Nak’azdli-Whut’en First Nation

Nak’azdli-Whut’en First Nation Woodland License No. N1T

Management Plan

Nak’azdli-Whut’en First Nation
156 Lower Road P.O. Box 985
Fort St James, BC
V0J1P0

March 15th, 2018

Management Plan
for
Woodland License N1T

Submitted as part of the application requirements for a
First Nations Woodland License

Prepared for:
The Ministry of Forests, Lands, Natural Resource Operations and Rural Development
Omineca Region
4th Floor, 499 George Street,
Prince George, BC
V2L 1R5

Prepared by:
Nak'al Koh Timber Ltd.
156 Lower Road
Fort St James, BC
V0J 1P0
(250)996-7115

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Wayne R Bond, RPF #4343
I certify that the work described herein fulfills the standards expected of a member of the Association of British Columbia Forest Professionals and that I did personally supervise the work.

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Introduction

A First Nation Woodland License (FNWL) is an area-based tenure with a term of not less than 25 years. The FNWL is unique in that it provides for the exclusive right to harvest timber and may give to its holder the right to harvest, manage and charge fees for botanical forest products and other prescribed products on the schedule land as well. FNWL holders are required to pay to the government, in addition to other amounts payable under the Forest Act, stumpage and waste assessments.

This Management Plan is being prepared for the Nak'azdli-Whut'en First Nation Woodland License N1T as part of the application process outlined under section 43.54 of the Forest Act. Approval of this management plan does not give the authority to proceed with specific operational activities as operational activities are approved through the endorsement of a Forest Stewardship Plan (FSP) and other forest authorizations such as Cutting Permits (CP) and Road Permits (RP).

The purpose of this Management Plan is to incorporate the principles of integrated resource management into the management objectives and goals and to establish the strategies that will provide the framework for tenure development and management.

This Management Plan has been prepared in accordance with the directions of the Regional Executive Director and is consistent with the license agreement, the forestry legislation, higher level plans under the Forest and Range Practices Act, and commitments agreed to by all parties to this agreement.

This management plan will come into effect concurrently with the license agreement and will remain in effect until such time that an updated plan is required by the enactment of new legislation, a higher level plan or an amendment is required to ensure the plan is consistent with the license agreement.

Management Objectives

The primary management objective for the FNWL is to manage the timber resource on a sustained yield basis using sound forest management principles, while maintaining or enhancing the non-timber uses, and products from the FNWL area. The First Nation Woodland License, N1T will be managed under 3 main principles; the sustainable use of forest products, the economic and social prosperity of the Nak'azdli-Whut'en First Nation People and the implementation of sound management strategies aimed at the protection of the environment within and adjacent to the FNWL area.

Timber Resources

Timber resources will be managed to provide long term sustainable yields of commercially valuable timber products using sound forest management practices and implementing silviculture strategies such as:

- Reducing the amount of non-recoverable losses of timber damaged as a result of the current Mountain Pine Beetle epidemic,
- Manage future timber losses by prioritizing harvest operations of stands susceptible to damage or infection,
- Developing a long term harvest strategy based on a reliable forest resource inventory that ensures the sustainable production of forest products,
- Ensuring areas denuded of forest cover are reforested in a timely manner with ecologically suitable species of commercially valuable trees,
- Creating a mosaic of stand ages, species and densities that will function as an abatement strategy to reduce the risk of wildfires and infestations,
- Implementing a reforestation program that recognizes a changing climate and evolving social priorities.

Economic and Social Prosperity

The potential social and economic benefits of a long term, area based FNWL tenure is that it will provide the capital to develop and sustain social benefits such as:

- Provide stable and long term revenue for the Nak'azdli-Whut'en First Nation to support social projects,
- Encourage Forestry and Natural Resource Management education and careers within the Nak'azdli-Whut'en First Nation,
- Manage and develop tenure related administration activities while recognizing traditional knowledge and cultural values,
- Create and maintain long-term forestry employment, contract opportunities and joint ventures by supporting and assisting the Nak'azdli-Whut'en First Nation people to access and develop businesses as appropriate and feasible,
- Enhance cooperation amongst stakeholders through consultation.

Protection of the Environment

The protection of the full range of resources will be considered at the FSP stage with specific results and strategies detailed in that document. Nak'azdli-Whut'en First Nation is committed to implementing management strategies that protect and enhance the value of environmental features such as:

- Water quality and mitigating the impacts of development activities on the hydrological cycle,
- Fish and the preservation of fish habitat,

- Wildlife and the management of wildlife habitat,
- The protection of rare or endangered ecotypes, plant communities, flowers and fauna,
- The protection and cultivation of plants of cultural significance,
- The protection of existing areas of spiritual importance and the development of future areas of aesthetic value.

Administration

Nak'azdli-Whut'en First Nation will establish a corporate structure to manage License N1T along with other Nak'azdli-Whut'en First Nation Forest Tenures. The corporate structure will provide the policy framework and management organization to hold current and future tenures that will enhance and increase Nak'azdli-Whut'en's economic opportunities in the natural resource development sector. The corporate structure will also provide Nak'azdli-Whut'en with a corporate identity that will develop and grow over time as internal capacity increases and relationships grow within Nak'azdli-Whut'en Traditional Territory.

The FNWL will be managed in a manner that reflects and respects traditional knowledge, values and land uses. Management will promote active consultation with all affected First Nations, the local community, government agencies and other active industrial users. Management will be progressive and adopt a continuous improvement philosophy in order to promote change and improve practices.

Legislation and Higher Level Plans Content Requirements

The FNWL will meet the government objectives as defined in legislation and higher level plans as amended from time to time. The objectives of the FNWL will be consistent with legislation, regulations, government orders and higher level plans that are in place at the time the FSP is prepared or enabled in legislation at a future date.

Area Description

General Location and Area Description

The FNWL is composed of two separate areas within the Stuart-Nechako Forest District, Timber Supply Block C of the Prince George Timber Supply Area in the Omineca Forest Region. The closest support center is Fort St James.

One of the proposed areas is in the Inzana Resource Management Zone (RMZ) as determined by the Fort St James Land and Resource Management Plan (March 30, 1999) and as illustrated in Appendix 1. It is located approximately 62.5 km north of Fort St James and is bounded by the north shore of Inzana Lake to the south, Kalder

Lake and Sheshenadji Lake to the east, the Witch Forest Service Road and Mudzenchoot Park to the north and west to Benoit Creek.

This area is entirely contained within Nak'azdli-Whut'en First Nation Traditional Territory with evidence of traditional use found throughout the area. Many Band Members currently occupy the area and make use of the area for hunting, trapping, berry picking, the gathering of medicinal plants and other recreational purposes.

The area has reasonable access from Fort St James with 3 Forest Service Roads (Inzana Main, Kalder Lake and the Witch) accessing the eastern portion of the area from the North Road. Access to the western portion of the FNWL is made available off the Leo Creek FSR at 48 km via the 100 road.

The Fort St James Land and Resource Management Plan (LRMP) proposes management for this RMZ emphasize resource development such as mineral extraction and timber harvest while mitigating the impacts on other resources through a variety of resource management strategies.

Mudzenchoot Park is a protected area located in the north-west portion of the FNWL with the west, south and eastern boundaries of the Park common with the FNWL area. Mudzenchoot Creek also defines part of the north boundary of the license area from the park boundary east to where the creek intersects the Witch FSR. The park is located in a high elevation area and is characterized by unique vegetation types and dry meadows.

The second area proposed for inclusion in the FNWL is located in the Salmon RMZ as determined by the Fort St James Land and Resource Management Plan (March 30, 1999). It is approximately 30.0 km east of Fort St James. The eastern boundary is defined by Great Beaver Lake with the north boundary located immediately south of Tsyaz Lake. The FNLW area reaches as far south so as to include Harry Lake and north-west to include Jumping Lake within its' boundaries.

Access to the area is provided by the Teardrop-Chief FSR (AKA the 400 road). The western portion of the FNWL area has been logged extensively and although many roads have been deactivated access to this area is well developed. There is another main haul road into the south central portion of the area that provided good access to the entire south and central portion of the proposed area.

The Fort St James LRMP proposes management for this RMZ emphasize resource development such as mineral extraction and timber harvest while mitigating the impacts on other resources through a variety of resource management strategies.

This area is known for its lakes and associated recreational activities. Proximity to Fort St James and very good access to the area from Prince George via Chief Lake Road has encouraged extensive use of this area for fishing, hunting, camping and

associated recreational activities. Extensive timber harvesting throughout this area has created large areas of immature even age pine leading stands.

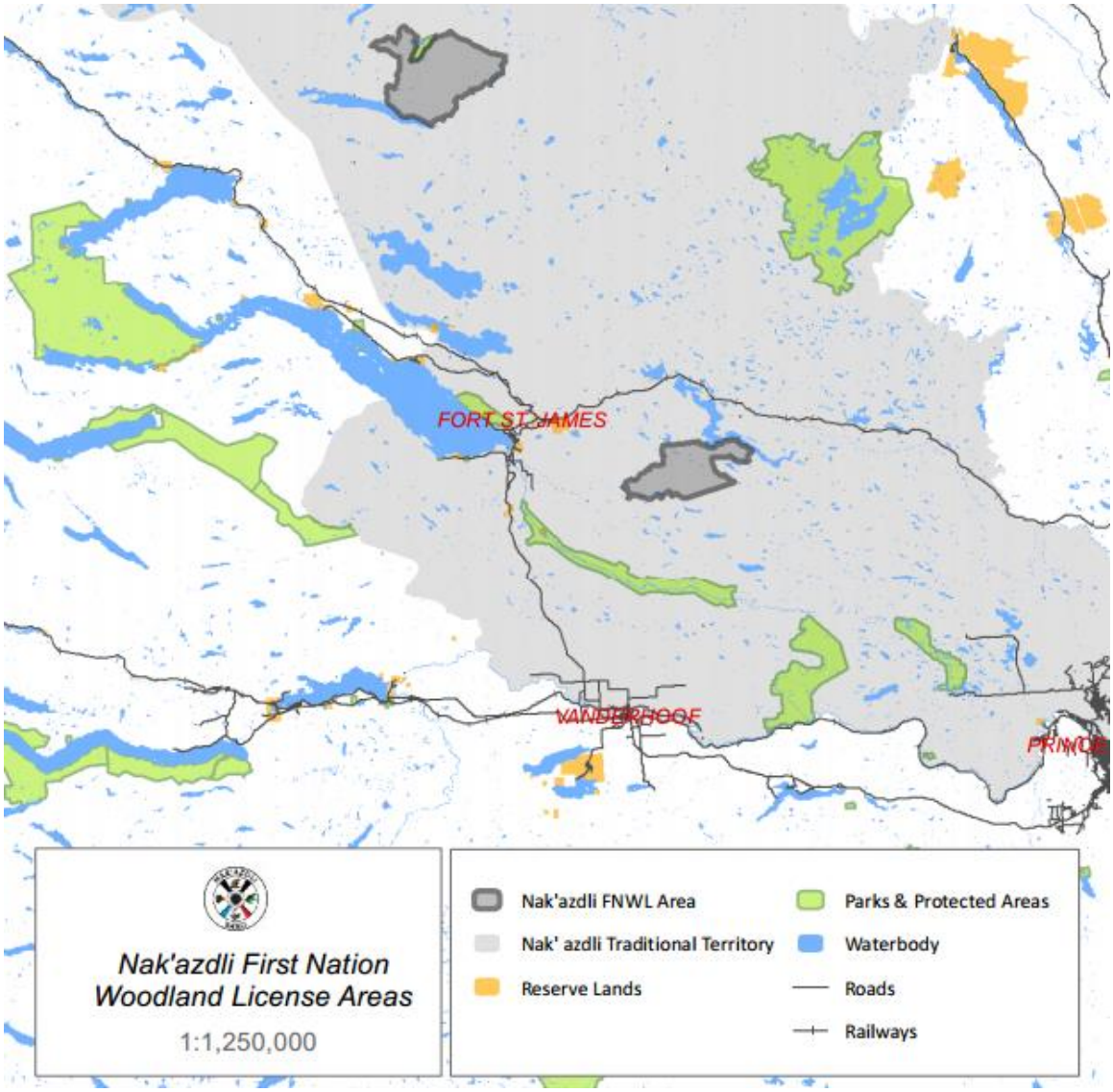


Figure 1: General location map of the proposed FNWL areas.

Resource Inventories

Timber Resource Inventory

A timber resource analysis was performed by Forest Ecosystem Solutions Ltd. at the direction of the Ministry of Forests Lands and Natural Resources Operations in April, 2016. The base case scenario areas are summarized and an estimate of long range sustainable yield are included as Table 1.

Table 1: Timber Resource Inventory Area Summary

Total Area (ha)	CFLB (ha)	NHLB (ha)	THLB (ha)
31,087	28,997	4,503	24,494

CFLB: Crown Forest Land Base
NHLB: Non-Harvesting Land Base
THLB: Timber Harvesting Land Base
LRSY: Long Range Sustainable Yield
MAI: Mean Annual Increment

A second analysis was provided by the District Office in November, 2016 which varies slightly in area possibly due to the use of more accurate line work to define the FNWL area. Results of that analysis included volume by species and is included in Table 2 and Figure 1.

Table 2: FNWL Area Summary.

Total Area (ha)	CFLB (ha)	THLB (ha)	Mature THLB (ha)
31,049	31,049	24,463	17,999

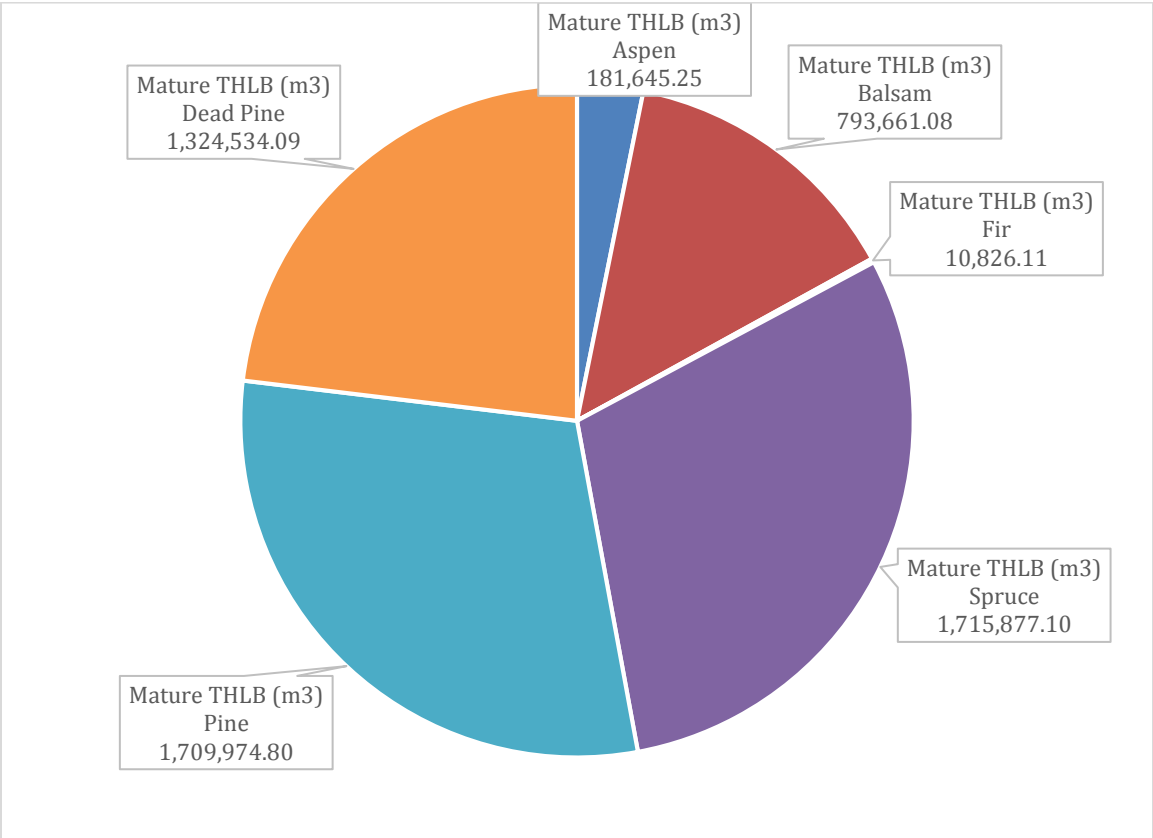


Figure 1: Mature Timber Harvesting Land Base volume by species.

Terrain Stability Inventory

Terrain Stability Mapping has not been completed for the FNWL areas. There are no immediate plans to complete a landscape inventory at this time. Proposed cutblocks and roads will be assessed for potentially unstable terrain in the planning phase of development and during the completion of field work.

Predictive Ecosystem Mapping Inventory

Predictive Ecosystem Mapping (PEM) was competed in the Fort St James Forest District between 2006 and 2008. PEM is a useful coarse filter tool used during the planning phase of development to identify the presence of sensitive ecosystems. It may also be used to predict general areas capable of sustaining plants with medicinal properties.

Operability Inventory

A steep slope inventory has not been completed for the FNWL areas. Conventional logging is generally defaulted to slopes < 35% by the WC B Regulations while steeper slopes may be harvested using specialized equipment or alternative steep slope harvesting methods. Topographic maps will assist in the planning phase of cutblock and road development to identify slopes that exceed conventional logging limits. Field work may be assisted by aerial reconnaissance, high resolution photography and Lidar to ensure steep slopes are identified and incorporated into an appropriate harvest plan.

Recreation Inventory

There are no recreational inventories available for the FNWL areas. The eastern boundary of a small UREP/Recreation Reserve (Rec5801) forms the south-west corner of the FNWL area along the north shore of Inzana Lake. A second UREP/Recreation Reserve (Rec1247) is approximately 100 m away from the south-east boundary of the FNWL area along the most easterly extent of Inzana Lake. There are no Recreation Reserves in proximity to the FNWL area in the Salmon RMZ. There are no recreational trails within either of the proposed FNWL areas.

Visual Inventory

Visual Quality Objectives were established in the Fort St James Forest District in 2005. The FNWL tenure holder will use this inventory to identify areas that have an Established Visual Quality Objective (EVQO) and ensure the EVQO for these areas is maintained.

Wildlife Inventory

There are no known wildlife inventories within the FNWL areas. There are no Wildlife Habitat Areas (WHA) or Ungulate Winter Range (UWR) established within the FNWL areas.

Karst Inventory

Karst Potential Inventories are maintained by the MFLNRO and contained in the Provincial Data Warehouse. Karst features include fluted sharp rock faces, vertical shafts, sinkholes, sinking streams, springs, complex subsurface systems and caves. The Karst Potential Inventory does not indicate the potential for the presence of Karst features within the Inzana RMZ area but, there is an overlap between the south-west portion of the FNWL area in the Salmon RMZ and the Massive Limestone of Cache Creek Group according to the Karst Potential Inventory. Future development in this area will include a detailed geotechnical analysis of this

landform as part of the field work component to ensure the preservation of Karst features that may be present.

Proposed Annual Allowable Cut

An area and timber supply analysis was performed in April, 2016 by Forest Ecosystem Solutions Ltd. The information presented in the report used the Prince George TSA Type 4 Silviculture Analysis assumptions with the exception the Old Growth Objectives were derived from the Order Establishing Provincial Non-Spatial Old Growth Objectives (provincial old growth order) with no draw down for low biodiversity emphasis option (BEO) landscape units.

Two scenarios, the Base Case and Scenario 2 were presented. The Base Case was completed based on the assumptions noted above. Scenario 2 removed all deciduous leading stands from the THLB and delayed harvest of all age class 4 and 5 pine leading stands with >50% MPB attack for 20 years.

The analysis yielded the following proposed Annual Allowable Cut (AAC) over the next 250 years:

Table 3: Base Case and Scenario 2 AAC Volume Projections.

Scenario	Year 1 to 5	Year 6 to 80	Year 86 to 145	LTSY
Base Case	143,275 m^3	75,155 m^3	83,645 m^3	86,725 m^3
Scenario 2	80,250 m^3	75,175 m^3	80,150 m^3	84,480 m^3

Nak'azdli-Whut'en proposes an initial AAC of 140,000 m^3 /year for the initial 5 year time period. An updated timber supply analysis and a management plan amendment will be submitted with an updated AAC for government approval based on an analysis of the remaining dead pine harvest opportunities and the completion of a detailed inventory at that time.

Management Objectives

The primary management objective for the FNWL is to manage the timber on a sustained yield basis while maintaining or increasing the non-timber values within the tenure area. Nak'azdli-Whut'en has identified broad resource management objectives and strategies to ensure all of the resource values are addressed.

Timber Resource Objectives

The primary objective is to produce wood fibre for sale as sawlogs, veneer logs, house logs, timber frame logs, poles, pulp or bioenergy fibre for use in manufacturing facilities.

Nak'azdli-Whut'en will ensure the value of timber products originating from the FNWL tenure area will be maximized by sorting for product end use during the processing phase of the harvest operation and enforcing the Close Utilization Standards summarized in Table 4.

Table 4: Timber Utilization Standards

Maximum Stump Height (measured from high point of ground)	30 cm
Minimum Diameter (outside the bark)at Stump Height (Lodgepole Pine)	15 cm
Minimum Diameter (outside the bark)at Stump Height (other species)	20 cm
Minimum Diameter (outside the bark)at Breast Height (Lodgepole Pine)	12.5 cm
Minimum Diameter (outside the bark)at Breast Height (other species)	17.5 cm
Minimum Top Diameter	10 cm
Minimum Log Length (log or slab)	3.0 m

Management of Non-Timber Resources

Non-Timber Forest Products (NTFP) refers to the collection or harvest of resources other than timber products for commercial, personal or traditional use. NTFP's often include the collection of plants, berries, mushrooms, tubers, nuts and seeds. Identification of a NTFP is often revealed during the consultation process with stakeholders that possess traditional land use knowledge. Research into historical land use and survival strategies of indigenous populations will also reveal traditional NTFP's, their use and environmental requirements for growth and reproduction.

Nak'azdli-Whut'en will ensure retention areas are located to preserve existing sites and where appropriate horticultural strategies will be implemented to develop new sites by targeting ecological suited areas for the cultivation of traditionally significant NTFP species.

Visual Quality

Scenic areas were established under the Forest Practices Code of British Columbia Act on or before October 24, 2002 and continued as a scenic area under section 180 (c) of the act. Scenic areas for the Fort St James District were identified in September, 2005 under section 7(1) of the Government Actions Regulation. Visual Sensitivity Classes were assigned to each scenic area to ensure that if the forest landscape is altered as a result of resource development the altered landscape would meet the description of the Established Visual Quality Objective as presented in Table 5.

Table 5: Established Visual Quality Objective and description.

Visual Quality Objective	Description
Preservation	Small in scale and hard to distinguish
Retention	Difficult to see, small in scale, natural in appearance
Modification	Easy to see, medium in scale, natural in appearance
Maximum Modification	Easy to see, large in scale, does not appear to be natural

Where cutblock and road development overlap an area with an EVQO, a Visual Impact Assessment (VIA) will be completed. The resulting development will incorporate those design elements that will enable the post-development visual landscape to meet the visual condition of the EVQO.

Biological Diversity

Biological diversity is addressed by the Forest Planning and Practices Regulation (FPPR) at the landscape level and at the block level in section 9.0 and 9.1 respectfully. At the landscape level the objective for wildlife and biodiversity is to carry out harvest operations both spatially and temporally in a manner that resembles natural disturbance patterns. At a stand level, the objective for wildlife and biodiversity is to retain wildlife trees and wildlife retention areas and coarse woody debris.

Development at a stand level within the FNWL will ensure that at least 3.5% of each cutblock and at least 7% of each cutting permit will be retained in wildlife tree retention areas. At a landscape level development will attempt to resemble natural disturbance patterns of the Natural Disturbance Types (NDT 3) that experience frequent stand initiating events.

Coarse woody debris will be retained in sufficient quantities so as to meet or exceed the requirements of section 68 of the FPPR.

Soils

The objective for the conservation of soils is to maintain the productivity and the hydrologic function of soils. Site level site plans for the FNWL will adopt as a minimum the default requirements of the FPPR section 35 for maximum allowable site disturbance limits and section 36 for maximum permanent access structures limits.

Areas that exhibit indications of unstable terrain will either be removed from the development area or have a terrain stability field assessment (TSFA) performed to identify the risk and consequence of a potential landslide. Recommendations to mitigate the impact of harvest operations and silviculture treatments on potentially unstable terrain will be incorporated into site level development plans.

Recreational Resources

Development within the FNWL will comply with section 70 of the FPPR which requires that primary forest activities (timber harvesting, silviculture treatments, road construction, maintenance and deactivation) do not damage or render ineffective a resource feature as defined in Section 5 of the Government Actions Regulation.

Cultural Heritage Resources

The Forest Act defines a Cultural Heritage Resource (CHR) as an object, a site or the location of a traditional societal practice that is of historical, cultural or archaeological significance to British Columbia, a community or an aboriginal people. An archaeological site is a CHR and is defined as any locality that exhibits physical evidence of the past activities of a person or a group of people, for which the application of scientific methods of inquiry (survey, excavation) are the main source of information. Traditional Use Sites (TUS) refer to any geographically defined site that has been used by one or more groups of people for certain types of activities.

The objective for cultural heritage resources is to identify and manage known CHR's and TUS's within the FNWL tenure area. Best management practices will include the use of archaeological predictive models to identify areas of high potential for the presence of CHR's and perform archaeological evaluations to identify new CHR's. All primary forest activities will be consistent with the recommendations of the Archaeological Impact Assessments (AIA) provided as a result of those evaluations.

Range

There are no range tenures currently established within or adjacent to the FNWL tenure area. Should a range tenure be established within or adjacent to the FNWL area, measures will be taken to mitigate the impact of removing or rendering ineffective a natural range barrier as a result of harvest operations and silviculture treatments.

Wildlife

The objective set for wildlife under the FPPR is to conserve sufficient wildlife habitat in terms of amount of area and attributes of those areas for; the survival of species at risk, the survival of regionally important wildlife species and the winter survival of specified ungulate species.

Nak'azdli-Whut'en is committed to ensuring sufficient wildlife habitat is available within the FNWL tenure area through the identification of important wildlife species and the habitat features required in order to maintain viable populations. Specific

management strategies will be implemented through the development of best management practices that will form the basis for site specific harvest plans and silviculture treatments.

There are no Wildlife Habitat Areas (WHA) or Ungulate Winter Ranges (UWR) established within or adjacent to the FNWL area. No mitigation strategy is required to address these features.

Water, Fish Habitat and Riparian Areas

Water resources consist of the streams, lakes and wetlands and those areas adjacent to riparian features. Section 8 of the FPPR states the objective for water, fish, wildlife and biodiversity within riparian areas is to conserve, at the landscape level, the water quality, fish habitat, wildlife habitat and biodiversity associated with those riparian areas.

The conservation and preservation of water quality, water quantity and fish habitat is of the utmost importance to Nak'azdli-Whut'en First Nations. Specific measures to protect riparian areas will meet or exceed the default requirements of the FPPR. Landscape level management of riparian features will monitor primary forest activities disturbance levels for individual watersheds within the FNWL management area to ensure a properly functioning hydrological cycle. Best Management practices will include additional lakeshore retention levels to protect spawning areas identified through the Fort St James LRMP process.

There are no Fisheries Sensitive Watersheds within or adjacent to the FNWL tenure areas. There are no Community Watersheds established within or adjacent to the FNWL tenure areas. No mitigation strategy is required to address these riparian features.

Silviculture Practices

Nak'azdli-Whut'en is committed to ensuring denuded areas are promptly reforested and basic silviculture objectives met by carrying out harvest methods and silviculture operations including seed collection, site preparation, artificial and natural regeneration, brushing, spacing and stand tending for the purpose of establishing a free-growing crop of commercially valuable species that are ecologically suited to the site.

Incremental silviculture treatments aimed at increasing the productivity of the land or the value of the timber products through intensive silviculture treatments such as commercial thinning, juvenile spacing, pruning and fertilization may also be employed depending on the economic viability of the treatment, approval of the stakeholders and the availability of financial resources.

The Chief Foresters Stocking Standards for the Prince George Forest Region will be adopted and applied to the appropriate Bio-Geo-Climatic Zone until such time that adaptive management refinements to address such issues as climate change have been proposed and approved in the Forest Stewardship Plan (FSP). The Chief Foresters Standards for the Use of Seed (as amended from time to time) will also be applied to activities associated with the establishment of a stand under section 29 of the Forest and Range Practices Act (FRPA).

Forest Health

The analysis of the FNWL Tenure Areas provided by the District Office in November, 2016 indicates there is approximately 1.3 million m^3 of dead Lodgepole Pine (Pli) within the FNWL Tenure Area. Pine stands that are moderately to severely impacted by the Mountain Pine Beetle (*Dendroctonus ponderosae*) (MPB) may still have economic value however some of these stands may have already degraded beyond the economic threshold for salvage and now represent a fire hazard.

A key component of the planned updated inventory is to assess the viability of salvaging the remaining MPB impacted stands. Stands will be assessed and prioritized based on a variety of criteria including but not limited to: access, present economic value, the demand for non-sawlog fibre, potential fire hazard, wildlife habitat values, impacts to riparian features, current stand composition, future fibre needs and other considerations such as social prerogative.

Future Reductions to the Land Base

Future reductions to the Timber Harvesting Land Base (THLB) as a result of road construction, aggregate extraction and integrated resource management are expected to be minimal with little to no impact on the productivity of the FNWL.

AAC Impacts

While an area based tenure may provide exclusive rights to harvest timber and manage the use and distribution of botanical products and other NTFP's, it also represents a finite resource that can be severely damaged by fire, weather events or infestation. It is for this reason that management must make every effort to ensure catastrophic events are avoided or at least minimized in scale by carefully considering how each force of nature interacts with the composition, arrangement and distribution of the stands of timber.

It is anticipated that the AAC will remain stable over time as natural stands are artificially regenerated immediately following harvesting with genetic plus seedlings in high density well-spaced stands.

Immediate harvest priorities will target dead pine stands to reduce the risk of wildfire. Harvest patterns will also attempt to create fire breaks between areas with a high fire hazard until such time the remaining dead stands can be removed and reforested.

Future harvest priorities will target oldest decadent stands first to reduce the risk of fire and infestation. Main haul roads will attempt to provide access to all areas while contributing to a fire hazard abatement strategy by providing fire breaks in strategic locations.

Botanical Forest Products

The availability of botanical forest products within the FNWL tenure area is not known at this time. It is expected that as we engage stakeholders, and proceed with the consultation process, the identification of medicinal plants and other NTFP's will be identified. Further research into individual species should yield a predictive model that can be used to identify sites where these species already exist or identify areas where horticultural treatments may be employed to encourage the existence and continued growth of significant plant species.

Consultation

Public Involvement

Nak'azdli-Whut'en First Nation will make ongoing efforts to inform and solicit input from the general public. Solicitation will take the form of newspaper advertisement, open houses, public meetings, participation in forestry forums, personal interactions and through our website.

Involvement in the planning process will be solicited through advertisement in the local newspapers and on the website.

First Nations Consultation

The Ministry of Forests, Lands and Natural Resource Operations (MFLNRO) are responsible for formal First Nations Consultations. As consultation processes tend to change over time the Nak'azdli-Whut'en First Nation will follow the most current Consultation/Information Sharing Process used in the Omineca Region.

Consultation will be completed for all authorizations within the FNWL area including: the Management Plan, license issuance and amendments, Forest Stewardship Plans and amendments, block and road development, Cutting Permit applications, Road Permit applications, Special Use Permits, Free Use Permits (if applicable) and Forestry License to Cut applications. Consultation timelines have

been set by the MFLNRO at a minimum of 60 days. When the Management Plan is completed there will be a communication Summary included as an Appendix.

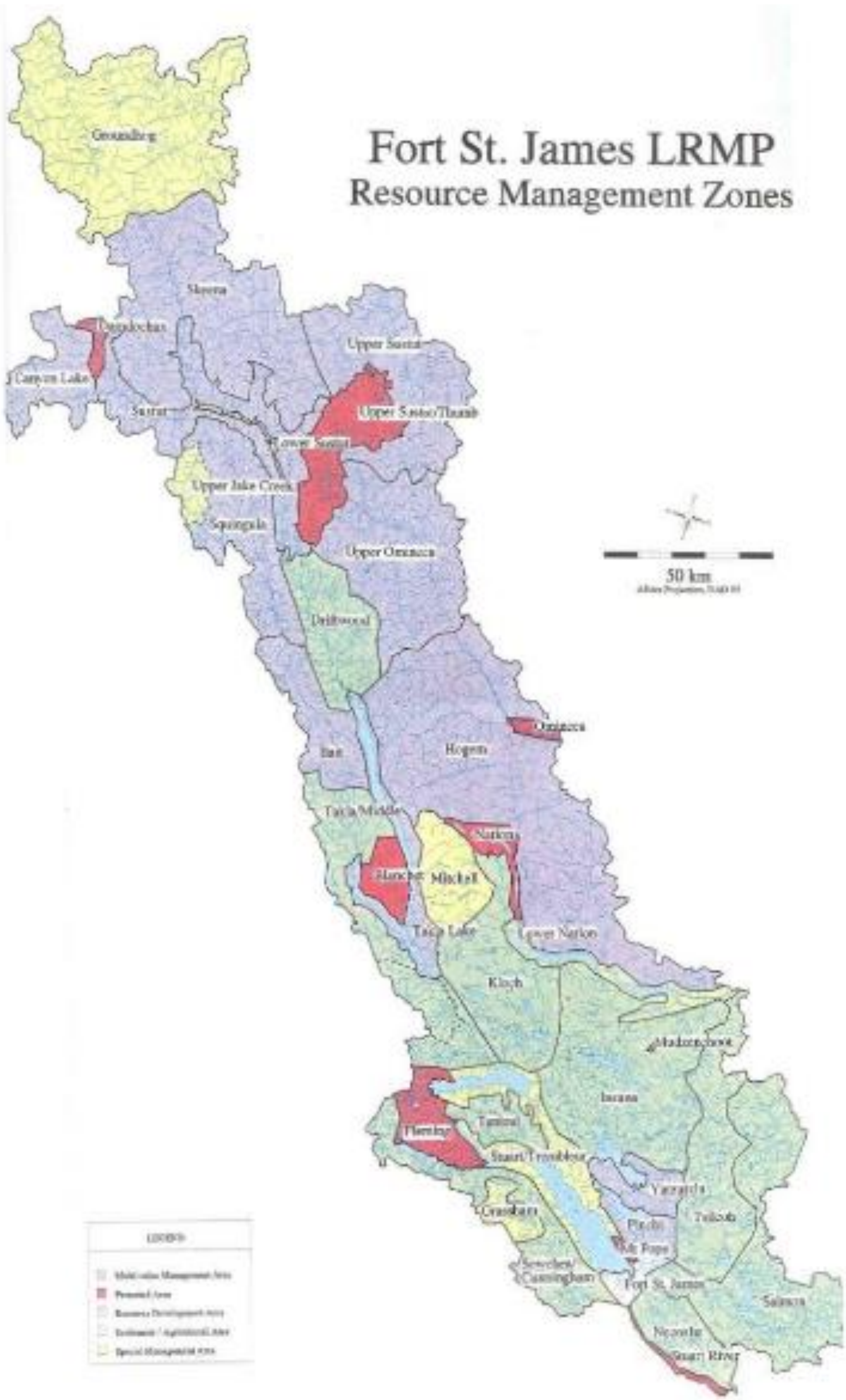
Stakeholder Information Sharing

There are numerous stakeholders that have interests that overlap the proposed FNWL area or are adjacent to these areas. A list of stakeholders that will be contacted directly for their input for all authorizations within the FNWL area is included in Table 6. As the above list changes over time it will be updated and kept as current as is possible.

Table 6: List of current stakeholders.

Salmon RMZ Area	Stakeholder I.D.	Name
Guide Outfitter	701188	
Trapline Holder	TR0714T001	
Trapline Holder	TR0714T003	
Trapline Holder	TR0714T004	
Trapline Holder	TR0714T005	
Inzana RMZ		
Guide Outfitter	701107	
Guide Outfitter	701117	
Guide Outfitter	701168	
Trapline Holder	TRO725T013	
Trapline Holder	TRO725T030	
Trapline Holder	TRO726T011	
Trapline Holder	TRO728T010	
Forest License	A18156	
	A18165	
	A40873	
	A77955	
	A78072	
Forest License to Cut	A79355	
	A80243	
	A86472	
	A86473	
	A87393	
Community Forest	K1D	
Rec. Sites	REC1035	
	REC1270	
	REC5801	
	REC1048	
Mineral Tenures	594522, 594529, 574800, 574799, 574798	
	561966, 561929, 505189, 505190, 518138, 518137, 518136, 518135, 510913, 518242, 503569, 503576	
	505331, 505313, 505330	
	598044, 598043, 596973	

Appendix 1


Fort St. James LRMP
Resource Management Zones
Upper Sustut
Lower Sustut
Upper Jake Creek
Upper Omineca
Driftwood
Hogem
Omineca
Mitchell
Takla Lake
Lower Nation
Fort St. James
Stuart River
50 km

Appendix 2

MUDZENCHOOT PROVINCIAL PARK

PURPOSE STATEMENT AND ZONING PLAN
Omineca Region 2005

Approved by:

Date: Aug. 4th 2005

Don Cadden,
Regional Manager
Environmental Stewardship Division
Omineca Region

Date: Oct. 31 2005

Nancy Wilkin
Assistant Deputy Minister
Environmental Stewardship Division

Mudzenchoot Provincial Park
Purpose Statement and Zoning Plan

This 644 hectare provincial park is located about 90 kilometres northwest of Fort St. James. The nearest road access is the Witch Forest Service Road off the Germansen Landing North Road.

Mudzenchoot Provincial Park is located in a high elevation area around Mudzenchoot Lake, south of Witch Lake. The park is characterized by a unique complex of high elevation grasslands, shrub meadows and wetlands and a portion of Mudzenchoot Lake.

Eight different non-forested, edaphic ecosystems were described in the Mudzenchoot Provincial Park Ecosystem Management Plan completed by Bio-Geo Dynamics Ltd in 2003. These included two rare and endangered dry grassland ecosystems, two upland shrub ecosystems and four wetland ecosystems. These distinct vegetation communities are surrounded by mixed Engelmann Spruce and Sub-alpine Fir forests. The *Dasthonia intermedia/Cladina rangiferina* natural plant community was Red-listed by the Conservation Data Centre in November 2004.

There are no public facilities provided at this provincial park.

Primary Role
The primary role of Mudzenchoot Provincial Park is to protect a unique complex of high elevation grasslands, shrub meadows and wetlands and to keep intact the present functioning of all components of the vegetation and aquatic complex.

Known Management Issues	Response
Undetermined impacts from cabin construction, firewood harvesting, horse use and angling by the guide outfitter.	Monitor and assess impacts. Issue park use permits for appropriate uses and activities.
Discourage public use	In order to protect the sensitive ecosystems present, recreational use of this park will not be promoted. Communicate the sensitivity of this park to adjacent resource managers.
Unauthorized access	A 2 - 4 metre wide rough trail has been cut from the north side of the outlet creek on the Witch Lake FSR. There is evidence of ATV use within the rare grassland ecotypes and wetlands adjacent to the outlet creek. As harvesting will inevitably occur to the park boundary develop an information and enforcement strategy to discourage use.
Mineral exploration on adjacent lands	Ensure adequate signing of park boundary to prevent unintentional trespasses.
Fire	High priority for fire suppression. All fires will be suppressed.
Introduction of non-native	There are no introduced species within this park. Adjacent

species	development (particularly roads) increases risk of introducing non-native species through roadside seeding or exploration reclamation activities. Develop Best Management Practices adjacent to the park which stresses need for seeding of native species only along roadsides.
Park expansion	Pursue addition of a small lake and corresponding rare plant communities to the south of the park to improve the integrity and connectivity of the ecosystem complex.

Zoning

Mudzenchoot Provincial Park has been zoned Special Feature to stress the significance of this vegetation community and its sensitivity to disturbance.

CONSERVATION

Representation		
• ecosection		Contributes minimally to the representation of the under-represented Babine Upland Ecosection. 3.7% of this ecosection is protected; Mudzenchoot contributes only 0.9% of the overall protected area representation of this ecosection.
• biogeoclimatic subzone/variant		Contributes minimally to the representation of ESSFmv3. 7% of this subzone is protected; Mudzenchoot contributes only 0.7% of the overall protected area representation of this subzone
Special Feature	X	Unique complex of high elevation grasslands, shrub meadows and wetlands.
Rare/Endangered Values	X	Two rare and endangered dry grassland ecosystems; two blue-listed vascular plants: two coloured sedge (*Carex bicolor*) and tall Jacob's ladder (*Polemonium caeruleum*)
Scientific/Research Opportunities		

RECREATION

Representation:
- backcountry
- destination
- travel corridor
- local recreation

Special Opportunities	
Education/Interpretation Opportunities	No on-site messaging should be considered

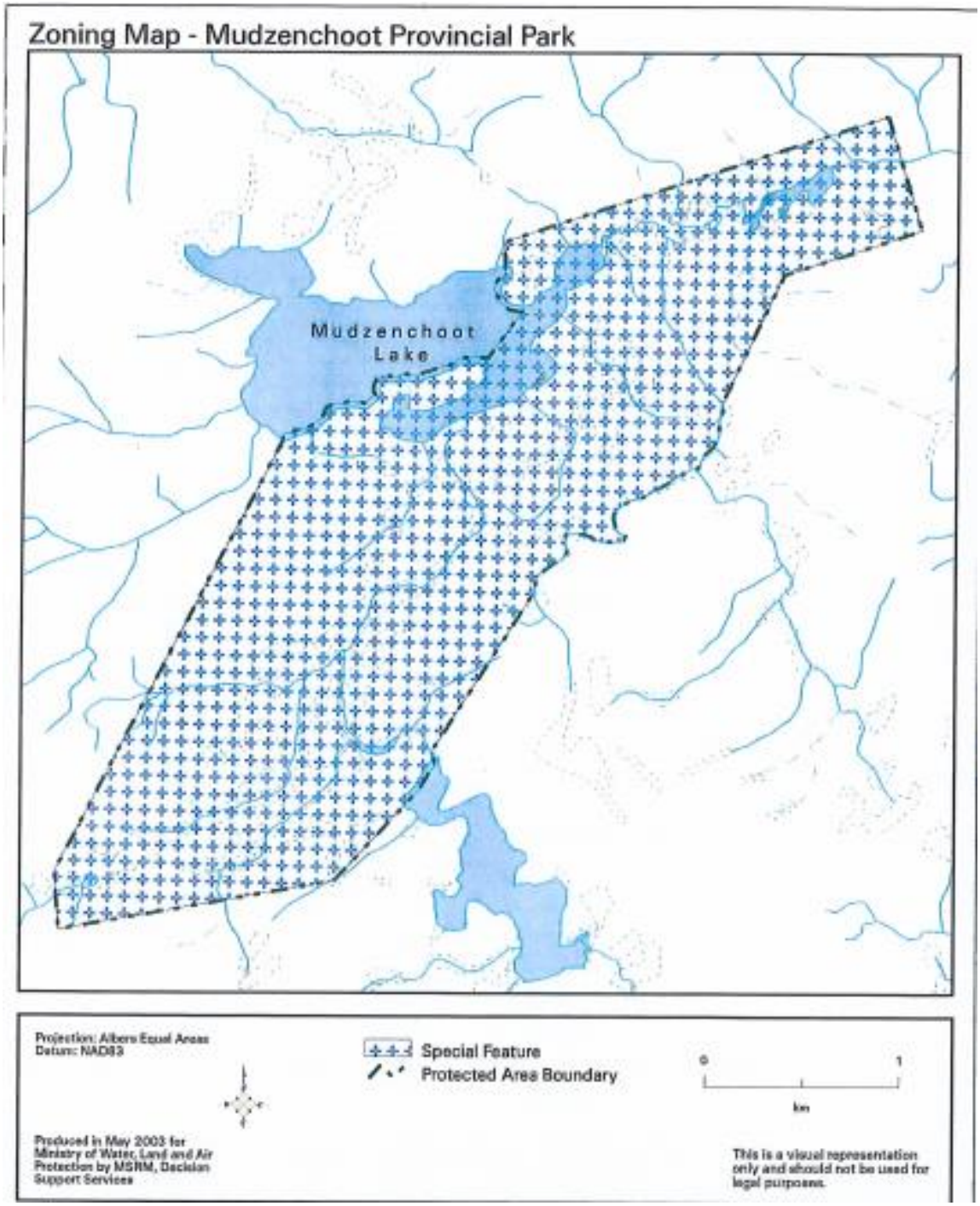
CULTURAL HERITAGE

Representation	unknown
Special Feature	unknown

OTHER MANAGEMENT CONSIDERATIONS

Other Designations	
Relationship to Other PAs	Other protected areas near Mudzenchoot Protected Area include Mount Pope, Nation Lakes, Rubyrock Lake and

		Stuart River provincial parks.
Co-operative Management Arrangements		
Partnerships		
Vulnerability		The Conservation Risk Assessment Process identified 2 risk factors (the shape, and the size of the park) for the park and rated them as moderately significant. Two stressors/threats were identified for the park: horse use and exotic species/potential. Both were rated as low significance.
Relationship to Other Strategies	X	Recommended for protected area status by the Fort St. James Land and Resource Management Plan in 1999
Area:		644 hectares
Date of establishment:		January 25, 2001.


Zoning Map - Mudzenchoot Provincial Park
Mudzenchoot Lake
Projection: Albers Equal Areas
Datum: NAD83
Special Feature
Protected Area Boundary
0
1
km
Produced in May 2003 for Ministry of Water, Land and Air Protection by MSRM, Decision Support Services
This is a visual representation only and should not be used for legal purposes.

Appendix 3

forest ecosystem solutions ltd.

April 5, 2016

To: John Pousette, Mike McLachlan MFLNRO
From: Antti Makitalo, Forest Ecosystem Solutions Ltd.
RE: Nak'azdli FNWL Timber Supply

This memo provides basic information on the analysis of candidate parcels to form the Nak'azdli First Nations Woodland Licence within the Fort St. James Natural Resource District. Note that all the information presented in this report is based on assumptions and land base netdown used in the Prince George TSA Type 4 Silviculture Analysis with one exception: the old growth retention objectives were derived from the Order Establishing Provincial Non-Spatial Old Growth Objectives (provincial old growth order) with no draw-down for low biodiversity emphasis option (BEO) landscape units. The analyzed parcels are shown in Figure 1.

Two scenarios were completed using the land base configuration described below: the Base Case (Scenario 1) and Scenario 2. Scenario 1 employed assumptions described above while Scenario 2 removed all deciduous leading stands from the timber harvesting land base (THLB) and delayed harvest of all age class 4 and5 pine leading stands with more than 50% of mountain pine beetle (MPB) attack (death) for 20 years. This delay effectively meant that these stands broke down in the timber supply model and regenerated to a yield curve consisting of mature residual trees from the previous stand and naturally regenerated young trees. In some cases, advanced regeneration may be present as well.

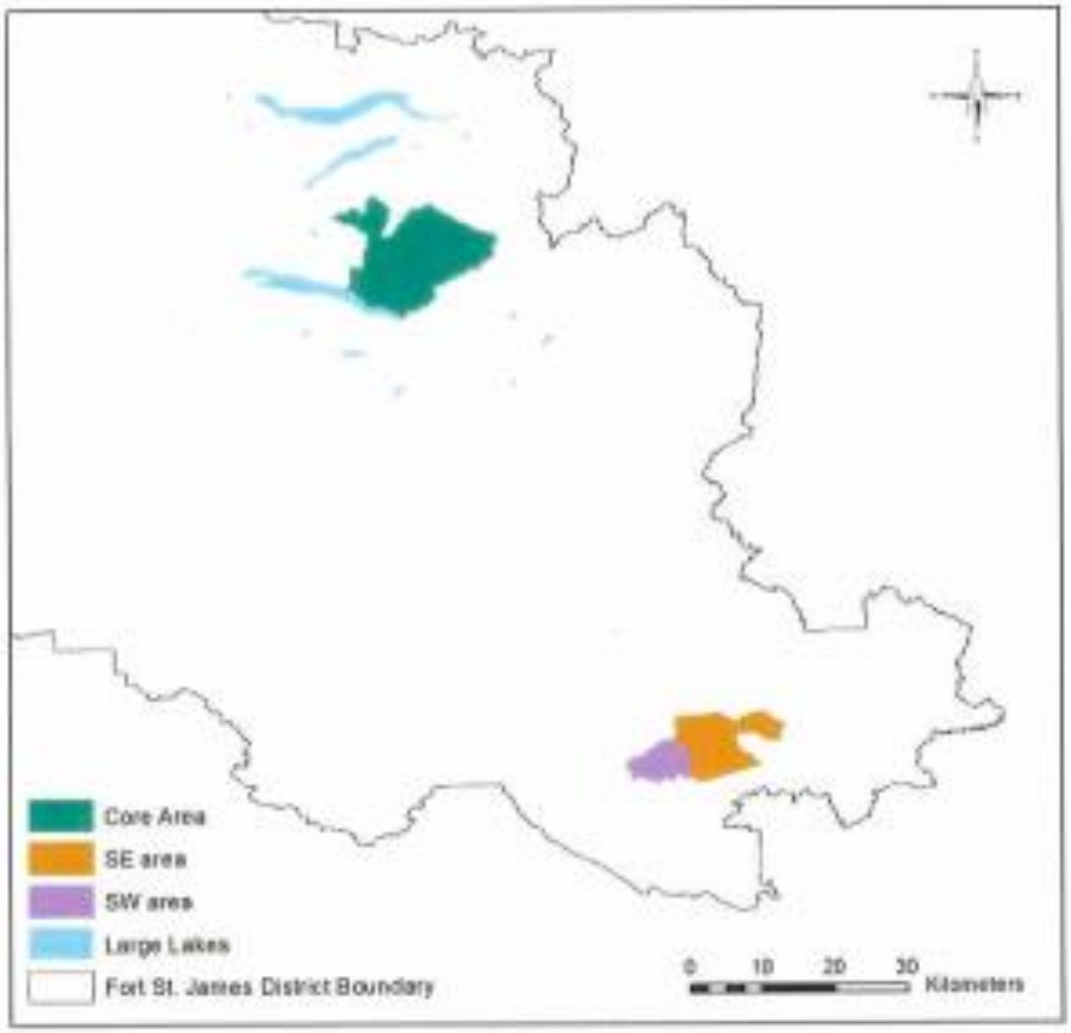


Figure 1: Analyzed parcels

1 Area and Site Productivity

The scenario areas are summarized in Table 1. The THLB for the Base Case in the analysis file is 24,494 ha with the mean annual increment around 4.16 m^3/ha /yr corresponding with the projected long range sustained yield (LRSY) of 101,992 m^3 per year. The THLB for Scenario 2 in the analysis file is 23,979 ha with the mean annual increment around 4.15 m^3/ha /yr corresponding with the projected long range sustained yield (LRSY) of 99,539 m^3 per year.

LRSY depicts the theoretical long-term maximum harvest level for the parcel in the absence of any land base constraints and non-recoverable losses.

Table 1: Area summary

Scenario	Total Area (ha)	CFLB (ha)	NHLB (ha)	THLB (ha)	LRSY (m^3/yr)	MAI (m^3/ha/yr)
Base Case	31,087	26,997	4,503	24,494	101,992	4.16
Scenario 2	31,087	26,997	5,018	23,979	99,539	4.15

2 Age Classes and Yield Types

Figure 2 shows the age class distribution of the candidate area by yield type. Yield types are future managed stands (age 0 to 15), existing managed stands (age 16 to 25) and natural stands; natural stands are in 3 different categories: MPB severe attack, MPB mild attack and no attack. Severe attack is defined as >50% of all trees dead.

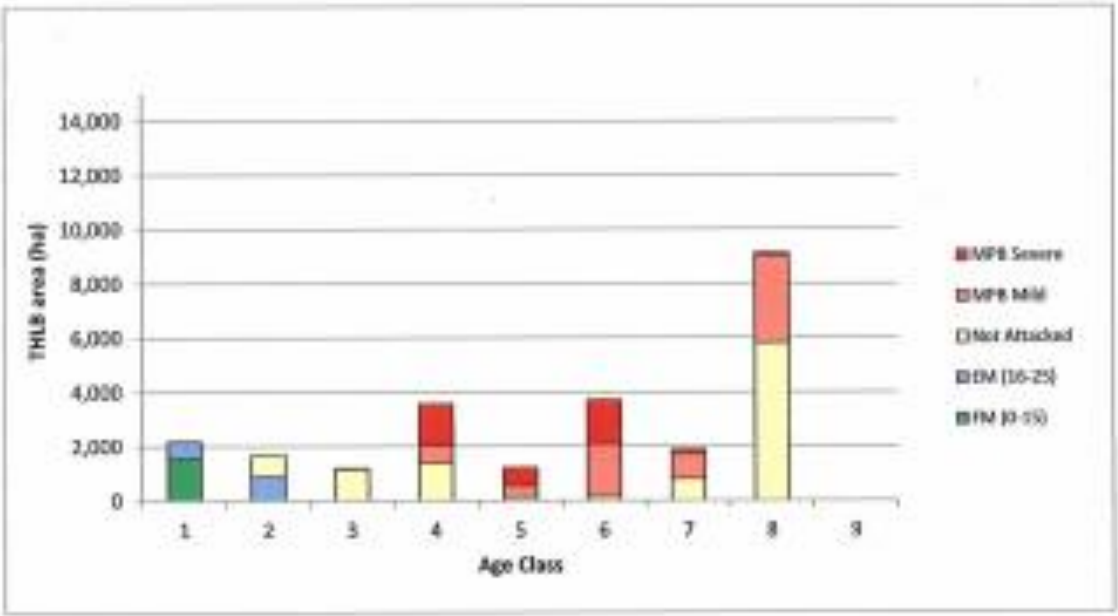


Figure 2: Age class distribution by yield type, Base Case

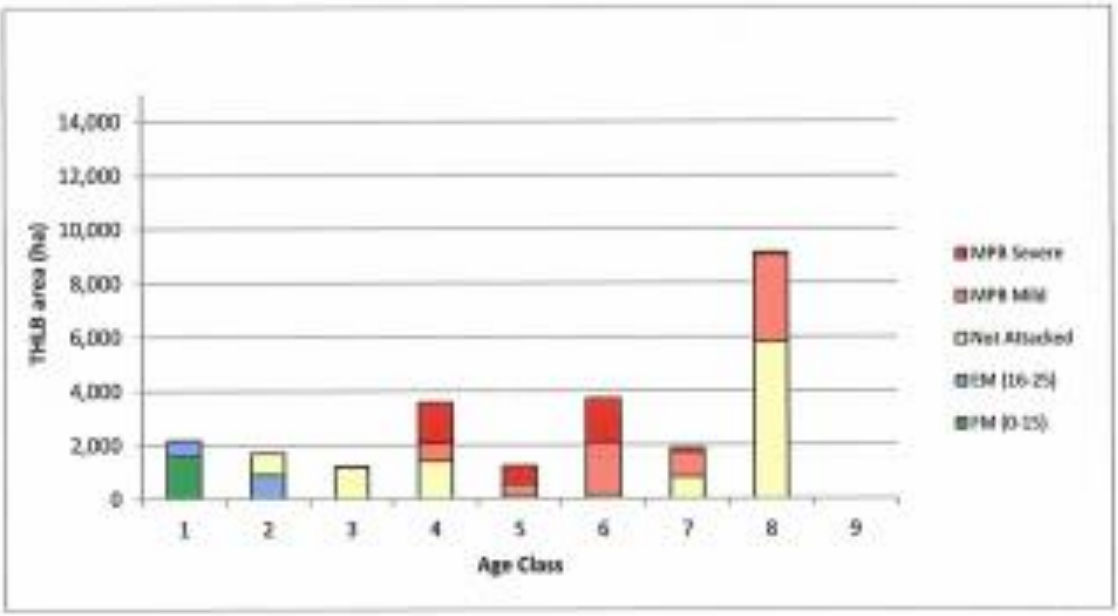


Figure 3: Age class distribution by yield type, Scenario 2

3 Timber Supply Analysis

3.1 Base Case

For the Base Case, we first determined the approximate long-term harvest level (LTHL). We then set the mid-term harvest level as high as possible. The short-term harvest level was also set as high as possible subject to the already established mid and long-term harvest levels.

3.1.1 Results

Figure 4 presents the harvest forecast for the base case. The initial harvest level of 143,275 m^3 per year was maintained for the first 5 years, while the mid - term harvest level of 75,155 m^3 lasted until year 85. At year 86 the harvest can be elevated to 83,645 m^3 per year. The long-term harvest level of 86,725 m^3 per year is reached at year 145.

Figure 5 illustrates the predicted total growing stock development for the base case (shown for 400 years). As shown in Figure 5, there are three pinch points in the timber supply for this area; at year 65, year 130 and at year 270. The merchantable growing stock is almost entirely depleted at the first two pinch points. This is reflected in Figure 6 (shown for 250 years only); the stands are harvested at younger ages around the two first pinch points.

Figure 7 illustrates the predicted harvest by volume per ha class while Figure 8 and Figure 9 show the predicted harvest by yield type and species.

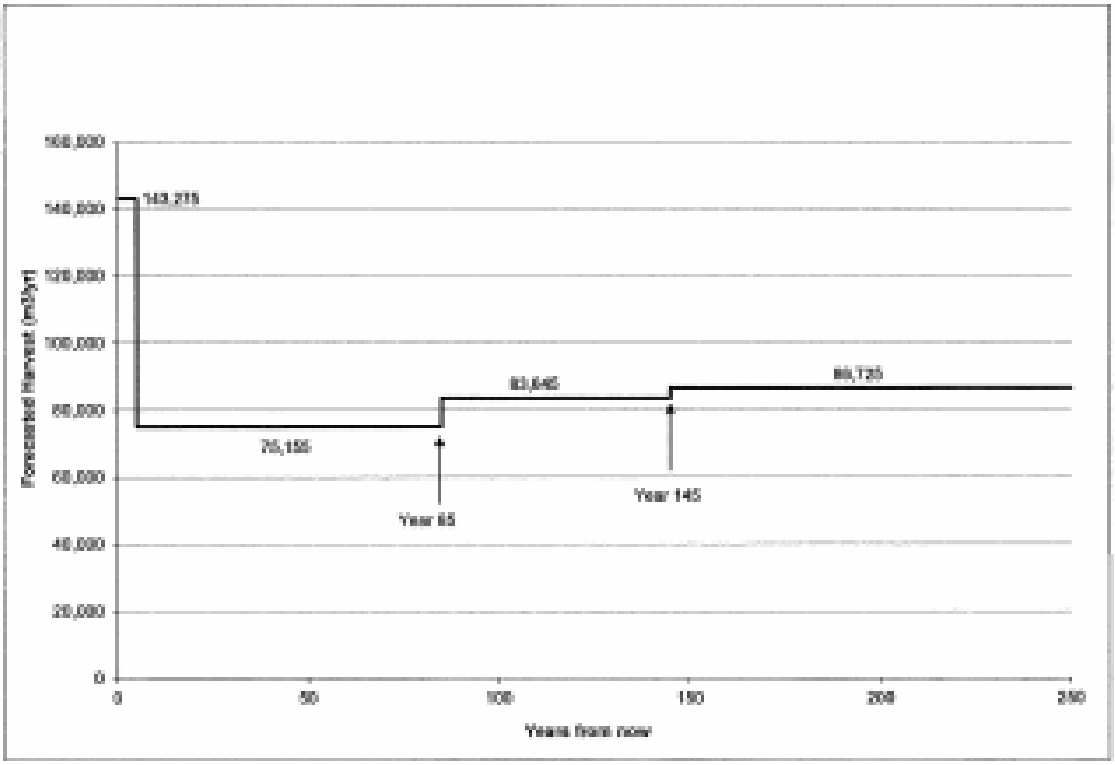


Figure 4: Timber supply forecast, Base Case

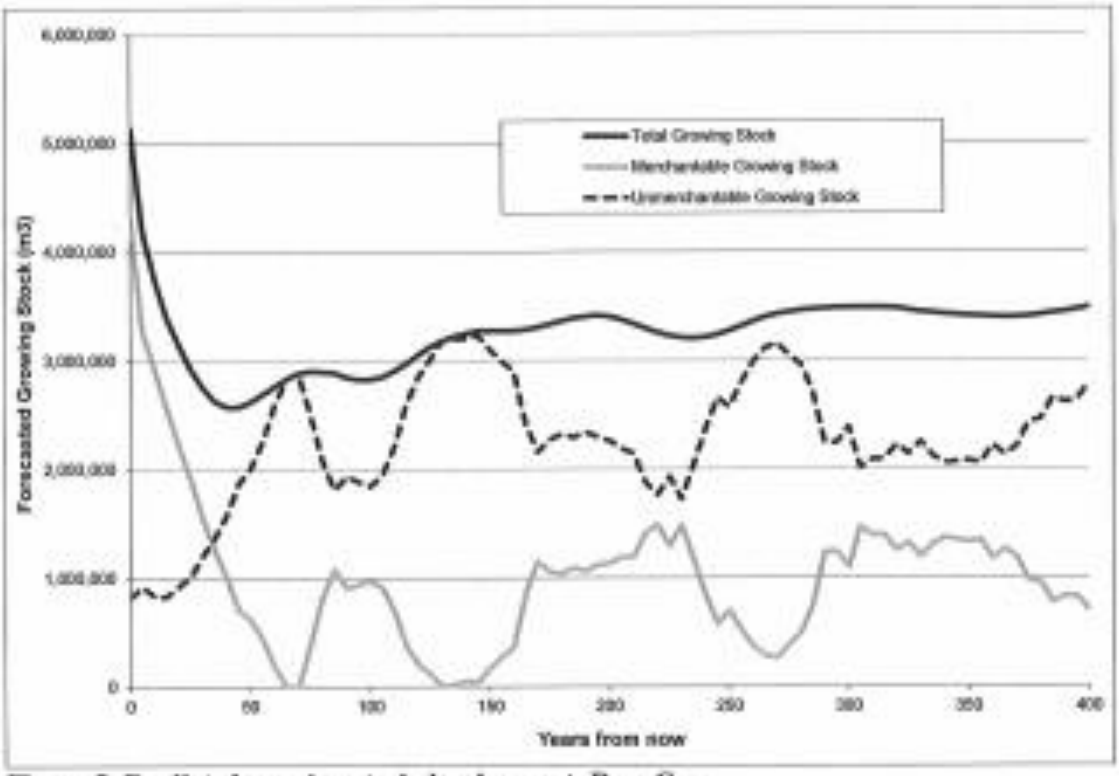


Figure 5: Predicted growing stock development, Base Case

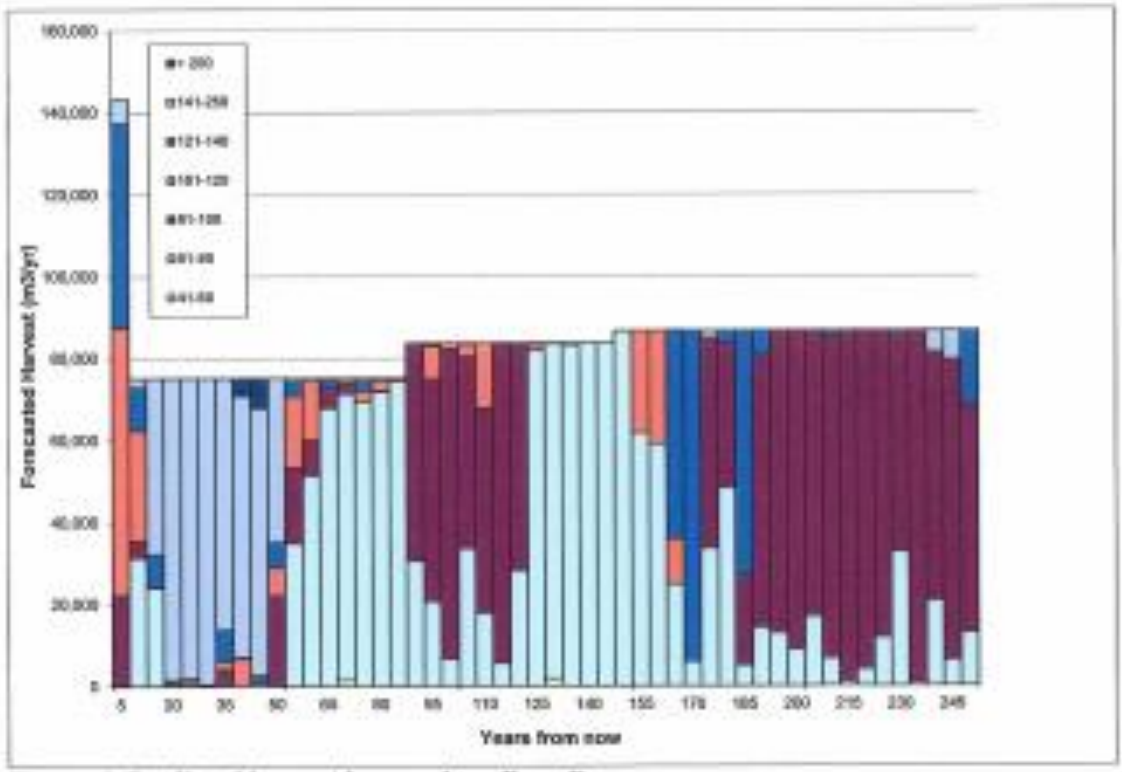


Figure 6: Predicted harvest by age class, Base Case

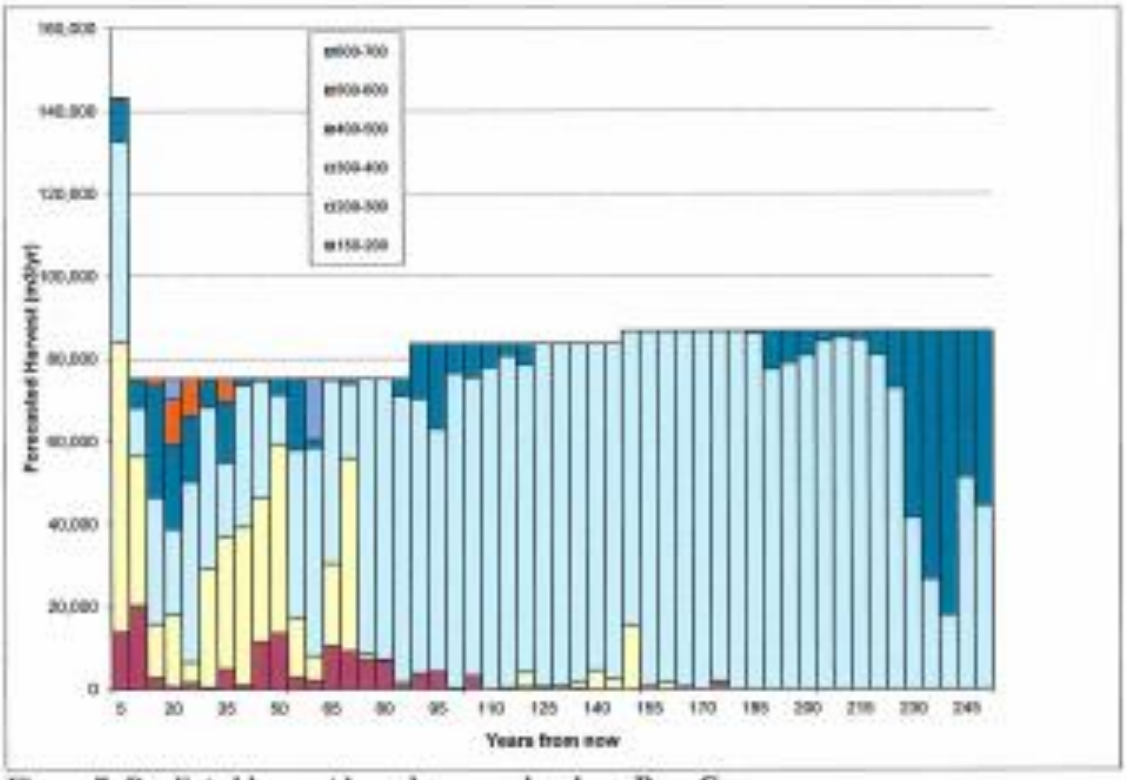


Figure 7: Predicted harvest by volume per ha class, Base Case

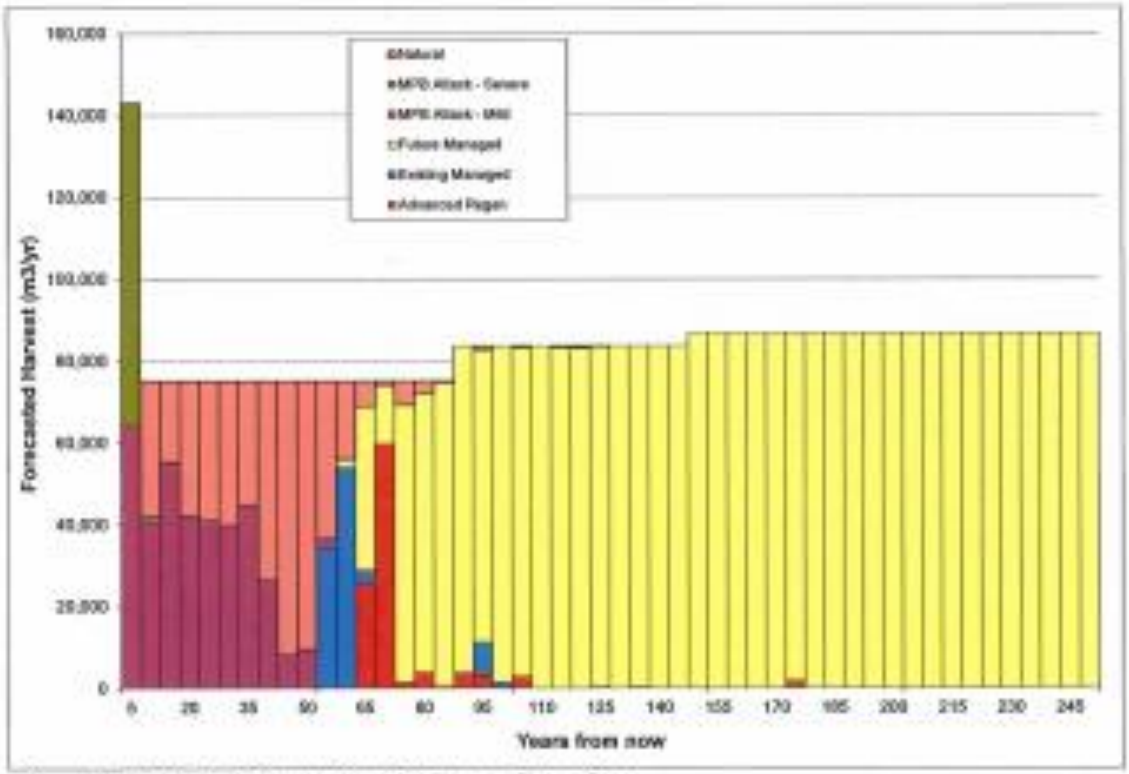


Figure 8: Predicted harvest by yield type, Base Case

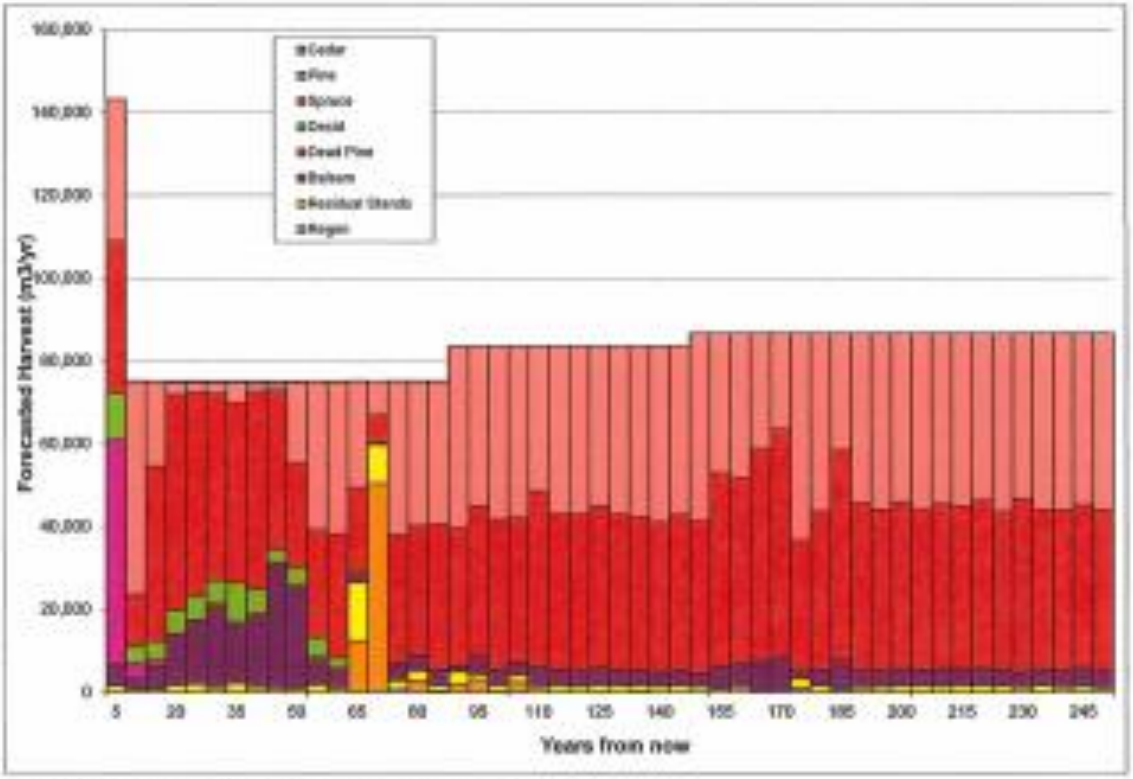


Figure 9: Predicted harvest by species, Base Case

3.2 Scenario 2

For Scenario 2, we first determined the approximate long-term harvest level (LTHL). We then set the initial harvest level at 80,000 m^3 per year for the first 5 years and determined the mid-term harvest level subject to the short and long-term harvest levels.

3.2.1 Results

Figure 10 presents the harvest forecast for Scenario 2. The initial harvest level of 80,250 m^3 per year was maintained for the first 5 years, while the mid - term harvest level of 75,175 m^3 can be maintained until year 85. At year 86 the harvest can be elevated to 80,150 m^3 per year. The long-term harvest level of 84,480 m^3 per year is reached at year 145.

Figure 11 illustrates the predicted total growing stock development for the base case (shown for 400 years). As shown in Figure 11, there are three pinch points in the timber supply for this area; at year 65, year 130 and at year 270. As in the Base Case, the merchantable growing stock is almost entirely depleted at the first two pinch points. This is reflected in Figure 12 (shown for 250 years only); the stands are harvested at younger ages around the two first pinch points.

Figure 13 illustrates the predicted harvest by volume per ha class while Figure 14 and Figure 15 show the predicted harvest by yield type and species. Note the significant harvest of yield type "advanced regen" between years 71 and 80 (Figure 14). This yield type depicts the combined harvest of residual stands and advanced regeneration as seen in Figure 15.

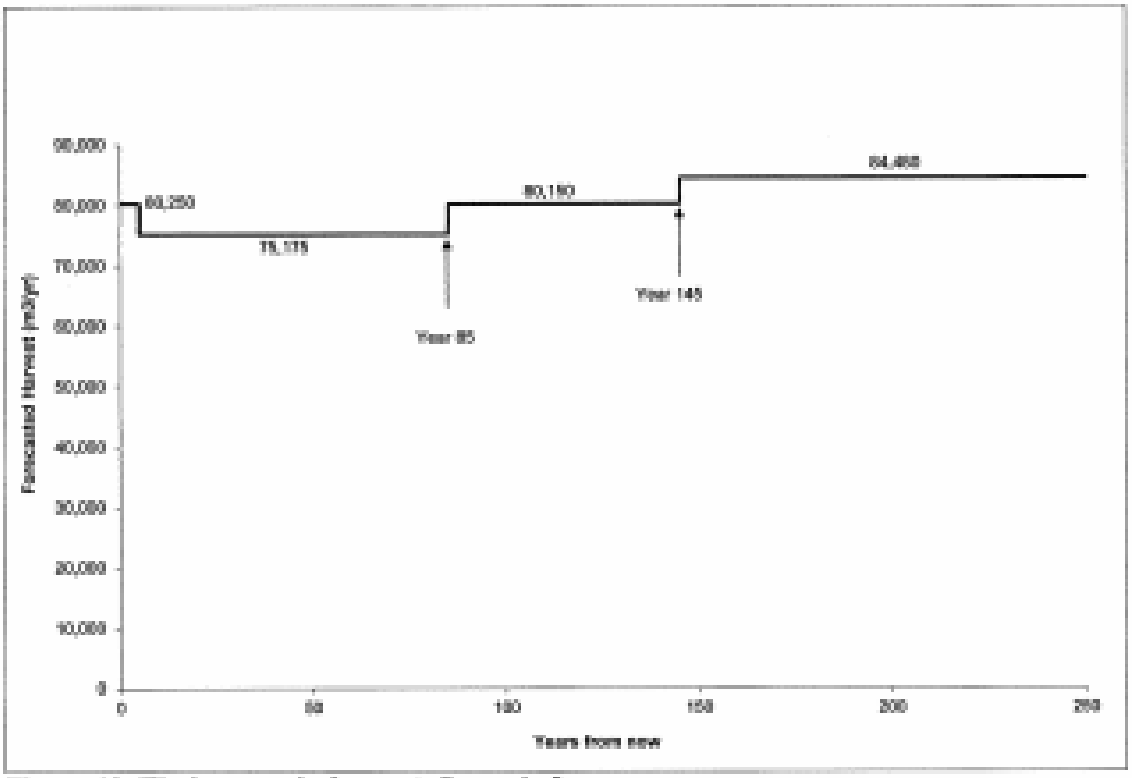


Figure 10: Timber supply forecast, Scenario 2

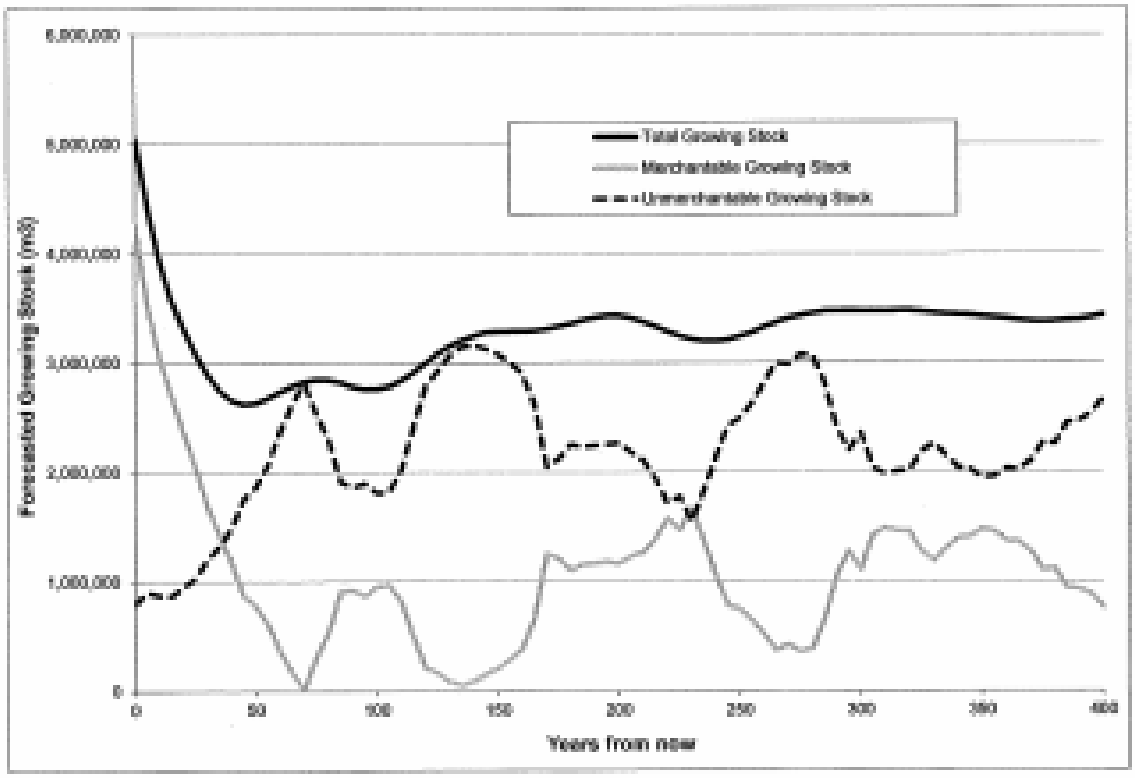


Figure 11: Predicted growing stock development, Scenario 2

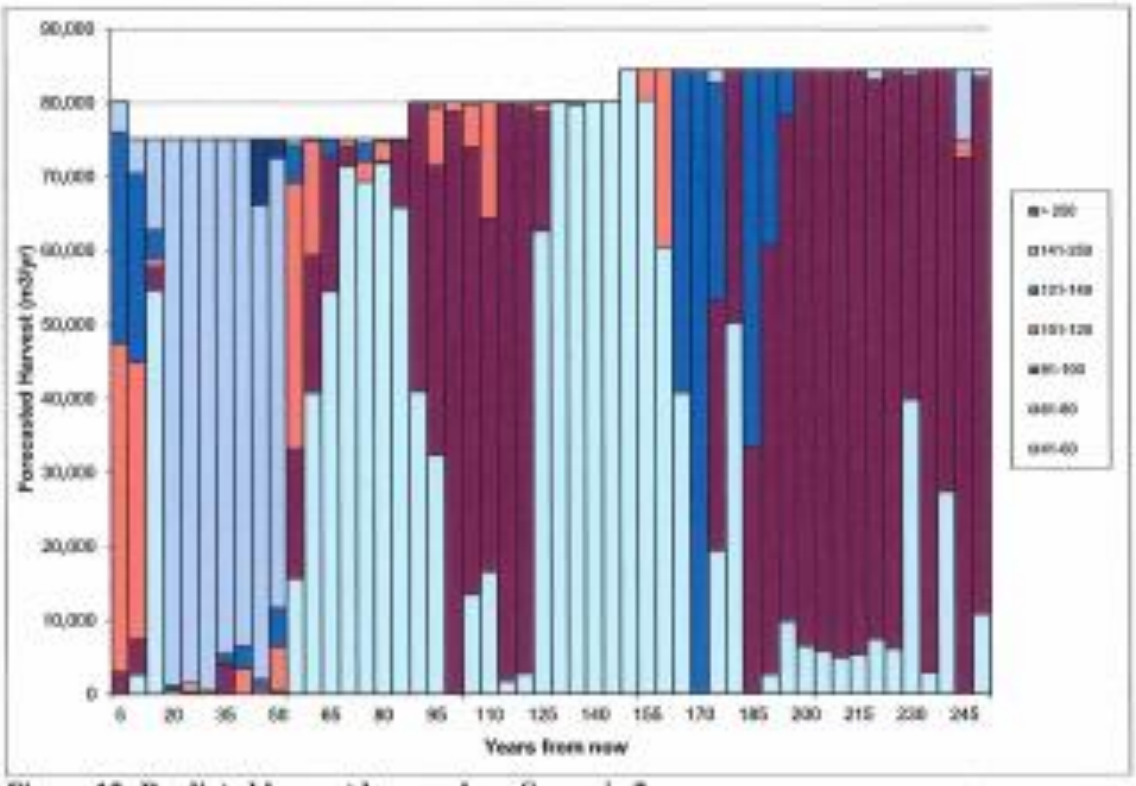


Figure 12: Predicted harvest by age class, Scenario 2

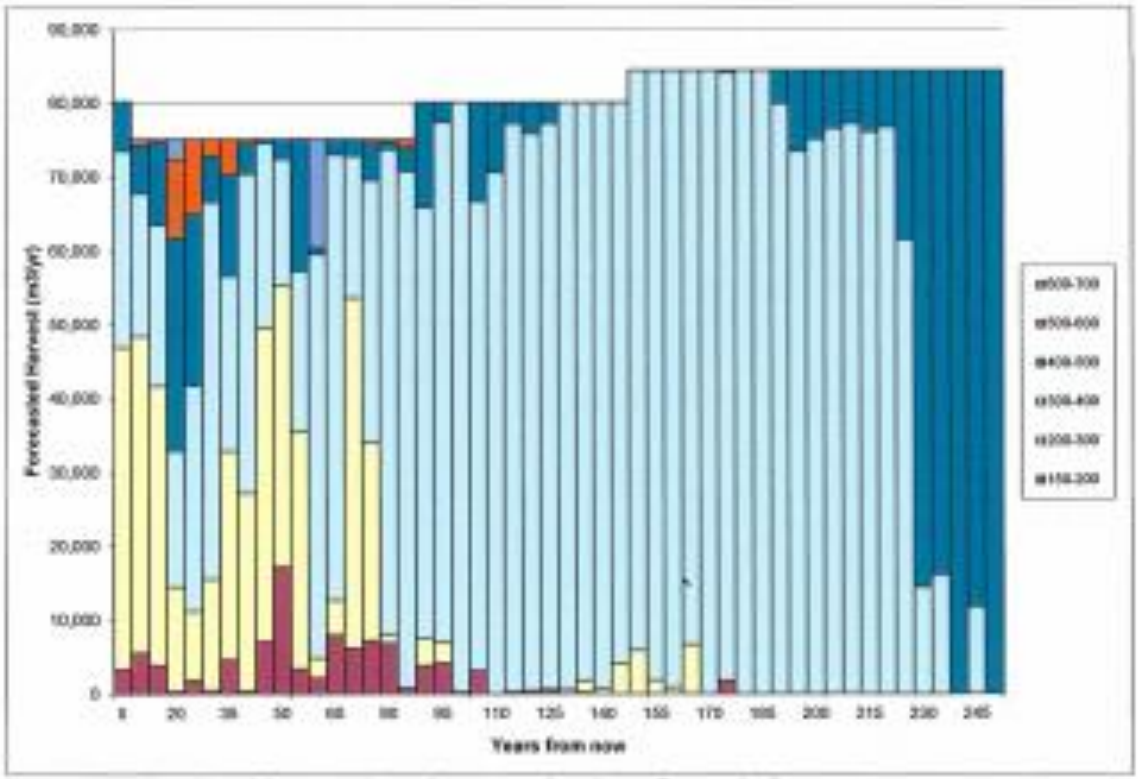


Figure 13: Predicted harvest by volume per ha class, Scenario 2

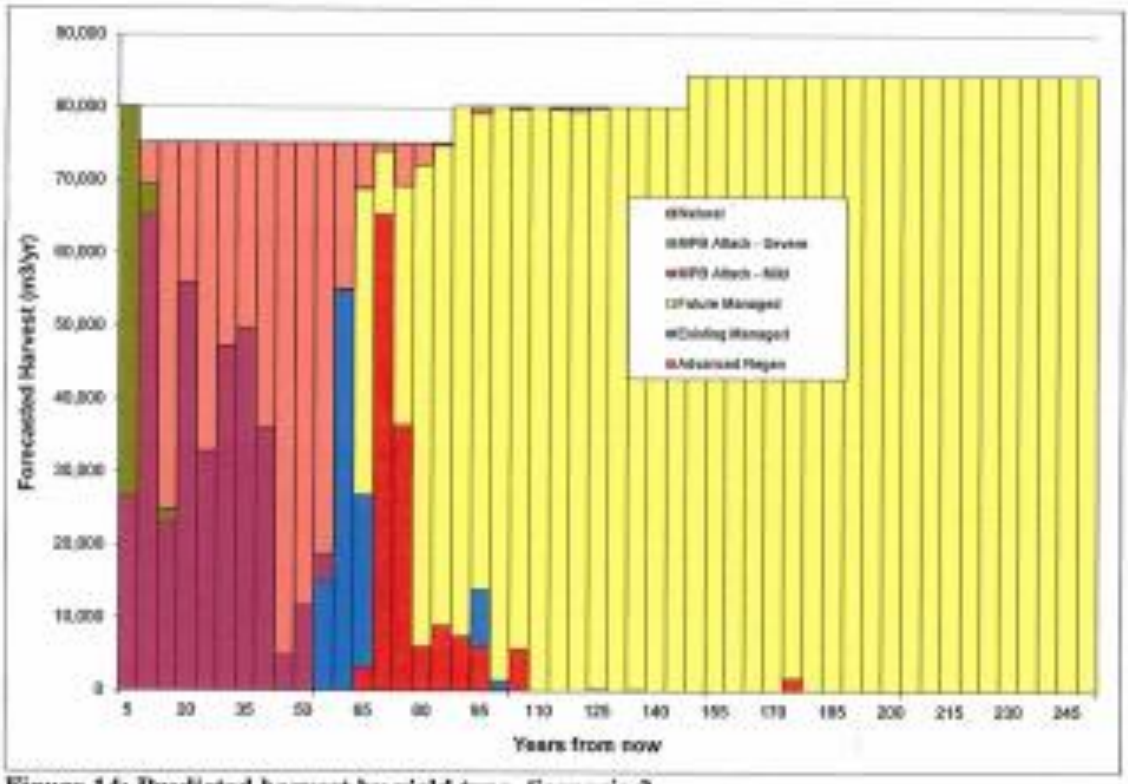


Figure 14: Predicted harvest by yield type, Scenario 2

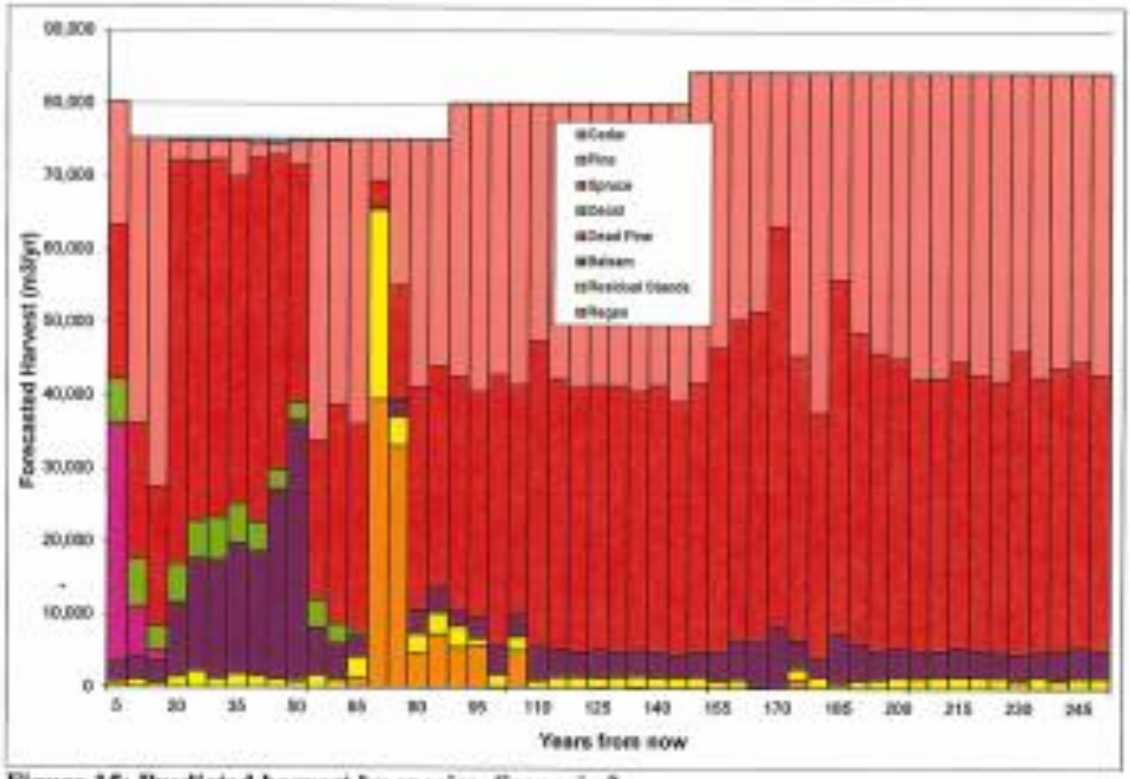


Figure 15: Predicted harvest by species, Scenario 2

If you have any questions regarding the above analysis, please call or email.

Yours truly,

Antti Makitalo, RPF

Nak'azdli-Whut'en Application for a Woodland License Agreement

Appendix 4

NFNWL Content Maps

These maps may be downloaded from the following website:

Or

Viewed in person at the NDC Office located at 156 Lower Road, Fort St James, BC

Or

Viewed in person at the Resource Office located at 285 Kwah Road, Fort St James, BC

Or

Viewed in person at the Band Office located at 289 Kwah Road W., Fort St James, BC

Appendix 5

NFNWL Timber Supply Maps

Appendix 6

NFNWL Archaeological Potential Maps