text of MP 10 as a result of this comment. Main road access to the lands within TFL 1 will improve over time.
- Gitanyow house representative and Gitanyow chiefs: not willing to comment on, or participate in, any planning process until consultation and accommodation with respect to TFL 1 transfer to NWBC is complete.
No changes were made to the text of MP 10 as a result of these comments. While it is the First Nation's decision to not provide input, this missed opportunity to make a real contribution to the management regime on lands to which they assert title is still disappointing.

Draft MP 10 was viewed by (but no written comments received):

- M. Folkema
- M. and L. Dalen

9.3 Material changes made to the plan

A recommendation with respect to the BCTS undercut was added (sections 1.2.5 and 4.3) in response to internal comments.

A Forest Health subsection was added (section 1.2.6) as a result of the *Dothistroma* outbreak in the Kispiox and Nass TSAs.

In response to comments from Kalum Forest District staff, the minimum and maximum cutblock size in section 4.1.1 was reduced to show 1 – 250 ha (versus 25 – 500 ha in the original version) to reflect the current direction within the Biodiversity Guidebook.

The reference to black cottonwood was replaced with “merchantable deciduous” to reflect the possibility of birch or alder utilisation. Change 25-year to “short” rotation due to differing species requirements (section 4.1.7). This change was made to allow the management plan to link with the hardwood management strategy that is being developed for the Kalum Forest District.

A **Recommendations and Commitments** section (4.3) was added to provide a single location for a summary of the key recommendations in this Management Plan, including the recommended AAC for TFL 1.

An **Impacts** section (6.3) was added to discuss and summarise the effects from a change in AAC. This is in response to Ministry of Forests’ comments.

Kalum Forest District staff were concerned that non-conventional timber from the new operability lines is currently uneconomic, and its inclusion in the timber harvesting land-base was questioned. As a result, the Twenty Year Plan was prepared without including non-conventional timber from the new operability lines in the first five years of the plan – this reflected the current economic situation without removing the non-conventional area from the THLB, and demonstrated that the recommended AAC could be maintained.

The timber harvesting land-base was finalised at **89,596** hectares.

APPENDIX 1: *The History of Tree Farm Licence 1*

APPENDIX 2

Management Plan 9 Performance Summary

APPENDIX 2: PERFORMANCE ASSESSMENT OF GOALS AND COMMITMENTS FROM MANAGEMENT PLAN 9

Goal/ Commitment from Management Plan 9	Assessment
Maintain an updated forest inventory	The forest inventory has been updated to December 31, 2001 for disturbance and regeneration labels. The VRI update was used to adjust height, age, volumes, and site index assignments.
Continue to co-operate with the Ministry of Forests to implement a growth and yield program on TFL 1	A Type II analysis was completed in 2002. Release of this analysis was delayed, preventing it from being incorporated in this process.
Undertake a three-year program to assess site productivity of second growth stands pending Forest Renewal BC funding	Upon release of the Type II analysis report noted above, further priorities can be set.
Acquire or maintain accurate non-timber resource inventories	Completed inventories were: riparian classification; terrain sensitivity mapping, and predictive mountain goat winter range mapping. Non-timber resource inventories in process are TRIM II mapping, PEM mapping
Secure Forest Renewal BC funding to complete required non-timber resource inventories	FRBC funded riparian classification, terrain mapping, and TRIM II mapping. It is hoped that funding for further inventory work will be available through the FIA.
Strategic Planning	
Continue total resource planning initiative to support AAC rationalization and management of key resource values	Total Resource Planning is on hold due to the changes in the sustainable forest management framework pending further direction from ministries (MoF, MWLA, and MSRM). However, note that Total Chance work is continuing.
Continue to manage the TFL on the basis of existing resource management zones and resource planning units	This is occurring. However, the MoF is concerned that the company has not significantly revised management of the TFL based on the approved Kalum LRMP management zones and the proposed landscape unit boundaries. The Company feels that since the Kalum LRMP was not a Higher Level Plan and therefore only provided guidance, not direction, and since landscape units have never been confirmed or finalised, it would be unreasonable to make significant changes in management zonation when they may just be changed again. Nonetheless, it is intended to adopt the LRMP management zonation in MP 10.

Goal/ Commitment from Management Plan 9	Assessment
Strive to incorporate TFL objectives into the Kalum LRMP process and other government initiatives	The Kalum LRMP was approved in May 2002. Skeena Cellulose Inc. participated in the LRMP process and is a signatory to the plan.
Co-operate with the MOF to ensure that the administration of the SBFEP is in harmony with TFL operations management strategies and objectives	Generally, this has occurred. Note that Small Business (now BC Timber Sales) has not been able to sell its under cut from the previous cut control period.
Operational Planning	
Submit an updated forest development plan to the district manager for two year approvals	Done
Submit required operational planning documents annually or as needed	Done
Achieve two years of STI in approved cutting permits	This has been achieved. However, the MoF has a concern that the company does not harvest the approved wood as scheduled, with some SPs expiring prior to harvest or helicopter portions of cutblocks are left standing after harvesting the conventional portion of the block. The Company position is that as long as market conditions dictate that there is no return on poor quality or expensive blocks, their harvest should be minimised.
Submit an annual report each year to the district manager	Annual reports were submitted up to 2000. Under the current guidelines for management plans (March 2001), annual reporting is not required unless specifically requested by the Regional Manager.
Harvesting	
Log 690 000 m ³ annually between 1999-2003, where economically feasible in compliance with cut control, partitioned cut and contractor clause requirements	According to the MoF, the cut performance for the period 1997-2001 was 75% of the five-year allowable cut. The cut performance for the years 1999-2001 was 82%. The AAC has been reduced as a result of Nisga'a Final Agreement. The reduced harvest levels reflect the poor market conditions and the general viability of the company. Even with all mills down, market logging has continued.

Goal/ Commitment from Management Plan 9	Assessment
<p>Select appropriate silvicultural systems and harvesting methods to minimize site disturbance and/or meet other resource objectives</p>	<p>This is occurring. The MoF has commented that recently it appears the selection of harvesting method is based more on economics and scheduling and not on site conditions. The Company has responded by noting that if there is an opportunity to harvest an area more economically than currently prescribed, it will do so. However, no harvest method is prescribed where site conditions do not allow it to be used. Conducting operations in as economic a fashion as possible, choosing the harvest system that costs the least - as long as site conditions allow it.</p> <p>An additional concern from the MoF is that silviculture prescription amendments have been received requesting an increase in the area in permanent site disturbance. Some of these amendments have requested relief from completing site rehabilitation to meet approved permanent site disturbance levels. These changes are a result of an error in site disturbance calculation, which the Company has identified and acted on. In a very few instances it was identified that the site conditions did not allow rehabilitation; this is a rare occurrence.</p> <p>The MoF also has stated that they are confused regarding the definition of silviculture systems. For instance the company refers to what the MoF would call clearcut, as clearcut with reserves. The reserves are located on the edge of the block. The Company has responded by noting that the definition of a "clearcut with reserves" (Operational Planning Regulation) makes no mention of the location of the reserve. After second or third –pass harvesting, these reserves will no longer be on the edge.</p>
<p>Assign appropriate harvesting priorities that reflect harvest profile, forest health, landscape design, biodiversity and other resource objectives</p>	<p>Done as part of the development planning process</p>
<p>Conduct operations in accordance with requirements of the Forest Practices Code of British Columbia Act and cutting permit obligations</p>	<p>A compliance audit in 2000 by the Forest Practices Board found an issue between the wording of our silviculture prescriptions and our field practices. This wording issue has been resolved. Otherwise, operations have been compliant with the requirements of the Forest Practices Code and cutting permits</p>
<p>Meet MoF utilization standards where economically feasible)</p>	<p>Done.</p>
<p>Update operability classification</p>	<p>The operability line work has been updated and will be incorporated in the dataset for MP 10.</p>
<p>Harvest 150,000 m³ over the term of this plan in the non conventional operability land base</p>	<p>Approximately 145,000 m³ has been harvested in the non-operable land base over the past three years. More of this category has become operable through new and improved road building techniques, more efficient operations, and the inclusion of skyline into the definition of "operable". The review of the operability mapping is therefore is timely.</p>

Goal/ Commitment from Management Plan 9	Assessment
Transportation	
Construct, maintain and deactivate roads and crossings in a manner that minimizes the impact on the environment	Roads and crossings have met these criteria.
Maintain a road network that provides economical access to timber and is safe for industrial users and the public	The MoF is of the opinion that the percentage of land lost to future roads and landings is underestimated in the current TSR. Based on the preliminary results from a survey of older blocks the 6 % used in the timber supply analysis may actually be an over-estimate.
Silviculture	
Reforest recently logged cutblocks with ecologically suitable species in accordance with prescribed stocking standards	This has occurred. For the two years 1999 and 2000, nine species and 1,374,714 seedlings were planted on 1558 hectares.
Reforest all cutblocks within three years, on average, after the completion of harvesting through a combination of artificial and natural regeneration	On average, the declared regeneration date is about four years from harvest. Seedlings scheduled for spring planting 2001 were held over to fall 2001 and were not planted. Stock ordered for spring 2002 also were not planted.
Balance harvesting and reforestation so that the area regenerated each year would be equivalent to the annual area harvested	In 1999, 1617.9 ha were declared restocked, versus 1193.8 ha logged (NAR). In 2000, 1682.0 ha was restocked versus 1188.8 ha logged (NAR).
Collect sufficient seed, use appropriate stock types and prescribe appropriate treatments to meet basic silviculture commitments	Currently, the company has 1.47 million Class B seeds of all species types on hand. Monitoring of reforested areas ensures that stock types and treatments are appropriate.
Manage competing vegetation in plantations and naturally regenerated areas to meet free growing target dates	While the MoF has identified a concern with the vintage of some surveys used to declare free-growing, the Company feels that if the information is sound, it should be used.
Meet basic silviculture program goals per Table 19	In 1999 and 2000, the actual activities compared favourably with the goals in Table 19 of MP 9.

Goal/ Commitment from Management Plan 9	Assessment
Employ appropriate treatments to maintain or increase future stand values where economically feasible	Treatments were pre-commercial thinning (1544.9 ha in 1999 and 2000); pruning (30.1 ha); and brushing (873.4 ha)
Provide labour-intensive employment opportunities through incremental silviculture treatments with FRBC funding	This has occurred. However, with the demise of FRBC in 2002 and the slow ramp-up of FIA, silviculture work was limited in 2002. However, conifer release and spacing work is still being done with Forest Investment Account funding.
Realize incremental volume recovery through commercial thinning	Due to economic constraints, no commercial thinning took place during the MP 9. However commercial thinning will commence if it becomes economically viable
Meet enhanced silviculture program goals per Table 25 with FRBC funding	For 1999, 672.4 ha of a proposed 1150 ha were pre-commercial thinned and no achievements in pruning (100 ha) or commercial thinning (150 ha). For 2000, 859.1 ha of a proposed 1150 ha were juvenile spaced. There was no pruning or commercial thinning. A review of silviculture strategies, including the value of pruning and commercial thinning, was undertaken through a Type II analysis. Commercial thinning and pruning are considered to be a lower priority.
Obtain funding from Forest Renewal BC for incremental silviculture activities	FRBC-funded treatments include planting (51.8 ha in 1999 and 2000); pre-commercial thinning (1544.9 ha); pruning (30.1 ha) and brushing (873.4 ha). FRBC also funded a Type II silviculture analysis, a vegetation management trial, and a mountain hemlock partial cutting trial.
Forest Health	
Monitor insect and disease activity at both the forest and stand levels	<p>Forest health factors are identified during silviculture surveys and strategies prescribed in silviculture prescriptions and.</p> <p>Mountain pine beetle infestations have been occurring in the Nass operating area for several years, probing surveys indicates that the infestation is at an endemic level.</p> <p>An outbreak of the needle fungus <i>Dothistroma</i> has occurred in pine-leading plantations in the Kispiox and Kalum TSAs. Pine-leading plantations in TFL 1 are being monitored.</p> <p>A Kalum Forest District Forest Health Strategy is proposed for development through FIA.</p>
Employ sanitation spacing, density control and other preventative measures in managed stands to reduce the risk of infestation and disease	Pests and root rot are part of silviculture walk-throughs. It is only when these informal surveys identify a forest health factor that a formal survey will be done.

Goal/ Commitment from Management Plan 9	Assessment
Implement pest-specific control strategies, using silvicultural systems, biological control techniques and the latest pest control technology wherever possible	The company has probed potential infestation sites – the work done indicates that this infestation is at an endemic level, therefore, no particular control measures were prescribed. Monitoring of the area will continue.
Promptly salvage windthrown, diseased and insect damaged timber where economically feasible	Ongoing salvage programs are in place. In 2000, over 12,500 m ³ were salvage harvested. In addition, blowdown areas are incorporated into normal cutting permits whenever feasible.
Fire Protection and Environmental Protection	
Annually update and submit a fire pre-organization plan with oil spill response and erosion control plans	A combined Incident Response Plan has been produced annually.
Implement appropriate fire prevention measures and fuel management practices to reduce the risk of forest fire	A combined Incident Response Plan has been produced annually, and SOPs include fire prevention and fuel management.
Maintain a high standard of fire preparedness and an efficient fire fighting organization	Contractors and staff are trained annually
Conduct preparedness and suppression activities in accordance with the <i>Forest Fire Prevention and Suppression Regulation</i>	There have been no significant fires during M P 9.
Recreation	
Co-operate with the Ministry of Forests to provide recreation opportunities for the public	There has not been a recreation program due to the financial constraints. However, informal actions such as not deactivating roads to known recreation sites continue to occur.
Provide access to recreation sites and general recreation areas. Keep designated roads open and maintained	Roads to known recreation sites have not been deactivated, allowing ongoing access.
Maintain and upgrade existing recreation sites with funding from FRBC	No FRBC funds were available. It is unlikely there will be any funds available from Forest Investment Account.

Goal/ Commitment from Management Plan 9	Assessment
Develop new recreation sites with funding from FRBC	No FRBC funds were available
Maintain recreation inventory	The recreation inventory was last updated in 1997, and it remains current.
Landscape	
Apply forest landscape design principles to manage visual resources along highway corridors and other scenic areas. Maintain visual landscape inventory	The Company has prepared numerous visual impact assessments for scenic areas. At some times, these designs prescribe harvesting where the percent alteration limit has already been exceeded. This is in keeping with the premise of forest landscape design, which allows the alteration of the visual landscape in excess of “guidebook” limits, when it is beneficial to the viewscape. As indicated, the District Manager has been the arbiter of whether the design mitigates the visual impact.
Employ appropriate silviculture systems, harvest methods and road building practices to meet goals for visual landscape design	Clearcuts with visual reserves have been incorporated into block design and modelled through visual assessments, resulted in acceptable landscape designs in known scenic areas
Soils and Terrain Stability	
Complete overview terrain stability Level C mapping for the remainder of the TFL	Terrain stability mapping has been completed for all the critical areas of TFL 1.
Follow standard operating procedures for planning, logging, road construction and rehabilitation and employ appropriate measures to conserve soils and maintain soil productivity	Road and logging plans include recommendations from geotechnical reports; SOPs include soils and terrain stability discussion; tracking and investigation of slide events has been undertaken.
General Biodiversity	
Implement appropriate practices and measures to maintain landscape and stand level biodiversity	Landscape unit boundaries and biodiversity options have not been formally established. Biodiversity objectives are applied to a limited extent. Since Landscape Units have not been finalised, no OGMA's have been designated on TFL 1. Discussions regarding candidate OGMA's have occurred, but no formal designations have been made. Wildlife tree patches (WTPs) are located where required.

Goal/ Commitment from Management Plan 9	Assessment
Plan for operations in a manner consistent with assigned landscape unit/resource planning unit biodiversity emphasis options and stated objectives for old growth retention, patch size and distribution and wildlife tree patches	Landscape unit boundaries and biodiversity options are draft and have not been formally established. The MoF is concerned that there appears to be a focus on creating openings 60 ha and greater in too short a time period. These larger openings are not necessarily well distributed across the landscape. The Company has responded that patch size distribution and seral stage distribution has been in conformance with District guidelines and guidebooks. The Statutory Decision Maker tests proposed blocks against the “manage and conserve” section (s. 41(1)) of the <i>Forest Practices Code Act of BC</i> before approving them in the forest development plan.
Watersheds	
Conduct required watershed assessments as the need arises	No formal watershed assessments have been required to date on TFL 1.
Follow standard operating procedures for planning, road and bridge construction and logging to guide activities around streams	The Company has standard operating procedures for activities in and around streams.
Fisheries	
Conduct overview fish stream inventories	Overview fish stream inventories have been conducted for all of the planning units within TFL 1, to a minimum 1:20,000 scale.
Identify, classify and map streams; and prescribe appropriate riparian reserves and management zones in accordance with the Code	Streams not already shown up on existing inventories are identified, classified and mapped at the site plan stage.
Follow standard operating procedures for logging, road building and maintenance, and employ appropriate measures to maintain streambank integrity and protect fish habitat	Plans often include a range of allowable basal area retention of 0 – 100% for the RMAs of S5 and S6 streams. This is more than is actually required, but provides operations staff with the flexibility to retain basal area in differing ways, including dispersed retention, retention in clumps or in WTPs, or by retention of non-merchantable stems. The Company has indicated a 25% BA retention target on the RMAs of S4 streams in the FDP for TFL 1 – again, this is achieved through the methods described above. We are unclear on what “some instances” means, but we are certain that it is a rare occurrence.

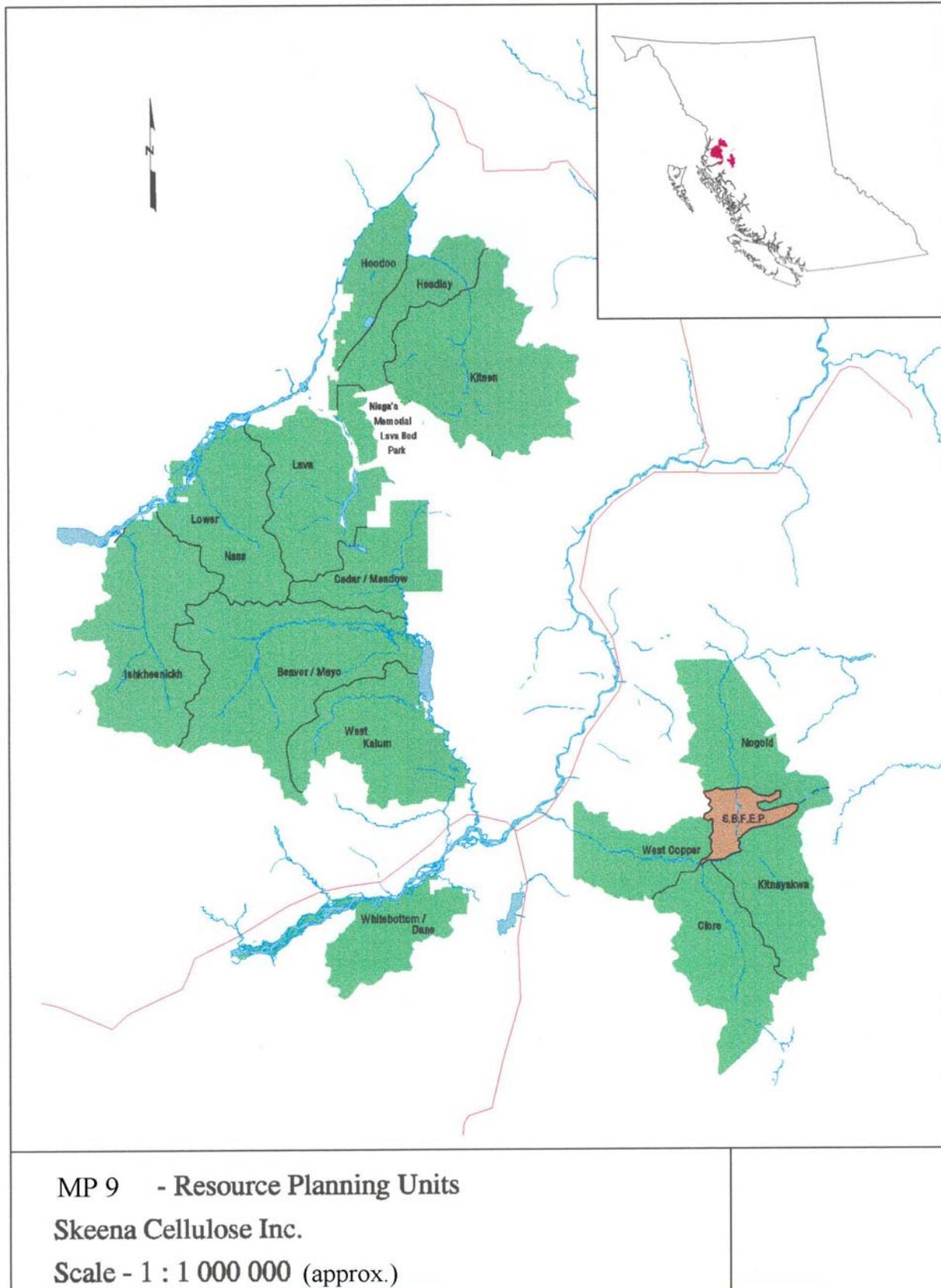
Goal/ Commitment from Management Plan 9	Assessment
Wildlife Habitat	
Complete predictive ecosystem mapping for the remainder of the TFL (contingent on FRBC funding)	PEM mapping is in progress for the Copper and West Kalum with FIA funding.
Implement appropriate practices and measures to maintain landscape and stand level biodiversity	Plans and prescriptions have been prepared in accordance with the requirements of the Forest Practices Code, and have utilised the Biodiversity guidebook. The current FDP for TFL 1 addresses biodiversity and wildlife issues.
Provide information regarding big game habitat use to MELP	Generally, when a site-specific wildlife assessment is done, the report is provided to the MOF and is also available to the MWLAP.
Maintain an active dialogue with interested individuals or groups	There was on-going dialogue during the Kalum LRMP with wildlife groups. In addition, notifying trapline holders of planned activities is a standard procedure, and guides or trappers have met to discuss plans
Cultural/Heritage	
Refer forest development plans to local First Nations through the MoF	The MoF refers the TFL 1 Forest Development plan to local First Nations.
Conduct site-specific cultural/archaeological surveys where evidence of aboriginal activity is found	Archaeological Overview mapping is used to identify areas of high potential – these areas are then subject to an Archaeological Impact Assessment.
Stop work activities and report discovery of archaeological sites to the provincial government	Activities around archaeological, cultural, or other resource features are addressed in SOPs and include directions to stop work when unidentified features are found.
Mining	
Respond to requests from mineral claim holders regarding planned forest developments	General information, including land use zoning, occurred as part of the Kalum LRMP process. Forest development plans, which indicate the specific plans on TFL 1, are advertised publicly. To date, no requests from mineral claim holders have been received
Public Consultation	
Maintain an “open door” policy to facilitate discussion with interested parties	The Company has continually invited comment from the public concerning its activities

Goal/ Commitment from Management Plan 9	Assessment
Implement a comprehensive public review and consultation strategy	Public review and consultation for MP 9 took place as per the Review Strategy for MP 9. Public review of all plans takes place in accordance with the Code.
Economic and Employment Opportunities	
Hire local contractors/employees wherever possible	Hiring of local contractors and employees has been a standard practice, provided they are competitive. As part of FRBC silviculture project tendering, whether a contractor was local was a consideration of the award process.
Encourage consulting firms to establish branch offices in Terrace	Several firms did establish in the area, but with the uncertainty around the company over the past several years, did not maintain their offices.
Encourage contractors to hire First Nations people wherever possible	1100 person-days of First Nations employment was generated from 1999 to 2001. In addition, several Nisga'a logging contractors have been established and logged on the Nisga'a portion of TFL 1 until it was removed from the TFL area. They now work on the Nisga'a Lands in accordance with the Nisga'a Final Agreement.
Assist in the development of the existing native workforce	Several Nisga'a logging contractors now work on the Nisga'a Lands in accordance with the Nisga'a Final Agreement.

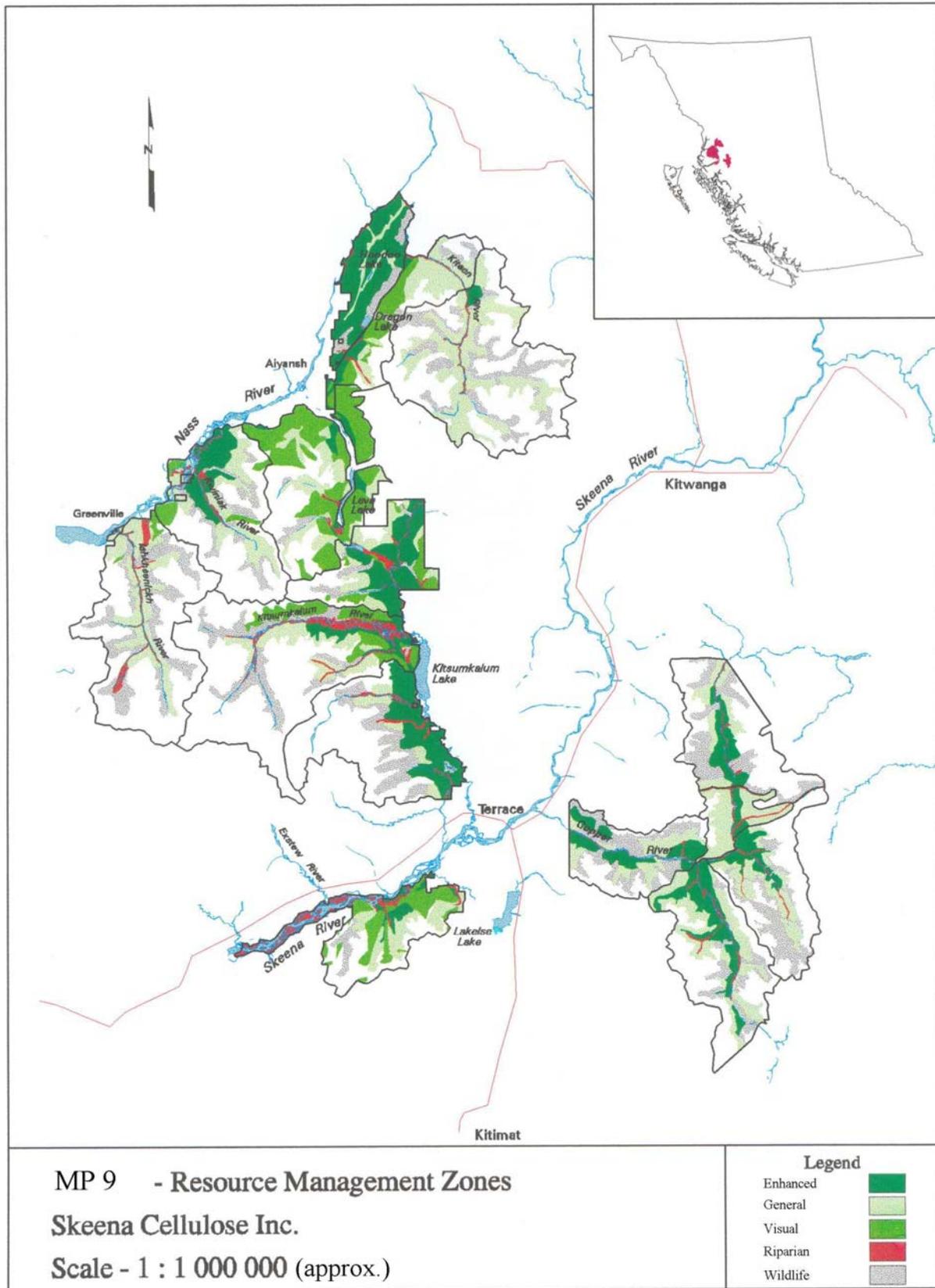
APPENDIX 3

**Resource Planning Units (RPUs)
and
Resource Management Zones (RMZs)
from
Management Plan 9**

Excerpt from Management Plan 9 – Resource Planning Units



Excerpt from Management Plan 9 – Resource Management Zones



APPENDIX 4

Description of Information Sources

APPENDIX 4-1

Resource Inventory Summary – Information Used for Resource Planning

Appendix 4.1: TFL 1 Resource Inventory Summary – information used for resource planning

Inventory Group	Specific	Inventory Type	Coverage Name	Digital Data Description	Data Format	Location of Digital Data	Data Source	Data Age	Comment
Streams	Fish Interpretive mapping	Aquatic	strmclas	Arcs and points, Stream Riparian Classification	Digital & Hardcopy	Master is kept in Kalum/ data/strmclas then clipped to individual tiles	Various	1997-2000	Funded by FRBC No metadata
Terrain	Terrain Stability Mapping	Terrain	tsm97	Polygons Terrain stability mapping by RPU	Digital & Hardcopy	Tiles	Madrone	1997	Funded by FRBC No metadata
Terrain	Terrain Stability Mapping	Terrain	terrain	Polygons Terrain stability mapping by RPU	Digital & Hardcopy	Tiles	Madrone	1996	Some terrain mapping funded by FRBC Metadata status variable or unknown
Terrain	Slope > 60%	Terrain	slope60tfl	Polygon digital modelling of slope > 60%	Digital & Hardcopy	Tiles	Timberline	2000	No metadata
Visual	Visual landscape inventory	Cultural	vli_poly	Polygon coverage	Digital & Hardcopy	Tiles	RRL Resources	1997	No metadata
Visual	Visual landscape inventory	Cultural	vli_barr	Arcs, base line for corridor ...Data created at old MOE	Digital & Hardcopy	Tiles	RRL Resources	1997	No metadata
Visual	Visual landscape inventory	Cultural	vli_rp	Arcs and points for viewpoints	Digital & Hardcopy	Tiles	RRL Resources	1997	No metadata
Visual	Visual Quality Objectives	Cultural	scenic	Polygon coverage with attributes	Digital	Tiles	Unknown	1999	No metadata
Recreation	recreation sites	Cultural	rec_site	Points and annotation, created by SCI	Digital	Tiles	Skeena	2000	Part of Kalum District Coverage No metadata
Recreation	recreation opportunity	Cultural	rec_op	Polygon coverage	Digital & Hardcopy	Tiles	RRL Resources	1997	No metadata
Recreation	recreation inventory	Cultural	rec_inv	Polygon coverage	Digital & Hardcopy	Tiles	RRL Resources	1997	No metadata
Recreation	recreation trails	Cultural	rectrail	Arcs, anno.igds, compiled from MoF sources	Digital	Tiles	MoF	2001	Part of Kalum District Coverage No metadata

Coast Tsimshian Resources Limited Partnership

Inventory Group	Specific	Inventory Type	Coverage Name	Digital Data Description	Data Format	Location of Digital Data	Data Source	Data Age	Comment
Wildlife	goat	Wildlife	goat	Polygon coverage for Potential Mountain Goat Winter Range and Escape	Digital & Hardcopy	Tiles	Acer	2000	No metadata
Wildlife	goat	Wildlife	lgwr	Polygon coverage for Potential Mountain Goat Winter Range and Escape	Digital & Hardcopy	Tiles	LRMP	2000	LRMP used the TFL1 goat data and added a computer modelled goat inventory for the TSA portion of the Kalum District to come up with the LGWR coverage No metadata
Wildlife	moose	Wildlife	lmohr	Polygon coverage for Moose habitat	Digital & Hardcopy	%.Kalum%/lrmp/lmohr	Acer	2000	Part of Kalum District Coverage for LRMP No metadata
Archaeological	Archaeological overview assessment	Cultural	t_arch	Polygon coverage	Digital & Hardcopy	Tiles	Millennia Research	1994	SUPERCEDED by 1995 product No metadata
Archaeological	Archaeological sites	Cultural	archeol	Point coverage	Digital & Hardcopy	Tiles	Unknown		
Archaeological	Archaeological overview	Cultural			Hardcopy		IR Wilson	1995	Overview mapping of Potential Archaeological Sensitivity...no digital data in system No metadata
Soils	Kalum roadfill and landslide attribute study	Terrain			Hardcopy		Terratech	2000	Project stopped at partial completion due to funding issues.
Others	sediment	Terrain	sediment	Arc coverage – limited attributes	Digital	Tiles	Unknown	Unknown	Stream Sediment mapping (Kitnayakwa, Nogold, Beaver RPUs) No metadata
Others	forest ecosystem network	Biodiversity	fen	Polygon coverage	Digital & Hardcopy	Tiles	Unknown	Unknown	Hoodoo RPU No metadata
Others	Econet	Biodiversity	econet	Polygon coverage	Digital	Tiles	Unknown	Unknown	Kitnayakwa and Beaver RPUs No metadata
Others	Possibly ecosystem mapping	Wildlife	habitat	Polygon coverage for "habitat"	Digital	Tiles	Unknown	Unknown	Coverage SUPERCEDED by goat and moose mapping No metadata

Coast Tsimshian Resources Limited Partnership

Inventory Group	Specific	Inventory Type	Coverage Name	Digital Data Description	Data Format	Location of Digital Data	Data Source	Data Age	Comment
Miscellaneous	Old growth theme Mapping	Forest	tflog	Polygon coverage – resultant	Digital	Tiles	Resultant	2001	No metadata
Miscellaneous	Annotation for 1:20,000 tiles	Forest	anno_lib	Miscellaneous annotation (FC1 annotation from 1996 unconfirmed)	Digital	Tiles	Forest Cover (FC1)	1996	No metadata
Miscellaneous	Proposed community watersheds	Administration	lpcw	Polygon coverage	Digital	Tiles	LRMP	2001	Part of Kalum District Coverage for LRMP Metadata in place
Operability	Operability mapping	Operability	blocks	Polygon coverage	Digital	Tiles	Woodima	2002	Attribute item "TCP" carries operability codes
Forest Cover mapping	Biogeoclimatic zone, subzone, variant	Ecological	bec	Polygon coverage	Digital	%.kalum%/data	MSRM (MoF)	1996	TFL 1 duplicate data coverage = biogeo
Forest Cover mapping	Silviculture History	Silviculture	tfl_fc tfl_fclbl tfl_fcovflw	Polygon Labels (anno) Overflow labels	Digital	Tiles	Skeena	2001	Last update completed winter 2002/03 – includes silviculture data to Dec 2001
Miscellaneous	Draft Landscape Units	Biodiversity	lu2001	Polygon coverage	Digital	%.kalum%/data	MSRM	2001	Original cover name = tflu
Miscellaneous	Parks & protected areas	Cultural	parks qpas_ka lpas_ka	Polygon coverage	Digital	%.kalum%/data	MWALP	2001	3 coverages
Miscellaneous	Guide-outfitters	Administration	qgot_r6	Polygon coverage	Digital	%.region%	MSRM	2001	Alternate coverage name = g_outfit2001
Miscellaneous	Trappers	Administration	qtrp_r6	Polygon coverage	Digital	%.region%	MSRM	2001	Alternate coverage name = trap2001
Forest Cover mapping	Roads and bridges	Access	Roads	Arcs	Digital	Tiles	Skeena	Current	Coverage regularly updated with proposed, engineered, & built

APPENDIX 4-2

Additional Sources of Information

APPENDIX 4.2 Additional Sources of Information

In addition to the inventory information listed in Appendix 4.1, the following is a list of the primary sources used in preparing Management Plan 10:

Legislation

Fisheries Act of Canada

Forest Act

Forest Practices Code of British Columbia Act, and its associated Regulations and Guidebooks

Forest and Range Practices Act

Forestry Revitalisation Act

Forest (Revitalisation) Amendment Act (No. 1) and (No. 2).

Forest Statutes Amendment Acts (No. 1) and (No. 2)

Forest Statutes Amendment Act (2003)

Heritage Conservation Act

Workers Compensation Act, and its associated *Occupational Health and Safety Regulation*

Agency Guidelines, Handbooks and Reports

A Field Guide to Site Identification and Interpretation for the Prince Rupert Forest Region.

Banner A., W MacKenzie, S. Haeussler, S. Thomson, J. Pojar, and R. Trowbridge. 1993. Land Management Handbook Number 26, Parts 1 & 2. Ministry of Forests, Smithers, BC

Audit of Forest Planning and Practices, Skeena Cellulose Inc., Tree Farm Licence 1. July 2002. Forest Practices Board, Victoria, BC

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

District Manager Policies - Kalum Forest District. (Various dates) Terrace, BC

Guide for Tree Farm Licence Management Plans (20-month) and Calendar Year Reports. March 2001, BC Ministry of Forests, Resource Engineering and Tenures Branch. Victoria BC

Kalum Forest District Stocking Standards. March 2003. Kalum Forest District Steering Committee.

Kalum Land and Resource Management Plan. April 2002. Government of British Columbia, Victoria, BC. Website: <http://ilmbwww.gov.bc.ca/ilmb/lup/lrmp/northern/kalum/index.htm> (Note, website is current location – originally viewed through former MSRM website)

Kalum Sustainable Resource Management Plan April 2006. Government of British Columbia, Victoria, BC Website: <http://ilmbwww.gov.bc.ca/ilmb/lup/srmp/northern/kalum/index.html>

Kalum Timber Supply Area Analysis Report, March 1999.

Mineral Titles Search and Statistics 2003. Victoria BC. Available: <http://www.mtonline.gov.bc.ca/> (June 2003) (Note, website is current location – originally viewed through former MSRM website)

Mineral Potential Assessment of the Skeena- Nass Area (93E,L,M 94D, 103G,H,I,J,P 104A,B). MacIntyre, D.G., C.H. Ash, J.B. Britton, W. Kilby, and E. Grunsky) 1995. Ministry of Energy & Mines, Victoria, BC

Natural resource tenures (Water licences, Trapline holders, Guide-outfitters, Angling Guides) - data base searches conducted by BC Ministry of Water, Land, and Air Protection staff

Red and Blue-listed plant communities. Conservation Data Centre at <http://www.env.gov.bc.ca/cdc/> (June 2003) (Note, website is current location – originally viewed through former MSRM website)

Tree farm Licence 1 - Rationale for Allowable Annual Cut (AAC) Determination. Pedersen, L., Chief Forester, effective February 23, 1999. BC Ministry of Forests. Victoria BC

Type 2 Strategic Silviculture Analysis – Analysis Report. November 2001. Forest Ecosystems Solutions Ltd. North Vancouver, BC

Skeena Cellulose Inc./ New Skeena Forest Products Inc. Documents and Reports

Annual Reports, Tree Farm Licence No. 1 1993 – 2000. Skeena Cellulose Inc.

Annual Reports, Forest Licence A16835 1993 – 2000. Skeena Cellulose Inc.

Forest Development Plan (2000 – 2007), Tree Farm Licence 1. Skeena Cellulose Inc.

General Ecosystem Descriptions and Wildlife Interpretations for Portions of TFL 1 and Forest Licence A16835. 1997. Madrone Consultants Ltd., Duncan BC

Logging Engineering Guidelines – Terrace Woodlands. April 2001 Skeena Cellulose Inc.

Management Plan No. 8 for Tree Farm Licence 1, 1994-1998. Skeena Cellulose Inc. Terrace Operations.

Management Plan No. 9 for Tree Farm Licence 1, 1998-2003. Skeena Cellulose Inc. Terrace Woodlands

Recreation Analysis and Management Strategy Report, Tree Farm Licence 1, Skeena Cellulose Inc., 1997. RBL Recreation Resources Ltd. Version 1.2

Report on TFL 1 Second Growth inventory. September 2001. Sterling Wood Group, Victoria, BC

State of Commercial Regeneration on Built Road Disturbed Area (1985, 1990, and 1995 Harvest Areas) for Skeena Cellulose Inc., Terrace operations. March 2001. Horne Forestry, Terrace, BC

The Impact of the Kalum Local Resource Management Plan on TFL 1. March 2000. Sterling Wood Group, Victoria, BC

TFL 1 Timber supply analysis (Management Plan 9). November 1998. Sterling Wood Group, Victoria, BC

TFL 1 Vegetation Resources Inventory Attribute Adjustment. February 2003. Sterling Wood Group Inc. Victoria, BC

APPENDIX 5

Timber Supply Information Package

APPENDIX 5-1

Yield Tables

APPENDIX 6

Timber Supply Analysis Report

Appendix 6.1 Timber Supply Analysis

(Includes a sub-appendix – “*TFL 1 Vegetation Resources Inventory Attribute Adjustment*”)

Appendix 6.2 Timber Inventory Summaries

Appendix 6.2 Timber Inventory Summaries

These timber inventory summaries were generated from the inventory file used for the MP 10 timber supply analysis. The areas and volumes are summarized for the TFL 1 net timber harvesting landbase as defined in the Information Package. Volumes are inventory volumes net decay waste and breakage, consistent with volume summaries in the Information Package.

THLB Area by leading species and age class

age class*	total	hemlock	cedar	pine	spruce	balsam	subtotal conifer	deciduous
1	8268	3636	18	509	155	3826	8144	117
2	9977	6008	70	715	98	3010	9901	82
3	7686	5675	48	235	151	1400	7510	179
4	10,410	6645	16	1163	743	1663	10,230	180
5	4,623	2609	16	699	42	974	4340	283
6	541	196	0	13	22	299	530	12
7	13	7	0	0	0	5	13	0
8	20	19	0	0	0	2	20	0
9	122	115	0	2	1	0	118	4
10	206	102	0	87	0	5	195	11
11	208	166	0	30	0	0	197	11
12	1230	775	0	438	13	5	1230	0
13	329	283	0	34	3	4	324	3
14	4424	3244	76	146	233	700	4399	26
15	41,539	37,420	105	0	159	3854	41,538	0
Immature**	41,505	24,770	168	3333	1211	11,172	40,654	852
Mature***	48,091	42,132	181	737	409	4574	48,034	56
NSR	2940							
Total	89,596	66,902	349	4071	1620	15,746	88,688	908

* Age class definitions

1: age 0 – 10	4: age 31 – 40	7: age 61 – 70	10: age 91 – 100	13: age 121 – 140
2: age 11 – 20	5: age 41 – 50	8: age 71 – 80	11: age 101 – 110	14: age 141 – 250
3: age 21 – 30	6: age 51 – 60	9: age 81 – 90	12: age 111 – 120	15: age 251+

** immature includes age classes 1 to 6

*** mature includes age classes 7 to 15

THLB Volume by leading species and age class

age class*	Total	hemlock	cedar	pine	spruce	balsam	subtotal conifer	deciduous
1	0	0	0	0	0	0	0	0
2	1142	970	22	45	91	4	1133	9
3	95,160	75,468	446	1367	769	16,558	94,609	551
4	699,799	519,658	910	39,555	27,695	110,083	697,902	1897
5	968,928	575,712	4529	73,178	2916	278,404	934,740	34,188
6	220,612	88,748	0	2663	1342	125,734	218,488	2124
7	5031	1961	0	0	0	3070	5031	0
8	7047	6417	0	0	0	630	7047	0
9	59,986	58,524	0	547	446	0	59,517	469
10	68,767	53,733	0	10,584	0	1877	66,194	2573
11	82,230	68,746	0	10,002	0	0	78,748	3482
12	460,768	307,757	0	145,315	4847	2849	460,768	0
13	124,280	106,528	0	13,679	1445	1658	123,310	970
14	2,215,622	1,627,784	39,366	54,666	149,609	337,103	2,208,529	7093
15	24,252,036	22,019,556	58,817	0	125,740	2,047,921	24,252,035	1
Immature**	1,985,640	1,260,557	5907	116,809	32,814	530,785	1,946,871	38,769
Mature***	27,275,767	24,251,007	98,183	234,793	282,087	2,395,108	27,261,179	14,588
Total	29,261,407	25,511,564	104,090	351,602	314,901	2,925,893	29,208,050	53,356

* Age class definitions

1: age 0 – 10	4: age 31 – 40	7: age 61 – 70	10: age 91 – 100	13: age 121 – 140
2: age 11 – 20	5: age 41 – 50	8: age 71 – 80	11: age 101 – 110	14: age 141 – 250
3: age 21 – 30	6: age 51 – 60	9: age 81 – 90	12: age 111 – 120	15: age 251+

** immature includes age classes 1 to 6

*** mature includes age classes 7 to 15

APPENDIX 7

Chief Forester AAC Determination Rational

(TO BE PROVIDED WITH FINAL COPY OF MANAGEMENT PLAN 10)

APPENDIX 8

Twenty Year Plan report

APPENDIX 8

Comments Received on Draft Management Plan 10

(Note: MP 10 Sections 9.1, 9.2, and 9.3 provide a summary of advertisement notices, comments, and responses. The actual advertisements, comments, and responses are not provided in the digital submission, but will be provided as with the hardcopy submission)

APPENDIX 9

Summary of Changes from the Draft to the Final Version of Management Plan 10

Summary of Changes from the Draft to the Final Version of Management Plan 10

Section	Nature	Description	Result of
N/A	Addition	Addition of an Executive Summary	Internal edit
1.0	Clarification	Update wording to reflect the state of changing legislation	Internal edit
1.1	Typographical	Correct minor typos	Internal edit
1.2	Clarification	Describe decrease in AAC to reflect 5% takeback	Internal edit
1.2.1	Correction	Remove reference to Smithers	Internal edit
1.2.2	Typographical	Correct minor typos	Internal edit
1.2.3	Typographical	Correct minor typos	Internal edit
1.2.4	Clarification	Update wording to reflect the state of changing legislation	Internal edit
1.2.5	Addition	Add recommendation with respect to BCTS undercut	Internal edit
1.2.6	Typographical	Correct minor typos	Agency comment
	Clarification	Add minor comment about availability of second growth	Internal edit
	Addition	Add Forest Health subsection	Internal edit
2.1.1	Clarification	Clarify the wording respecting strategies from the Kalum LRMP	Agency comment
2.1.2	Typographical	Minor wording changes to improve readability	Internal edit
2.1.3	Typographical	Minor wording changes to improve readability	Internal edit
2.1.4	Clarification	Describe results of twenty-year plan	Internal edit
	Addition	Twenty-Year Plan table completed	Completion of Timber Supply Analysis
2.1.5	Clarification	Describe possible impact of <i>Forestry Revitalisation Act</i> ; Clarify that BCTS activities fall under this Management Plan	Internal Edit
2.2	Correction	Remove incorrect reference to District Manager with respect to Deactivation Prescriptions in Table 3	Agency comment

Section	Nature	Description	Result of
2.2.2; 2.2.4 2.2.6	Typographical	Minor wording changes to improve readability	Internal edit
3.0	Typographical	Correct minor typos	Internal edit
3.1	Typographical	Correct minor typos	Internal edit
	Revision	Tables 5, 8, and 9 updated	Completion of Timber Supply Analysis
3.2	Typographical	Correct minor typos	Internal edit
3.3	Revision	Table 12 updated	Completion of Timber Supply Analysis
3.10	Typographical	Correct minor typos	Internal edit
4.0	Addition	Renumbering of the sections: Objectives (previously part of 4.0 is now 4.1; 4.1 changed to 4.2; Recommendations and Commitments is added as a new section 4.3	Internal edit
4.1 (now 4.2)	Typographical	Minor wording changes to improve readability	Internal edit
4.1.1 (now 4.2.1)	Clarification	Remove out of date reference to total resource plans; Clarify cutblock size range	Agency comment
	Addition	Add Company Utilisation Standards table	Agency comment
4.1.2 (now 4.2.2)	Clarification	Clarify Mountain goat & moose management wording	Agency comment
4.1.3 (now 4.2.3)	Clarification	Clarify confusing sentence regarding management of visual quality	Internal edit
4.1.4 (now 4.2.4)	Correction	Remove the word "deactivation" where it does not follow the new definition in the revised Code	Internal edit
4.1.5 (now 4.2.5)	Typographical	Minor wording changes to improve readability	Internal edit

Section	Nature	Description	Result of
4.1.6 (now 4.2.6)	Typographical	Minor wording changes to improve readability	Internal edit
4.1.7 (now 4.2.7)	Clarification	Replace reference to black cottonwood with “merchantable deciduous” to reflect the possibility of birch or alder utilisation. Change 25-year to “short” rotation due to differing species requirements.	Internal edit
	Typographical	Minor wording changes to improve readability	Internal edit
4.3 (new)	Addition	Add Recommendations and Commitments section to provide a summary of key recommendations in this Management Plan, including the recommended AAC for TFL 1	Agency, Public, Internal comments; Completion of Timber Supply Analysis
6.1.1	Addition	Wording added regarding Goat and Moose winter range management; Grizzly Bear habitat management	Agency comment
6.1.2	Clarification	Clarify that the effect of First Nations’ claims on the TFL should be monitored during the term of MP 10	Internal edit
6.2.1	Typographical	Minor wording changes to improve readability	Internal edit
6.3 (new)	Addition	Add Impacts section	Agency comment
7.0	Typographical	Changes to improve readability	Internal edit
	Clarification	Describe decrease in AAC to reflect 5% takeback	Internal edit
8.0	Addition	Add text to describe the actual Schedule B pro-rate with respect to the recommended AAC for TFL 1	Completion of Timber Supply Analysis
9.1 (new)	Addition	Add Request for Input section: contains almost all of the text from section 9.0 in the draft MP 10	Internal edit
9.2 (new)	Addition	Add Summary of Comments and Input Received section – new content in response to the comments and input received on the draft MP 10	Agency, Public comments
9.3 (new)	Addition	Add Material Changes Made to the Plan section – new content resulting from responses to the comments and input received on the draft MP 10	Agency, Public, Internal comments
Appendix 4.2 (new)	Addition	Add Additional Sources of Information section	Internal edit

Section	Nature	Description	Result of
Appendix 5	Clarification/ Correction	Provide an updated Timber Information Package that results from completion of analyses and input received from the MoF's Forest Analysis Branch	Agency, Internal comments; Completion of Timber Supply Analysis
Appendix 6	Addition	Inclusion of the Timber Analysis Report resulting from the accepted Timber Information Package	Completion of Timber Supply Analysis
Appendix 8	Addition	Inclusion of the Twenty-Year Plan Report that spatially demonstrates that the recommended AAC can be achieved	Completion of Timber Supply Analysis
Appendix 9	Addition	Inclusion of the Comments Received on Draft Management Plan 10	Internal edit
Appendix 10	Addition	Inclusion of this Summary of Revisions table to show what changes have occurred between the draft and final Management Plan 10 documents	Internal edit

The following changes were made to Management Plan 10 after Coast Tsimshian Resources Limited Partnership purchased TFL 1.

Section	Nature	Description	Result of
Title	Correction	Date change on title page to reflect CTR's version of the document	CTR purchase of TFL 1
Headers and Footers	Correction	Change of title to Coast Tsimshian Resources Limited Partnership (CTR)	CTR purchase of TFL 1
PREAMBLE	Changes	Change to reflect new ownership of license and additional people involved in reviewing the document	
Distribution List	Changes	Changed to reflect current ownership, current ministry representatives, and First Nations whose traditional territories lie within the boundaries of TFL 1	
Introduction	Changes	Change date that MP 10 is active. This is to reflect ownership changes and request by government to update text	
Introduction	Changes	Deletion of description of Skeena Cellulose and addition of Coast Tsimshian Resources Limited Partnership	

Section	Nature	Description	Result of
1.2.1	Addition	Description of Coast Tsimshian Resources Limited Partnership	
1.2.2	Deletion	Delete information around ownership of the pulp mill in Port Edward and the sawmill in Terrace	
1.2.2	Deletion	Information regarding NWBC's purchase of the woodlands and mill	
Throughout	Changes	All maps have been changed to include Coast Tsimshian Resources LP logo	
1.2.2	Deletion	Historical information around jobs available through the woodlands and mill operations	
1.2.5	Addition	Added BCTS to SBFEP to reflect harvesting done through both programs	
1.2.6	Deletion	The Company wants to ensure that implementation of the Kalum LRMP, as well as the preparation of landscape unit plans, complements existing resource planning completed for TFL 1.	Landscape unit information is on place and resource plans must be developed in accordance with these plans
1.2.6	Addition	The Kalum Sustainable Resource Management Plan is a higher level plan that defines legal objectives for portions of the Kalum LRMP.	SRMP now in place and resource plans must be consistent with the objectives of the SRMP
1.2.6	Change	Visually sensitive areas along the Nisga'a Highway and Highway 16 corridors constrain harvesting. Visual quality is also a concern along the Class I waters of the Upper Copper. CTR will manage visual resources in a manner consistent with the Kalum SRMP	Change in text to reflect the SRMP as providing guidance for managing visually sensitive areas
2.1	Change	With the approval of the Kalum SRMP, landscape units have been identified. These landscape units will be the management units for future analyses.	Change to reflect implementation of the Kalum SRMP
2.1.1	Change	New web address of Kalum LRMP	Change to reflect changes in governing bodies concerned with LRMP's

Section	Nature	Description	Result of
2.1.1	Addition	The Kalum Sustainable Resource Management Plan (SRMP) is the document that provides legal framework for implementing the Kalum LRMP. The SRMP contains objectives and strategies that will be implemented and monitored across the landbase. CTR will manage the TFL in a manner consistent with the Kalum SRMP.	Added to reflect implementation of Kalum SRMP
2.1.1	Change	New government acronyms (MoFR, and MOE) to replace MoF and MSRSM	Change reflects change in provincial ministries
2.1.2	Deletion	Deleted "draft" before landscape units	Reflect implementation of Kalum SRMP
2.1.4	Deletion	Three-meter green up rule is administrative and is open to review: the company plans to pursue this with the ministry of forests before the next timber supply analysis for the TFL	View of previous owners of TFL 1, not necessarily that of Coast Tsimshian Resources
Table 3	Change	Discussion around Forest Development units as part of FSP	Change to reflect implementation of Forest Stewardship Plans
2.2.1	Change	Date change for final submission of FDP's	Change to reflect current legislation
2.2.2	Addition	Forest Stewardship Plan for CTR	Change to reflect current situation within Coast Tsimshian Resources
3.8	Change	Change web address for BC Ecosystems Explorer	Reflect changes to current ministries and organisations within provincial government
3.8	Addition	Wildlife Habitat Areas	Reflects implementation of tailed frog wildlife habitat areas in the TFL
4.1	Change	Wording around management objectives	Reflect current status of Coast Tsimshian and that they do not own facilities
4.2.2.	Change	Wording around PEM mapping	Change to reflect current status of PEM mapping for TFL
4.2.4	Deletion	<i>This fee is usually negotiated annually with each user</i>	No longer relevant

Section	Nature	Description	Result of
4.2.6	Addition	forest health factors such as wind, animal pests, or disease.	Change as per request of MoF (wider range of forest health issues)
4.2.6	Change	<i>Under Strategies:</i> <i>In areas with known windthrow risk, design blocks to limit perpendicular exposure to prevailing wind patterns. In areas of high risk, and where feasible, 'feather' block edges. Promptly salvage windthrown, diseased and pest damaged timber where economically feasible.</i>	Change to reflect Coast Tsimshian Resources' management strategies
5.0	Change	<i>Under Goal:</i> Maintain dialogue with First Nations... Metlakatla and Lax Kw'alaams separated as parties for discussions	Change to reflect current situation (Allied Tsimshian Tribes Association represents Lax Kw'alaams only)
6.3.1	Change	...lowers the overall harvest level over the cut control period, and therefore the potential economic recovery	Change in wording (grammar and easier reading)
6.3.1	Change	From <i>Company's sawmill</i> to a Terrace sawmill	Change to reflect that CTR does not own mill
6.3.2	Change	Changed wording from <i>Company's employees</i> to for forest workers and local communities	Change to reflect current employment situation for CTR
6.3.2	Deletion	and the production level of the local mills and other markets.and the production of local mills and other markets	Change to reflect local mill not operating
6.3.2	Deletion	Up to an additional 200 persons can be employed at the Terrace sawmill, and the fibre from TFL 2 and Terrace woodlands contributed to the over 400 jobs at the pulp mill in Port Edward. However the actual...Up to an additional 200 persons can be employed at the Terrace sawmill, and the fibre from TFL 1 and Terrace Woodlands contributed to the over 400 jobs at the pulp mill in Port Edward. However, the actual	Deleted because neither mill are operational.
6.3.2	Change	Employment numbers in table	Changed to reflect current CTR situation

Section	Nature	Description	Result of
6.3.2	Deletion	Those logging contractors without “evergreen” clauses in their contracts will likely bear the brunt of any changes in harvest levels from year to year. However, if the AAC for TFL 1 is reduced, the evergreen contractors will also be impacted. Those logging contractors without “evergreen” clauses in their contracts will likely bear the burden of any changes to harvest levels from year to year. However if the AAC for TFL 1 is reduced, the evergreen contractors will also be impacted	Change... no evergreen contractors through CTR
6.3.2	Change	With the undercut awarded to Kitselas and Kitsumkalum First Nations, there is an increased pressure to log the highest quality timber now – the result will be a poorer timber profile left behind.	Change to reflect current situation on TFL 1
6.3.3	Deletion	As discussed in the previous section, there may be opportunities for contractors through the awarding of TFL 1 undercut; however, this is a two-edged sword and may ultimately result in diminishing the overall viability of forest resources in the area.	Undercut has been awarded.
6.3.4	Addition	Addition of SRMP to paragraph 1	Acts to protect non-timber resources
6.3.4	Deletion	<i>Uncertainty about the initial implementation of the Kalum LRMP – There is a potential for inconsistent application of strategies, and the potential timber supply impacts will not be known until strategies are actually implemented. This is particularly true of management strategies for pine mushroom and the grizzly bear.</i>	LRMP is in place
6.3.4	Change	<i>The LRMP was one part of the planning puzzle, and has been put in place</i> <i>to</i> <i>Completion of the Kalum LRMP and the SRMP, and the start of implementation – These plans have been approved and implemented and provide additional tools in the sustainable forest management regime for TFL 1.</i>	Change to reflect implementation of LRMP
Appendix 1	Addition	Addition of CTR logo to Page 2	Reflect ownership by CTR

Section	Nature	Description	Result of
Appendix 1	Addition	<p>PREFACE</p> <p>While errors and omissions may occur, every effort has been made to accurately reflect the history of TFL 1 to date.</p>	
Appendix 1	Deletion	<p>CELANESE CORPORATION OF AMERICA</p> <p>The initial formative years of the company's operation in the early 1950's are recalled in the attached newspaper articles and advertisements</p>	Not available
Appendix 1	Addition	<p>SAWMILLS</p> <p>The Carnaby mill was dismantled in 2005 and the Terrace sawmill was purchased by Terrace Lumber Company and ran intermittently between the fall of 2005 and spring of 2006.</p>	Change to reflect current situation
Appendix 1	Addition	<p>OWNERSHIP</p> <p>New Skeena Forest Products went into receivership in 2004. Through the receiver, TFL 1 was detached from the sawmill in Terrace. The TFL was purchased by Coast Tsimshian Resources Limited Partnership in July 1005.</p>	Change to reflect current ownership
Appendix 1	Additon	<p>LONG TERM PLANNING</p> <p>including Landscape Unit planning, the Identified Wildlife Management Strategy and the Kalum Sustainable Resource Management Plan (Kalum SRMP).</p>	Reflect implementation of Kalum SRMP
Appendix 1	Addition	<p>CONCLUSION</p> <p>Since 1948, Tree Farm Licence 1 has expanded and contracted in response to markets and ability of the owners to utilise and market the resources in the region. Currently, the TFL is the smallest that it has ever been both in physical size and in Allowable Annual Cut. Forest legislation introduced in 2002 and 2003 has further decreased the size of the TFL.</p> <p>The quality of the resource has been the greatest challenge for the owners of the TFL over the years. Second-growth forests on the TFL will have lower pulp contents than the first harvests, and this represents significant opportunities for a stable operation in the long term.</p>	

Section	Nature	Description	Result of
Appendix 1	Addition	AMENDMENTS TO TFL 1 2004 - Reduction in AAC of TFL 1 to account for Forest Revitalization Act Deletion for Nisga'a Highway right-of-way.	Change to reflect current situation
Appendix 8	Deletion	20 Year Plan	Has been updated since Management Plan originally reviewed. The 20 year plan is in government review phase.
Appendix 9	Change	Now appendix 8	Reflects removal of original appendix 8
Appendix 10	Change	Now appendix 9	Reflects removal of original appendix 8
Appendix 10	Addition	Forest Revitalization Act Update	Request by Acting Deputy Chief Forester to be included in MP 10

APPENDIX 10

Forest Revitalization Act Update