

Island Forests Forest Management Plan Volume I



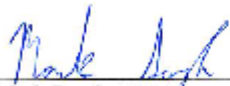
Ministry of Environment
Forest Service - November 2015

Background Information for the period of 1999 - 2012

Forest Management Plan – Volume I

Background Information
1999 to 2012

I hereby certify that I have prepared this FMP – Volume I to the best of my professional skill and judgment in accordance with the requirements of the draft Forest Management Planning Standard.



Mark Doyle, RPF

Nov. 3 / 15
[date]

I recommend that this forest management plan document be approved for implementation and certify that it has been prepared in accordance with the requirements of the draft Forest Management Planning Standard, and relevant policies and obligations. I also certify that this forest management plan document has been prepared in accordance with the approved standards of other applicable codes.

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**FOREST MANAGEMENT PLAN - VOLUME I
ISLAND FORESTS
Ministry of Environment, Forest Service**

Background document covering 13-year period from April 1, 1999 to March 31, 2012

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Executive Summary

Twenty-year Forest Management Plans (FMPs) assist in maintaining a balance between competing interests while promoting the maintenance of habitat and the sustainability of forest development and support the Government of Saskatchewan's Plan for Growth.

There is no single Forest Management Agreement (FMA) holder responsible for the development of a FMP for the Island Forests. Therefore, the Ministry of Environment Forest Service is developing one. The Island Forests are comprised of the Canwood, Nisbet, Fort-a-la-Corne, and Torch River Provincial forests, located in north-central Saskatchewan. The total area of these four provincial forests is approximately 226,571 ha. Forest operations are undertaken by small independent operators who make the forest sector their livelihood.

There are several considerations that have led to the decision of the Forest Service to proceed with the development of the Island Forest FMP in support of the province's Plan for Growth. First, Integrated Land Use Plans have recommended that FMPs be prepared for both the Nisbet and Fort-a-la-Corne Provincial Forests. Second, there is a need to provide strategic direction for forest management activities in the Island Forests given that annual forest operation by small independent operators continue to occur. These operations need direction to consider aspects of ecosystem-based management, the application of natural forest patterns on the landscape, the potential impacts of climate change and other factors affecting forest health and productivity. Third, the benefits of the Island Forests are many, diverse and extend beyond the harvest of timber.

The ministry values the input of local stakeholders, First Nations and Métis communities and the general public. Their input is critical to the development of the FMP and in helping to identify the values and benefits, economic or otherwise, provided by the Island Forests. The final product of the FMP process (Volume III) will strive to promote the sustainable use and development of the forest while maintaining the benefits enjoyed by all forest users. In league with the Government of Saskatchewan's long-term plan for growth, a proven sustainable forest land base with resolved land use conflicts promotes responsible forest management, and will benefit local forestry businesses not only today, but for many decades to come. Saskatchewan's growth and prosperity will depend on how well we plan for and utilize our natural resources, apply expert knowledge and spur innovation. Saskatchewan's forest industry offers the potential for innovation, economic growth and employment.

FMPs evaluate the current state of forest resources and conduct sustainability analyses to determine the harvest volume schedule for a 20-year timeframe. Sustainability analyses are assessed for a 200-year horizon, which approximates two rotation periods for commercial boreal mixed wood species. FMPs are, generally, revised after 10 years so that they may account for changes in the forest land base. The results of the Harvest Volume Schedule (HVS) are used to prepare a spatial tactical plan that, in turn, guides operating plans.

An FMP process consists of three primary steps, typically, undertaken during a two-year period:

1. Volume I compiles background information on the forest area from the past planning period. Public engagement and consultation with the Aboriginal communities is part of this process.
2. Volume II is a compilation of staged deliverables that include a digital planning inventory, forest development report, Silviculture Ground Rules (SGRs) and transition rules, identification of Values, Objectives, Indicators and Targets (VOITs), Forest Estate Modeling (FEM) assumption document and a FEM report. A FEM report determines the HVS - the sustainable volume of timber that can be annually harvested during the 20-year term.
3. Volume III provides a tactical plan of how the HVS will be spatially and temporally sequenced during the 20-year period and provides the strategic direction in how forest management activities will be undertaken while considering other values and forest users.

The Forest Service circulated the FMP Volume I document for a public review period and visited local communities to obtain input from residents interested in the planning process. The Forest Service also worked closely with both First Nation and Métis communities in the vicinity of the Island Forests, not only to meet the duty to consult requirements, but also to encourage local economic development activities in forestry. Local stakeholder groups were also consulted to determine important values to consider in the FMP process. Excerpts of the public engagement meetings are provided in section 6 of this document.

This document, the 20-year FMP Volume I for the Island Forests, provides relevant background information to the public about the Island Forests, and addresses the following topics:

- Provincial policies, codes, regulations and standards related to forestry;
- Associated resource management plans;
- Strategic business development reports;
- Biophysical description;
- Description of licensees;
- A historical review;
- Community and social profiles;
- Economic profile;
- Current forest condition;
- Natural disturbances;
- Other land uses and values;
- Identified issues and concerns;
- Forest management activities; and
- Public engagement session summaries.

The Island Forests provide a wide range of economic and social benefits to residents of Saskatchewan. These include recreational activities such as hiking, skiing, mountain biking,

snowmobiling, ATV use, hunting and fishing. The forest also provides many local First Nation and Métis peoples with opportunities to undertake traditional use activities. In addition to timber for local forestry companies the Island Forests also contain mineral resources such as diamonds and aggregates. Information on these subject areas is provided in the section 3.3 describing other land uses and values.

Natural disturbances have significant impacts in the Island Forests. Section 4.1 provides an update of these disturbances and the FMP-Volume III will provide the strategies the ministry can employ to mitigate undesirable impacts.

The ministry prepared a new Saskatchewan Forest Vegetation Inventory in 2007 for all the Island Forests. Currently, there are 177,828 hectares (89%) of the Island Forests available as Crown forest land capable of growing merchantable trees. The primary forest cover types are jack pine and trembling aspen, most of which exist in an immature to mature state. Further descriptions, maps and details are provided in section 4.0.

Anticipated challenges within the Island Forests include the threat of forest fires and their spread to adjacent properties and communities. Complicating this challenge is the uncertainty associated with climate change and the impact it may have on fire behavior and forest productivity in general. To help understand the implications of the challenge, the Forest Service contracted research scientists at the Saskatchewan Research Council (SRC) to work with the planning team on forward looking modeling exercises, which can influence best management practices to mitigate potential impacts of climate change on productivity of the Island Forests and potential natural disturbance patterns.

The ministry is working to quantify the extent of the dwarf mistletoe issue and to develop a strategic approach to reducing the future impact of this forest pest. Also, the ministry is working with Alberta to contain the spread of the mountain pine beetle in the boreal forest as mountain pine beetle poses a significant threat to the jack pine forests within Saskatchewan, including those of the Island Forests.

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List of acronyms used in this document

- FMP - Forest Management Plan
- FMPD - Forest Management Planning Document
- FNIFMI – First Nations Island Forests Management Inc.
- FPP - Forest Product Permit
- HVS - Harvest Volume Schedule
- IFLUP - Integrated Forest Land Use Plan
- NSR - Not Sufficiently Regenerated
- OSB - Oriented Strand Board
- PESP - Permanent Ecological Sample Plot
- PFT - Provincial Forest Type
- RAN - Representative Areas Network
- SFM - Sustainable Forest Management
- SFVI - Saskatchewan Forest Vegetation Inventory
- SR - Sufficiently Regenerated
- SRC - Saskatchewan Research Council
- TSL - Term Supply Licence
- TSP - Temporary Sample Plot

1.0 Introduction

The Ministry of Environment Forest Service has been working to develop a 20-year forest management plan (FMP) for the Island Forests in north-central Saskatchewan. These forest areas are unique in the sense that they are not part of a licence area, but rather consist of a number of smaller detached parcels of provincial forest in and around Prince Albert. Forest operations in the Island Forests are undertaken by six term-supply licence holders and small independent operators who acquire forest products permits. Details of annual forestry operations are contained within the Island Forests Operating Plan.

FMPs are prepared for forest areas in Saskatchewan and establish the strategic direction of forest resource management for a 20-year timeframe. An FMP process consists of three primary components which are typically developed during a two-year period. The first component, namely Volume I, is a compilation of background information on the forest area over the previous planning period and forecasts into the next operating year. The second component, Volume II, is a compilation of staged deliverables and includes a digital planning inventory, a forest development report, Silviculture Ground Rules (SGR) and transition rules, Values Objectives Indicators and Targets (VOIT) for sustainable forest management (SFM), Forest Estate Modeling (FEM) assumption document and a FEM report. A forest estate modeling report determines the Harvest Volume Schedule (HVS), which is the sustainable volume of timber that can be harvested annually from the forest area during the planning horizon. The third component, Volume III, provides a tactical plan that identifies where harvesting will occur during the 20-year FMP period and provides the strategic direction of how forest management activities will be undertaken.

Forest management planning is normally the responsibility of forest industry proponents managing a licence area. However, while no large licence holder manages the Island Forests, there is a significant amount of timber harvest occurring and the area has many unique management challenges. In order to maintain the sustainability of the existing resources it was decided that an FMP was needed for the Island Forests. The Forest Service has established a planning team consisting of forestry professionals who are working on various sections of the FMP and contributing their respective expertise towards the plan.

The goals of preparing this FMP include:

- 1) Setting clear management direction for the desired future forest condition of the Island Forests (FMP Volume III); and
- 2) Promoting the sustainable development of the forest resource while taking social and environmental factors into consideration.

The Island Forests provide many benefits to residents of Saskatchewan. The Forest Service will consult with local Aboriginal communities, local stakeholder groups and the public about this plan before it is recommended for approval. While the primary focus of the Island Forests FMP is to direct forest management activities it must also consider and accommodate the wide range of other activities and values in the Island Forests. This FMP – Volume I document is the first

step towards supporting the maintenance and growth of the forest resources and all the values they encompass.

2.0 Provincial Sources of Direction

The draft Forest Management Planning Standard (FMPS) provides the primary direction and a framework for the development of forest management plans (FMPs) in the province. In the case of the Island Forests, existing plans and policies provide forest management directions. These plans and policies also provide key inputs into the development of the FMP for these areas.

2.1 Provincial Acts, Code Chapters and Standards

Section 19.1 of the *Forest Resources Management Act* requires licensees to comply with the code unless otherwise specified in the licence or approved plan, or as authorized by the minister.

The Ministry of Environment, Forest Service Branch, has been applying standards derived from those developed for independent forest operators. The standards are focused on achieving outcomes similar to those achieved by Forest Management Agreement (FMA) area licensees.

Recently, Saskatchewan has adopted a Results-Based Regulation (RBR) model with the goal of improving the protection of the environment, while promoting innovation in environmental management.

The RBR model includes:

- The revision, consolidation and streamlining of the environmental legislation, starting with The Environmental Management and Protection Act, The Environmental Assessment Act and The Forest Resources Management Act;
- The development of a Saskatchewan Environmental Code to provide for standards and practices that will set the framework for improved environmental management;
- An electronic platform for environmental information and program delivery, including web-based environmental applications, compliance and reporting. This will facilitate a streamlined application process and transparency in the Ministry's reporting and collaborative decision-making processes; and
- The continued engagement of the public and stakeholders in the design and implementation of the new regulatory framework.

Further information on the results-based regulatory model for Saskatchewan can be found at: <http://www.environment.gov.sk.ca/Regulations>.

2.1.1 Integrated Forest Land Use Plans

Section 14 (1) of the *Forest Resources Management Act* indicates that the purpose of an Integrated Forest Land Use Plan (IFLUP) is to co-ordinate policies, programs, and activities to

guide and regulate existing and potential uses of land within a management unit. There are two plans impacting the Island Forests. They include the Nisbet Forest and the Fort-a-la-Corne Integrated Forest Land Use Plans. These plans were initiated in 1999 to manage the use of the land and natural resources in each of these forest areas in an integrated and environmentally sound basis. Each planning area accommodates a wide variety of resource and land-based uses such as roads, mineral exploration, power lines, railroads, cabins, recreation sites, water control structures, etc.

The Island Forests FMP will use strategic direction from both IFLUPs in the Island Forests. Nisbet Forest Integrated Landuse Plan was approved by the Minister in 2012 whereas Fort-a-la-Corne (FALC) IFLUP is a draft plan which will subsequently be submitted to the Minister for approval.

The key aspects of these IFLUPs which will be integrated into an FMP for the Island Forests include the following:

1. Section 1 – Plan Goal and Objectives;
2. Section 2 – Management Objectives, Policies, and Actions by resource management area;
3. Section 3 – Zoning; and
4. IFLUP Implementation.

Background documents were also prepared for both the Nisbet Forest and FALC IFLUPs and provided the necessary context for each IFLUP.

2.1.2 Representative Areas Network

Saskatchewan continues in the process of establishing a network of ecologically important land and water areas across the province, which are known as the representative areas network (RAN). This approach includes all of the existing parks, ecological reserves, wildlife lands and other reserves. New sites are selected to complement existing sites and to ensure that the wide range of Saskatchewan's natural features and diversity is represented within the network.

Both the Nisbet Forest and FALC IFLUPs identified the need for protected areas and sites in their respective areas to be included as part of the RAN. The intent is to not only conserve ecologically representative areas, but also to provide recreation values. Three sites have been identified within the Nisbet Provincial Forest totaling 9,211 ha of land and are displayed in Figure 2-1. One site in the FALC Provincial Forest has been identified totaling 2,818.3 ha of land and is displayed in Figure 2-2. Industrial uses, such as commercial timber harvesting, exploration, or industrial development for minerals, oil and gas are not allowed in these areas.

The identified representative areas have yet to be designated in Provincial legislation. However, these sites are considered protected and will be treated in a similar way to designated sites as the process moves forward.

2.1.3 Resource Management Plans

An FMP and a general land use plan were prepared for the Nisbet Provincial Forest in the 1970s (Sask. Dept. Tourism & Ren. Res., 1976). A land management statement for both the Nisbet and Canwood Provincial Forests was also released which provided planning direction for this forest area.

An FMP was prepared for FALC in March 1976 by the Forestry Branch (Sask. Tourism & Ren. Res., 1976). The FMPs prepared for the Island Forests set an annual allowable cut, addressed reforestation and other resource values.

Another FMP was prepared for FALC in December 1984 by regional forest operations (Sask. Parks & Ren. Res., 1984) and compiled strategies for managing FALC forests by management units. In 1988, a comprehensive long-term management strategy was released which elaborated on various land use practices in the FALC (Sask. Parks & Ren. Res., 1988).

The content of these plans are reflected in the existing IFLUPs for both the Nisbet and FALC Provincial Forests.

A draft Provincial fisheries management plan was recently released by the Ministry which provides a framework for maintaining and building upon the significant values and benefits of our Provincial fishery (Sask. Min. Env., 2009). This plan will apply to fisheries management in the Island Forests area, ensuring that the fishery remains healthy and continues to be enjoyed by current and future generations.

The Saskatchewan Watershed Authority (SWA) released a source water protection plan for the North Saskatchewan River Watershed (SWA, 2008). The planning process was conducted over a three and a half year period through the coordination of SWA working with community volunteers from the watershed area. The plan contains numerous recommendations and key actions. Various agencies and stakeholder groups have been identified as being responsible for implementing specific actions by a specific date. One of these stakeholder groups is the North Saskatchewan River Council.

A section on forestry is included in the plan. Key recommendations include:

1. That FMPs be ecosystem-based and operating plans include more site-specific, rather than blanket guidelines to manage harvesting in riparian areas; and
2. That forestry companies should be required to take measures to prevent erosion and sedimentation in water, and establish riparian vegetation where impacts have occurred.

The Ministry has been listed as a responsible agency to ensure that key actions 127-129 are implemented. The FMP Volume III document for the Island Forests will ensure that these recommendations and key actions are addressed.

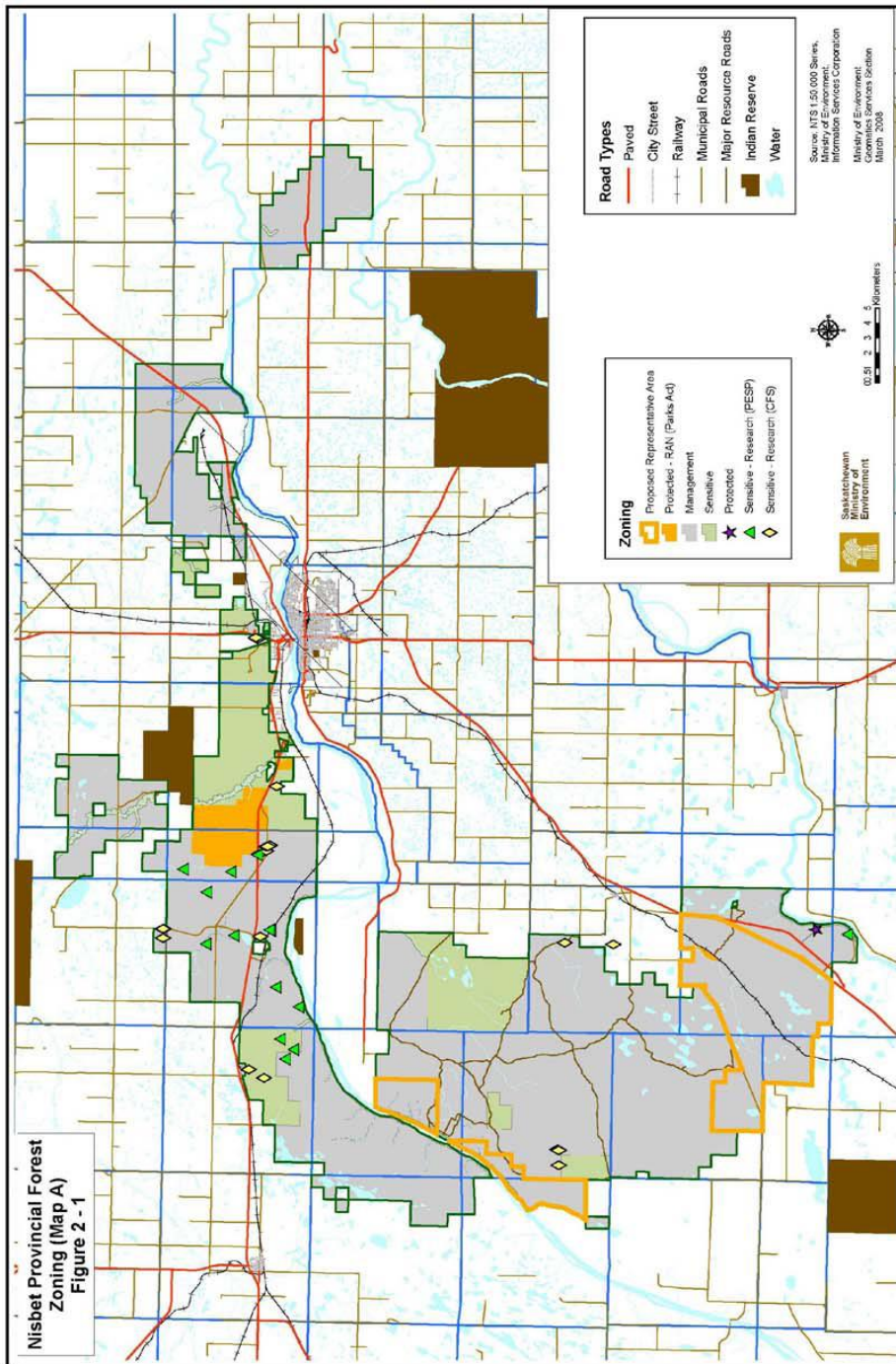


Figure 2-1. Zoning and Proposed Representative Areas within the Nisbet Integrated Forest Land Use Plan.

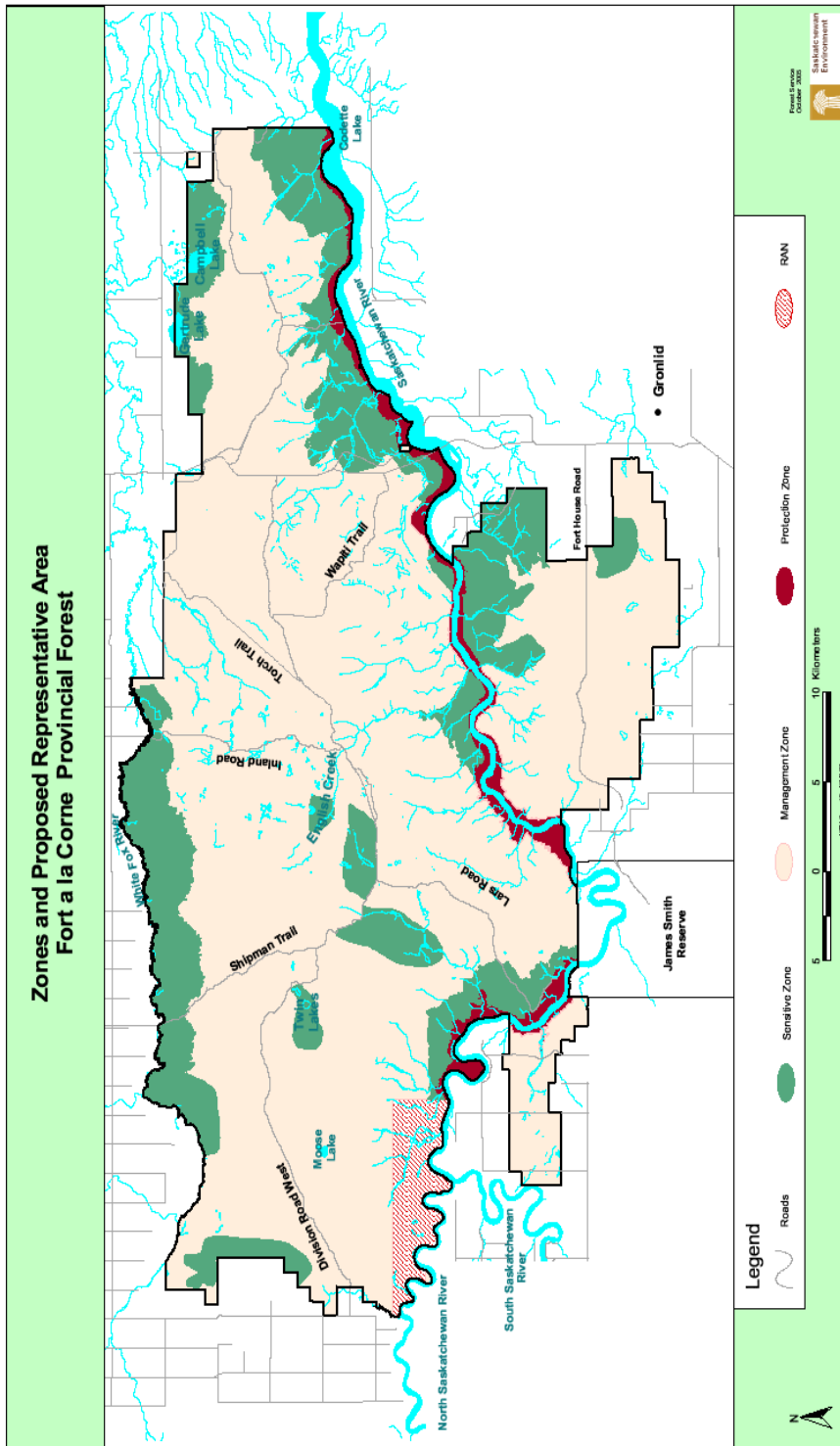


Figure 2-2. Zoning and Proposed Representative Areas within the FALC Integrated Forest Land Use Plan¹

¹Source: FALC Draft IFLUP

2.1.4 Agreements with Aboriginal Groups

In January 1994, a resource and environmental management partnership agreement was signed between Saskatchewan Environment and Resource Management (SERM) and the James Smith First Nation. The agreement focused on the cooperative management of renewable resources including forestry in the FALC. This agreement was subsequently followed up by a memorandum of understanding between these two parties in January 1998. The initial co-management issues and topics agreed in the memorandum of understanding focused on forestry (planning, economic and business development) and wildlife conservation in the FALC.

In July 2003, a joint working agreement was signed between the First Nations Island Forests Management Association and the Minister of Environment. The First Nations Island Forests Management Association is comprised of seven local First Nations who have traditional interests within the Island Forests including: Ahtahkakoop, Beardy's and Okemasis, James Smith, Muskoday, One Arrow, Sturgeon Lake, and Wahpeton Dakota.

The agreement features an Island Forests Development and Implementation Committee which was created to assist member Bands to participate more fully in forest management activities and realize measurable benefits. This was to be accomplished through empowering an Island Forests Development and Implementation Committee to develop work plans and business plans related to activities and opportunities regarding the following areas: harvesting; reforestation and silviculture; science and technology; training and education; agroforestry; forest protection; forest surveys; and emerging business opportunities, including acquiring partners.

Work was accomplished through the Nisbet and FALC IFLUP processes, and the development and implementation of a Term Supply Licence (TSL). A volume-based TSL was signed with the seven band's business entity, First Nations Island Forests Management Inc. (FNIFMI), in September 2004 for a total volume of 30,000 m³ softwood to be harvested over a three-year term. Another volume-based TSL was signed again with FNIFMI in November 2007 for a total volume of 60,000 m³ softwood timber and 50,000 m³ of hardwood timber to be harvested over a five-year term. The details of these TSLs are discussed further in Section 3.5. Due to the economic downturn in the Provincial and National forest sector, the implementation of these TSLs has been challenging.

Another Renewable Resources and Environmental Management Partnership Agreement was signed with SERM and the Agency Chiefs Tribal Council which includes Pelican Lake; Witcheakan, and Big River First Nations in January 2001. The main objectives of this agreement were to establish a Partnership Committee to facilitate working cooperatively to resolve issues of mutual concern. This included the management of renewable resources within the traditional lands, the improvement of communications and consultation, and cooperation in projects of mutual interest.

One measure SERM used to implement this agreement was to enter into a memorandum of understanding for a wood supply agreement between the Ministry and Agency Chiefs Tribal Council in January, 2001. The agreement area covers a large portion of their traditional territory, including parts of the Nisbet Forest and the entire Canwood Forest. In the agreement, timber is not automatically made available, but requires that available timber from both the Prince Albert FMA area and crown agriculture lands be used before that in the Island Forests. This agreement

was renewed in November 2005. However, forestry business interests for the Agency Chiefs Tribal Council have now shifted towards the Prince Albert FMA area since their partnership in Sakâw Askiy Management Inc. in 2010.

2.1.5 Summary of Ministry of Environment Resource Issues

The Forest Service compiled a list of key resource management issues for both the Nisbet and FALC Provincial Forests based on each respective IFLUP. Additional issues were identified by Ministry staff and are listed in Table 1. This background information document also features an Issues and Concerns table which has been compiled from consultations with both stakeholder and aboriginal groups and is presented in Appendix B.

Table 2-1. Ministry of Environment - Resource Issues.

Number	Issue
1	<p>Forest accessibility: The Island Forests are easily accessed and close to large urban and rural populations for recreation and economic use. Further, these forest areas are situated in the central part of the province, where there is considerable demand for power, telephone, gas, municipal roads and highway developments to benefit the local and provincial populations. These developments pass through the forest in various locations. Pressures for land sales or lease to facilitate various developments are ongoing. Together, all of these developments can negatively affect forest ecosystem functioning through fragmentation and human access.</p>
2	<p>Many administrators, one forest: Legislation to deal with all issues related to use of the area is not the responsibility of a single provincial Ministry, and management issues cross over to the federal government, other provincial Ministries, provincial agencies and municipalities. Sustainable resource management requires planning and coordination on the Ministry's part, but it also requires cooperation among governments responsible for different aspects of forest administration and management.</p>
3	<p>Many values and expectations: People want access to the forest for recreation and economic opportunities. The Ministry's challenge is to balance provincial and local needs and demands, yet remain within the forest's sustainable capacity.</p> <p>The Island Forests provide opportunities in forest management (timber harvesting and renewal), tourism, recreation, cattle grazing and non-renewable resource extraction. People also value the forest for hunting, aesthetics, recreation, non-timber forest products gathering, and wildlife observation.</p> <p>Aboriginal people value these forests for cultural, hunting, trapping and sustenance. Aboriginal and treaty rights provide Aboriginal people (both First Nations and Métis) with access to forest resources.</p>

Number	Issue
4	<p>Fire and Forest Health Management: The forest is a fire-driven ecosystem, renewing itself naturally through large, stand-replacing fires. Because people both live near and use the forest commercially, fires have been put out for decades for safety and economic reasons. Consequently forest disease and insect infestations over time have affected forest age and health. The Ministry is under pressure to balance protecting the many values at risk from fire (including aesthetic and recreation values) while at the same time allowing for natural fire disturbance to occur where it can help restore forest health in non-productive, insect and disease, denuded and remote forest areas. Creating fuel breaks to reduce fire risk to the public and properties sometimes conflicts with other land uses.</p> <p>Many of the jack pine stands in the Island Forests are infected with dwarf mistletoe. The extent of the problem and the actions required to bring it within more normal levels in this forest need to be assessed and addressed.</p> <p>In the past, funding for forest renewal had not kept up with forest harvesting which has had negative implications for forest health and sustainability.</p>
6	<p>Informed decision making: Information on which management decisions are based is often outdated or simply lacking. There is limited information about wildlife populations (including waterfowl) and the quality of their habitat in the Island Forests.</p>
7	<p>Silviculture: Silviculture practice has been to leave burn-over areas to renew naturally. There can be problems associated with this practice, as stands that were diseased with dwarf mistletoe may not have a sufficient seed stock to renew to natural densities. The amount of not sufficiently regenerated (NSR) forest lands in the Island Forests needs to be addressed.</p>
8	<p>Grazing: The effects of grazing activities on forest ecosystems need more attention.</p>

2.1.6 Strategic Business Development Reports

At present, there are no strategic business development reports regarding forestry opportunities in the Island Forests. However, the most significant business opportunity in the Island Forests rests in the diamond mining sector.

A project proposal was submitted to the Ministry of Environment's Environmental Assessment Branch in November 2008 for a joint Star-Orion South Diamond Project in the FALC. The proposed Star-Orion South Diamond Project is located approximately 65 kilometers east of Prince Albert in the FALC. The project will impact 3,000 to 4,000 hectares (2.3 to 3.0% of the forest) in close proximity to the Saskatchewan River (Sask. Min. Env., 2009).

The project proposal contains a detailed description of the Star-Orion South Diamond Project, which includes a proposed open pit on the Star Kimberlite site and a potential second pit at the Orion South site. The development of the latter is dependent on further analysis (Shore Gold, 2008).

The proposal also addresses the mining process including the construction of processing facilities and associated infrastructure to commercially extract diamonds from these kimberlite deposits. Decommissioning, reclamation and closure of the mine are also addressed, as is employment and goods procurement. A series of maps which display the proposed project layout and extent of the proposed mine infrastructure are also included.

The proposal has triggered the environmental impact assessment process. In response to this, Shore Gold has commissioned studies by external consultants in the following areas: environmental baseline studies;

- hydrogeology;
- geotechnical; and
- mining and processing.

These studies were completed in 2009 and were used in the company's environmental impact statement (EIS) (P&E Mining Consultants Inc., 2009):

The Star Kimberlite portion is owned mainly by Shore Gold Inc. (Shore Gold); the Orion South Kimberlite and a small part of the Star Kimberlite known as "Star West" is owned by the Fort-à-la-Corne Joint Venture (Shore Gold's wholly owned subsidiary Kensington Resources Inc. 60%, Newmont Mining Corporation of Canada 40%). Shore Gold is the operator of both parts of the proposed project. Shore Gold Inc. has been the key proponent leading diamond exploration in the FALC.

The Forest Service has provided the Environmental Assessment Branch with input on the draft EIS. It will focus on the evaluation of both the project's environmental impact on the health of the FALC forest, and the efficacy of the proposed reclamation measures in maintaining the natural ecologic processes in the area. The FMP will evaluate the long-term impacts of the proposed development to the forest in modeling scenarios undertaken.

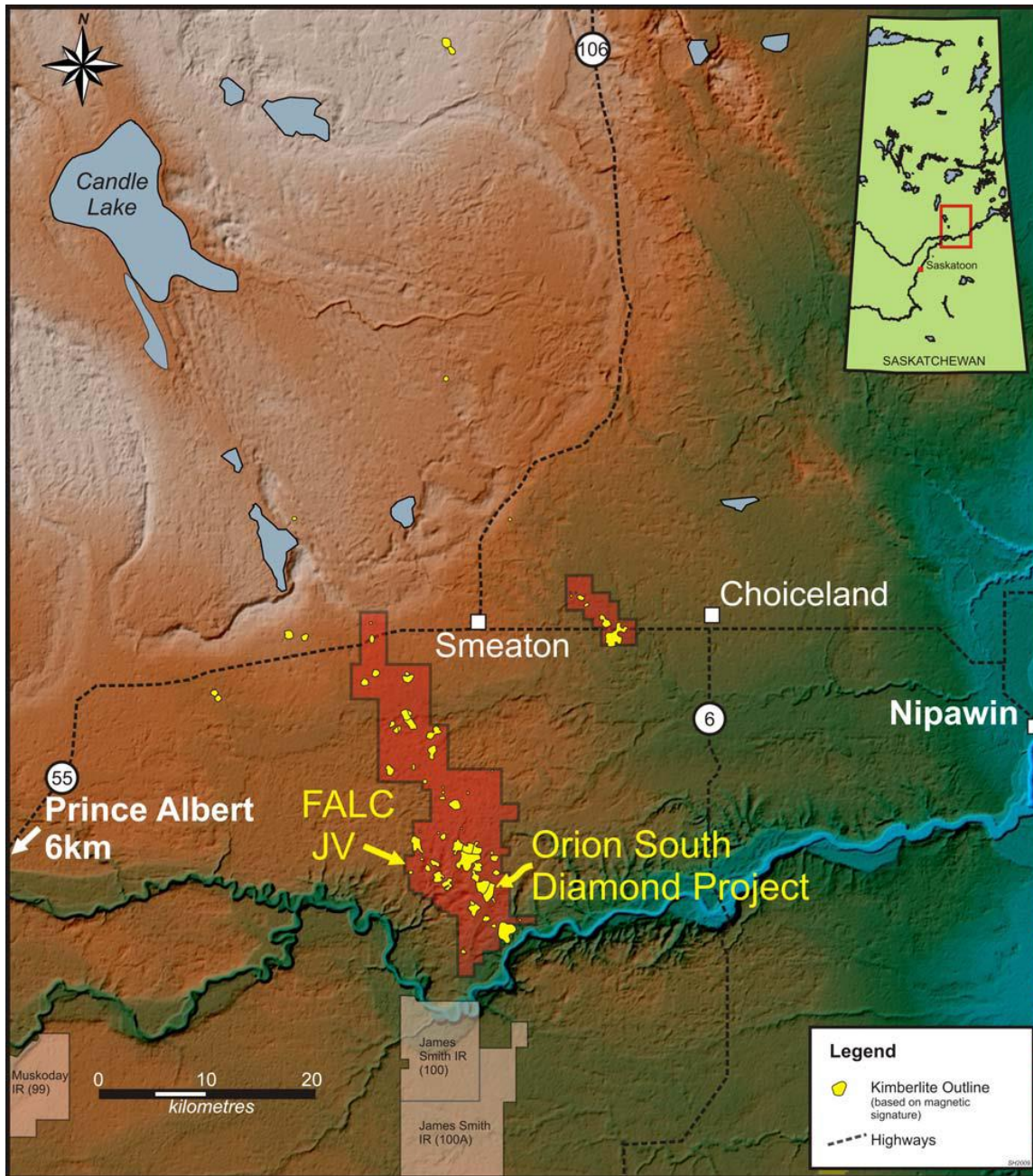


Figure 2-3. Location Map of the FALC-Joint Ventures Mineral Dispositions (claim areas in red) and FALC Kimberlites (in yellow)².

² Source: (P&E Mining Consultants Inc., 2009).

3.0 Description of Island Forests

3.1 Location of Island Forests

The Canwood, Nisbet, Fort-a-la-Corne, and Torch River Provincial Forests collectively comprise the Island Forests and are located in the Prince Albert area. The total area of the four provincial forests is approximately 226,571 ha, with an estimated productive forest land base of 201,134 ha. For the purposes of this plan, they will be referred to as the Canwood, Nisbet (80000 ha), Fort-a-la-Corne (FALC, 132,502 ha), and the Torch Forest. These forest areas are within the vicinity of Prince Albert and area and are displayed on Map 3–1, found in Appendix C.

These forest areas have been referred to as “Island Forests” since they are completely surrounded by agricultural and urban development, hence the ‘island-like’ appearance. The Island Forests are located within the Boreal Transition Ecoregion, which is further described under the Biophysical Description section. The major waterways include both the North and South Saskatchewan Rivers. There are a number of provincial highways within the Island Forests, including highways 2, 11, 55, 6, 3 and 302. Communities within the Island Forests area are described later in the plan, but the larger communities other than Prince Albert, include Melfort, Nipawin, and Shellbrook.

3.2 Biophysical Description

3.2.1 Climate

The climate of the Island Forests is characterized by a humid, moderately cold, continental climate with long, cold winters and warm summers. Weather stations in and around the Prince Albert and the surrounding areas reveal average annual precipitation at about 424 mm.

The climate of the Boreal Transition Ecoregion is more typical of a humid continental climate at lower elevations in the southern part, being warmer and drier than other more northerly regions in the Boreal Plain Ecozone, but cooler than the aspen parkland ecoregion to the south.

At Prince Albert (1971 - 2000):

mean July temperature is 17.5°C

mean January temperature is -19.1°C.

mean annual precipitation is 424.3 mm, with 323.7 mm of rain and 111.3 cm of snow

(source: - <http://www.climate.weatheroffice.ec.gc.ca/> (national climate data & information archive)

Average frost free days per year (Prince Albert, 1971 - 2000): 154.2 days

3.2.2 *Ecoregions*

The Province of Saskatchewan is divided into four ecological zones, called *ecozones*, and the Island Forests are located within the Boreal Plain Ecozone. It is characterized mainly by northern boreal forest, but approximately 25% of the area is used for agricultural production. The Boreal Plain Ecozone is further divided into three *ecoregions*; namely the Boreal Transition, the Mid-Boreal Upland and the Mid-Boreal Lowland. The Island Forests are located within the Boreal Transition Ecoregion (see Map 3-2, Appendix C). This ecoregion is the most southerly region of the Boreal Plain ecozone, and is a transitional area between boreal forest to the north and grasslands to the south. Unlike the other two ecoregions of the Boreal Plain Ecozone, nearly 50% of the land is cultivated for agricultural use. This region marks both the southern advance of the boreal forest and the northern limit of arable agriculture (Canadian Plains Research Centre, 1998).

The Boreal Transition Ecoregion contains a series of nearly-level to gently sloping glacial till, glaciolacustrine, and glaciofluvial plains interrupted by hummocky morainal uplands. The bedrock layer of this ecoregion is silt and clay shales of late Cretaceous age, and has an elevation of 540 m in the south to 360 m in the north. The topography of the region mirrors the slope of the bedrock surface, and most of the region has a cover of glacial deposit 100 metres or more that covers the underlying bedrock (Canadian Plains Research Centre, 1998).

Within the Boreal Transition Ecoregion, there are 22 *ecodistricts* (landscape areas) that reflect unique ecological areas based on land form composition, surface shape, textural group, soil development, and land cover. The Island Forests fall within the following four ecodistricts: the Nisbet Plain; the Shellbrook Plain; the La-Corne Plain; and the Tobin Lake Lowlands.

The Nisbet Plain Ecodistrict primarily consists of a level, sandy glaciofluvial plain. It includes places where sand sediments have been reworked by wind into dunes. The majority of the soils are Eutric Brunisols and Regosols, which are associated with extremely sandy sediments (eolian sands). Black Chernozemic soils are associated with finer textured materials.

Fens and bogs only occupy about 5% of the ecodistrict (Acton, et al. 1998). The land elevation ranges from 490 m to 500 m, with local highs above 520 m. There is little surface runoff and limited external drainage, given the high permeability of the soils (Acton et al., 1998).

The extremely sandy areas are dominated by relatively open stands of jack pine with an understory of lichens and shrubs. Most of these sites are nutrient-poor and do not retain adequate water on the site, which along with the heavy dwarf mistletoe infestations, accounts for the poor productivity of these sites. Also characteristic of this area are many open stands of scrubby trembling aspen, occasionally mixed with jack pine and some isolated white spruce (Acton, et al. 1998).

The La-Corne Plain Ecodistrict is mainly an undulating fluvial-lacustrine plain, with gently sloping topography, with the majority of the area along the Saskatchewan River east of where the North and South Saskatchewan Rivers join (commonly known as the “forks”). Where soil deposits are extremely sandy, they have often been reworked by wind into dunes, resulting in a

hummocky appearance having short steep slopes and, at times, high local relief (Acton, et al. 1998).

The coarse, sandy deposits are characterized largely by Brunisolic soils. The finer textured sands and silty deposits are characterized by the Gray Luvisolic soils. Dark Gray Chernozemic and Organic soils each occupy about 10% of the area (Acton, et al. 1998).

Nearly all the surface water in the Island Forests relies on runoff from local precipitation, with the exception of the North and South Saskatchewan Rivers. These two major rivers originate from melting snow and ice, and rainfall in the Rocky Mountains and foothills of Alberta. They then flow through fairly flat agricultural lands of Alberta and Saskatchewan where they collect surface waters and groundwater containing calcium, magnesium, sulfates and other ions before reaching the Island Forests. The water is generally hard by the time it reaches the Island Forests.

The **Shellbrook Plain** lies north of the North Saskatchewan River and envelops the Canwood Forest. The area is characterized by a gentle undulating to moderately rolling plain. In the northern part of the ecodistrict where the Canwood Forest is situated, the surficial deposits are mainly loamy glacial till and glaciolacustrine sediments (Dark Grey Chernozems), with a large tract of sandy eolian sediments (Brunisols) occurring south of Canwood (Acton, et al. 1998). The Canwood Forest also features a number of isolated wetlands supporting black spruce and tamarack.

The **Tobin Lake Lowlands** are primarily located to the north and east of Tobin Lake, with a small branch extending to the west that envelopes the Torch Forest along the Torch River. Most of the sites in the Torch Forest feature very sandy soils which consist of Eutric Brunisols. Other sites consist of either silty or sandy fluvial lacustrine plains which primarily consist of Dark Grey Chernozemic soils (Acton, et al. 1998). The landscape is gently undulating with the better drained beach ridges, and eroded till deposits commonly supporting jack pine and some trembling aspen, and the wetter sites commonly supporting both black spruce and tamarack.

3.2.3 Geology

Sedimentary rocks of the Western Canada Sedimentary Basin underlie the Island Forests. The youngest of these rocks are Cretaceous-aged sandstones and shales of the Upper Colorado, Lower Colorado, and Mannville Groups (Sask. Env. & Res. Mgt., 2000). These rest on limestones and dolomites of the Devonian Winnipegosis and Meadow Lake Formations, Silurian Interlake Group, and Ordovician Stony Mountain and Red River Formations. Sandstone and shale of the Cambrian Deadwood Formation form the base of the sedimentary sequence. Precambrian basement rocks of the Canadian Shield lie at a depth of about 1000 metres. A veneer of relatively young glacial material covers the bedrock in the region (Sask. Env. & Res. Mgt., 2000)

The following section on Other Land Uses and Values will provide information on mineral potential and mineral exploration.

3.2.4 Soils

The soils of the Island Forests have developed in a boreal forest environment, but consist of areas which the early European settlers disregarded for farming purposes due to their low productivity – hence the term “Island Forests”. A great proportion of these are eutric brunisols, which consist of very sandy sites which are not suitable for farming.

Map 3-3 (Appendix C) displays the major soil types which occur in the Island Forests. A description of these soil types (based on great groups) is provided from a website developed by the University of Saskatchewan (http://www.soilsofsask.ca/index.php?option=com_content&task=view&id=11&Itemid=3).

3.2.4.1 Eutric Brunisols

Soils of the Eutric Brunisolic Great Group primarily occur on glacio-fluvial sand parent materials in Central Saskatchewan south of the boundary with the Canadian Shield. The pH of the soils is neutral or basic (i.e., pH greater than 5.5). The sand deposits may also occur as small inclusions in glacial till uplands in this region. Brunisolic soils in Saskatchewan are boreal forest soils that primarily develop in sandy glacial sediments under jack pine forests. Sand is resistant to alterations by weathering and these soils have undergone very limited soil formation. The diagnostic horizon is the Bm, which has undergone only slight chemical change from the original parent material although it may have a bright red colour compared to the underlying C horizon. Most of the brunisols in this area are aeolian (meaning windblown) and are quite fine-grained, which at times reveal former dunes under the forest floor.

3.2.4.2 Luvisols

Luvisolic soils are the dominant forest soil of Central Saskatchewan. They occur on loamy glacial till deposits throughout this region. The glacial deposits are derived from sedimentary rocks and have an abundant supply of base cations such as calcium and magnesium. Luvisolic soils typically have a grayish, sandy or silty Ae horizon overlying a B horizon that has higher clay content than either the Ae or the C horizon. The C horizon usually contains calcium carbonate (lime). When cultivated, the surface Ae horizon is exposed and the soils often have a grayish appearance and hence this region is known as the gray soil zone in Saskatchewan.

Luvisolic soils are the most productive soils in the Island Forests, especially when they are on a well-drained site. These sites will host a range of tree species, with aspen, white spruce and their mixtures being the most common.

In and around the vicinity of the Island Forests, zoning of similar dark grey soil groups was conducted by Agriculture Canada for Dark Gray Chernozemic and Dark Gray Luvisolic since they are similar in nature (see Map 3-3 - Appendix C). Transitional soils with features of both grasslands and forests can be classified as Dark Gray Chernozems or Dark Gray Luvisols.

Within the Island Forests, only the south portion of the Nisbet Forest is delineated as such and most sites sampled are Luvisols (M. McLaughlin, pers. com). Other small slivers of this soil

group can be seen around the perimeters of the Island Forests, however, most were cleared for agriculture in the past.

There is also a section of the Nisbet Forest (Steep Creek) and the FALC zoned specifically as Gray Luvisols. Only one great group of the Luvisolic soils occurs in Saskatchewan. Soils of the Gray Great Group have a Bt horizon and lack an Ah horizon.

3.2.4.3 Chernozems

The four great groups of the Chernozemic Order are based on the surface colour: Brown, Dark Brown, Black, and Dark Grey. The surface colour reflects the soil organic matter (SOM) content of the soil – the greater the organic matter, the darker the surface colour. The Great Groups of the Chernozemic Order also define the well-known Soil Zones of the agricultural area of Saskatchewan.

Chernozemic soils have dark surface horizons that are high in organic matter (termed Ah horizons). The high organic matter levels result from addition of SOM through the roots of grasses and limited decomposition of the organic matter due to dry soil moisture conditions. Chernozemic soils can occur on all soil textures from heavy clay through to sands. The high SOM surface soil horizon is typically underlain by a B horizon which has undergone minor alterations due to chemical weathering (Bm horizon). The calcium carbonate that was originally present in the A and B horizons typically has been dissolved in the upper horizons and re-precipitates in the upper C horizon, creating a Cca horizon. This carbonate-enriched horizon overlies a Ck horizon, which has the same levels of carbonate as the parent material.

Within the Island Forests, only the dark gray chernozems are found on specific sites, however large occurrences of black chernozems are found to the south, especially around the Melfort area.

3.2.4.4 Regosols

Regosolic soils lack significant soil formation and occur typically on very young surfaces (such as sand dunes or river floodplains) or unstable surfaces (such as slope positions that experience high rates of soil erosion). Regosolic soils either completely lack a B horizon or have a thin B less than 5 cm thick. In rolling or hummocky agricultural landscapes in Saskatchewan, these soils occur on the knolls and have often been heavily eroded by tillage and the calcium carbonate-rich C horizon become mixed by tillage into the A horizon. This Apk horizon often directly overlies the C horizon. In sand dunes or recent river floodplain deposits there may be no A horizon and the C horizon extends to the surface of the soil.

Although no broad zoning of this soil type can be seen within the Island Forests, it remains likely that they are present at the site level.

3.2.4.5 Mesisols

The three Great Groups of the Organic Order found in Saskatchewan are based on the degree of decomposition of the middle tier (i.e., from 40 to 120 cm thickness of the peat). The degree of

decomposition can be assessed in the field using the Van Post Scale of Decomposition. Mesisols consist of organic soils of which the material in the middle layer is in an intermediate stage of decomposition between fibric and humic. Fbrisols consist of the middle tier dominated by organic material which is recognizable and retains its fibrous material. Humisols consist of the middle tier which is in a more advanced stage of decomposition and does not retain its fibrous material; commonly the material would squeeze through your fingers when squeezed.

Water-saturated conditions in forested regions of Saskatchewan commonly lead to the formation of layers of organic matter or peat. Where the high organic content (i.e., > 17% organic carbon) layer is greater than 60-cm thick (if fibrous) or 40-cm thick (if it is more decomposed), the soils are classified into the Organic Order. In Saskatchewan Organic soils occur in two main types of peatlands. Fens are dominated by sedges and brown mosses, and the water is high in dissolved base ions (e.g. calcium, magnesium); bogs are dominated by sphagnum and woody peat and the water has a low base content.

Most of the mesisols within the Island Forests are located in the north boundary of FALC and are largely vegetated with bog birch, willow, tamarack, and black spruce.

3.2.4.6 Gleysols

Gleysolic soils are associated with prolonged water saturation of the soil profile. Most commonly this saturation occurs due to concentration of surface water flows into topographic low points (“sloughs”) in a landscape. Gleysolic soils are commonly found in sloughs wherever the land is rolling or hummocky; the remainder of the landscape is commonly dominated by Chernozemic soils in grasslands or Luvisolic soils in forested areas. Water saturation leads to depletion of oxygen in the soil and soil features associated with oxygen-depleted (or anaerobic) conditions: blue-gray colours in the mass of the soil and reddish zones (called mottles) interspersed in the soil mass. These features are collectively referred to as gley features, and the diagnostic criteria for Gleysolic soils in the presence of well-developed gley features within 50 cm of the soil surface.

In the Boreal forest, the mineral Gleysolic soils are often overlain by a layer of peat. If the peat is less than 60-cm thick (if fibrous) or 40-cm thick (if more decomposed) the Gleysolic soils can be referred to as Peaty Phase Gleysols.

There are large Gleysol deposits southeast of Prince Albert and southwest of the main Nisbet Forest block, with only a small deposit falling within the Nisbet Forest. However, Gleysols will be present at a site-specific level within parts of the Island Forests.

3.2.5 Landforms

There are few different landforms in the Island Forests, generally with flat surfaces. The main surface land form throughout the Island Forests is hummocky (Map 3-4 -Appendix C). There is also a section of the FALC at the north end which is flat bog and is primarily associated with the mesisols found there.

3.2.6 Watersheds

The major watershed basin associated with the Island Forests is the Saskatchewan River. Map 3-5 (Appendix C) displays the four key watershed sub-basins associated with the Island Forests, which are: Carrot River, North Saskatchewan River, Saskatchewan River, and the South Saskatchewan River. Each sub-basin is further divided into a number of various four character sub-basins, as defined by Environment Canada through the Prairie Farm and Restoration Program.

The North Saskatchewan River is the source of drinking water and the destination for municipal storm water and municipal and industrial effluent for the City of Prince Albert. However, before it reaches the City of Prince Albert, it serves the same purpose for the Cities of Edmonton and North Battleford, as well as for many smaller upstream communities, cattle operations, intensive livestock operations, and domestic uses. Although the North Saskatchewan River does not have any upstream dams in Saskatchewan, there are two in Alberta. The Brazeau Reservoir and Lake Abraham are formed by the Brazeau and Bighorn Dams.

Ground water is the source of potable water for most of the surrounding rural residential development and hamlets, as well as for Nordale within the City of Prince Albert.

There are two upstream dams on the South Saskatchewan River system in Saskatchewan, the Gardiner and Qu'Appelle River Dams which form Lake Diefenbaker. Hydroelectric dams upstream have significantly altered the natural cycle of spring flooding and flushing of both river systems. The dams cause higher winter flows and lower spring and summer flows than would naturally occur for both rivers as they pass through the Island Forests. The effects of this are apparent downstream in the Cumberland Delta.

The North and South Saskatchewan Rivers join just east of the Steep Creek Block of the Nisbet Forest to form the Saskatchewan River. The Saskatchewan River then flows easterly into the Cumberland Delta and into Manitoba through the Nelson River system, ultimately draining into Hudson Bay.

Tests done in the 1980s indicated a high level of mercury in the fish from the North Saskatchewan River, and consumption was not recommended. Since that time, mercury levels have dropped, but the presence of other pollutants from Alberta continues to be a problem. These include sodium, chlorine, potassium, nickel, nitrogen, phosphorus, bacteria, algal chlorophyll and trace organic chemicals (Alberta Env. Prot., 1994).

The Sturgeon River (Shell River), the Spruce River (Little Red River), McFarlane Creek, Steep Creek, Whitefox, Torch, English and Miners Creek are the major rivers and creeks in the Nisbet Forest. They all drain into the Saskatchewan River system. Codette Lake, which was created by the Francois-Finlay Dam near Nipawin, is the only major lake within the Island Forests.

3.3 Other Land Uses and Values

3.3.1 Wildlife

In the matter of wildlife, critical habitats of ungulates were identified in the FALC during the 1980s in a study commissioned by Saskatchewan Power Corporation (SaskPower) (Sask. Parks & Ren. Res., 1985). This study was initiated due to the proposed impoundment at the time (now known as the Codette Reservoir) which was to be created by the Francois-Finlay Dam across the Saskatchewan River near Nipawin.

A variety of forest vegetation provides habitats for different types of wildlife in the Island Forests. Some species require certain types and ages of forest stands, as well as open areas. Others require different species of forest stands for survival, and still others are generalists, as they can use a wide variety of habitat types in which to live.

Most wildlife populations are driven primarily by the amount, quality and distribution of their habitat. The suitability of the Island Forests ecosystems for wildlife habitat is as much dependent upon human activities (agriculture, forestry, road construction) in and around the forest as it is upon the natural characteristics (vegetative community, soil types, moisture conditions) of the forest ecosystem.

Areas with open water are important habitat for ungulate and waterfowl species. River valleys act as migration routes for several species of wildlife (e.g. raptors). The North and South Saskatchewan Rivers, and the lesser rivers and streams of the forest are especially important to wildlife. Common ungulate species include white-tailed deer, moose and elk. Black bear, wolf, fisher, marten, beaver, muskrat and red squirrel are some of the more common furbearers found in the Island Forests.

3.3.2 Fish

There are 26 recorded species of fish in the North Saskatchewan River and 32 species in the South Saskatchewan River, including one introduced species. Species include goldeye, northern pike, walleye, sauger, perch, rainbow trout, lake sturgeon and five species of suckers.

3.3.3 Traditional Land Use

Aboriginal people, for thousands of years, have used lands within the Island Forests. Traditional use covers a wide spectrum of activities, but commonly includes hunting, fishing, trapping, gathering of plants and medicines, and spiritual and ceremonial pursuits.

The earliest accounts of the fur traders in the mid-1700s show evidence of scattered Cree groups along the Saskatchewan Rivers (Russell, 1991). Aboriginal people have, over generations, developed efficient interaction with the land, making use of forest vegetation and wildlife for food, medicine, clothing and building materials. Evidence indicates the Aboriginal people who

frequent today's Island Forests, traveled the grasslands to hunt bison, and returned to the more northerly forested regions where the bison sought shelter (Russell, 1991).

The Métis of the area originally were part of the fur trade, and remained after the fur trade ceased. Some emigrated from Manitoba during the late 1800s. In Saskatchewan, Treaty Indians may hunt, fish and trap for food in a safe manner at all times of the year on unoccupied Crown land, except in areas closed for conservation. Aboriginal rights for Métis hunting and fishing are still evolving.

Through the FALC IFLUP, the James Smith Cree Nation provided some geographic information on both traditional land use and archeological sites. These have been incorporated into Map 3-6 to protect these sites during any future development activities. Several cabins have also been used by the James Smith Cree Nation for hunting and trapping in the FALC. During 2009, Cumberland House Cree Nation commenced a traditional land use project through the assistance of the Ministry of First Nations and Métis Relations. It is anticipated that more studies on traditional land use activities will be undertaken in the Island Forests to provide a valuable knowledge base for local Aboriginal communities and to provide resource managers with important information with respect to these values.

To date, there has been no formal exercise of this nature undertaken in the remainder of the Island Forests.

3.3.4 Archaeological, Cultural and Heritage Sites

The Island Forests contain many archaeological, cultural and heritage sites, especially along the Saskatchewan Rivers running through the FALC (Map 3-6 - Appendix C). These sites have important meaning for local Aboriginal people, especially in terms of cultural, historical and scientific values. Of these recorded sites of heritage significance, most have been located along the rivers and only a very small fraction of archaeological sites have so far been located in the forest.

The forest has not been subject to a systematic archaeological survey. However, planned forest operations in the Island Forests are screened by the heritage branch of the ministry of tourism, parks, culture and sports. A Heritage Resource Impact Assessment (HRIA) is conducted when necessary.

Archaeological heritage sites consist of archaeological and historic sites recognized under The Heritage Property Act. Over one hundred sites are known to the Heritage Branch of the Ministry of Tourism, Parks, Culture and Sport. Most of these sites consist of isolated artifact finds such as ceramic shards or stone tools, likely remnants of ancient campsites and hunting sites. The Heritage Property Act provides for the preservation, interpretation and development of heritage property in Saskatchewan.

Cultural sites consist of sites identified by local Aboriginal groups that have traditional and cultural importance. Some of these sites have been provided by the James Smith Cree Nation, but many others have not been documented or made known to the Province.

These sites include, but are not limited to, burial sites, ceremonial grounds, and sacred sites. The Ministry of Tourism, Parks, Culture and Sport have an important role to ensure that irreplaceable and non-renewable heritage is protected and preserved. These heritage resources contribute to our understanding and appreciation of Saskatchewan's past, its people, and its culture. Through careful and sensitive management, our heritage will continue to provide educational, social, and economic benefits to present and future generations (Sask. Min. Tourism, Parks, Culture and Sport, 2010).

The Heritage Property Act of Saskatchewan broadly defines heritage property as:

- archaeological objects;
- paleontological objects; and,
- any property of interest for its architectural, historical, cultural, environmental, archaeological, paleontological, aesthetic, or scientific value.

In Saskatchewan, the main heritage resources that have been traditionally recognized, and are actively managed and regulated, include:

- archaeological heritage sites and objects reflecting First Nations and later Euro-Canadian settlement and use of the land;
- paleontological heritage sites and objects, including dinosaur fossil localities and stratotypes; and,
- built heritage properties and structures of historical and architectural importance (Figure 3-1).



Figure 3-1 A dilapidated Heritage Site in Northern Saskatchewan

Other types of heritage locations are only now being recognized as heritage resources.

These include:

- "traditional cultural properties" (associated with the cultural practices and beliefs of a living community, and are central to the cultural and historical identity of that community); and
- "cultural heritage landscapes" (geographical areas that have been modified or influenced or given special cultural meaning by people).

However, provincial policies and practices governing their management, protection, and use have not yet been developed.

3.3.5 *Non-Timber Forest Products*

Non-Timber Forest Products (NTFPs) include a wide variety of forest products including fungi and various plant species. A report commissioned by the Ministry of Environment with the Saskatchewan Forest Centre (2007) chose the following NTFPs based on the level of interest by the local NTFP industry, and the potential for sustainability concerns related to harvest disturbance.

a. Mushrooms:

- i. chanterelle mushroom (*Cantharellus cibarius* Fr.)
- ii. pine mushroom (*Tricholoma magnivelare* (Peck) Redhead)
- iii. morel mushrooms (*Morchella* Dill. ex Pers.)

b. Fiddleheads:

- i. ostrich fern (*Matteuccia struthiopteris* (L.) Todaro)

c. Berries:

- i. velvet-leaf blueberry (*Vaccinium myrtilloides* Michx.)
- ii. lingonberry (*Vaccinium vitis-idaea* L. ssp. *minus* (Lodd.) Hultén.)

d. Other (herbal teas, decorative, supplements, etc.):

- i. white birch (*Betula papyrifera* Marsh.);
- ii. Labrador tea (*Rhododendron groenlandicum* (Oeder) K.A. Kron & Judd)
- iii. sweet gale (*Myrica gale* L.)
- iv. fireweed (*Chamerion angustifolium* (L.) Holub ssp. *angustifolium*)

e. Reindeer lichens

- i. grey reindeer lichen (*Cladina rangiferina* (L.) Nyl.)
- ii. star reindeer lichen (*Cladina stellaris* (Opiz) Brodo)
- iii. green reindeer lichen (*Cladina mitis* (Sandst.) Hustich).

Currently, there is a considerable difference in terms of interest and value to the NTFP industry between the mushrooms and the remaining NTFP species described in the report. This is also true in other locations in Canada. The potential market value of other NTFPs has created greater interest in source species harvest and consequently the sustainability of harvest and management practices. As such, the Forest Service has drafted a directive regarding permitting and harvesting of NTFPs in the provincial forest.

Within the Island Forests, NTFPs of economic value primarily include the following: Christmas and landscape trees; blueberries and lingonberries; chanterelle, pine and morel mushrooms; feather moss; birch bark sleeves; branches, boughs and needles for essential oil extraction; diamond willows; burls;

cones; fiddleheads (ostrich fern); labrador tea, and various other products. However, permits have been issued primarily for mushrooms, feather moss and birch-bark sleeves to be harvested commercially in the Island Forests. The annual volume of NTFPs permitted in the Island Forests is shown in Table 3–1.

A forest products permit is required to harvest forest products for commercial purposes, but subsistence gathering (e.g.: blueberries for own use) can be done without a permit. However, a permit is required if green (living) trees are harvested (the exception being “own use” Christmas trees which have harvest guidelines to follow). White spruce is the favored species for landscape trees, followed by jack pine.

The IFLUP for the Nisbet Forest and the draft IFLUP for FALC forest have identified common issues regarding management of NTFP, with the following excerpt coming from the Nisbet Forest IFLUP (Sask. Min. Env., 2012):

1. Impacts of commercially harvesting non-timber forest products are not well understood. In particular, the ecology and reproductive capabilities of individual species, and their associated symbiotic relationships with other plants in the forest ecosystem are not fully understood.
2. As there is no formal NTFP inventory, it is difficult to determine how much harvesting may be sustainable.
3. NTFP harvesting may be negatively affected by other forest activities when they are not documented or mapped (e.g. birch tapping in areas approved for birch harvest).

The following background description is provided for mushrooms, since they are the primary NTFPs commercially harvested in the Island Forests. Further work will need to take place in Volume III to further advance compatible management of timber and NTFPs in the Island Forests.

3.3.5.1 Mushrooms

Mushrooms are the primary NTFPs harvested in the province with three species offering commercial value: chanterelle, morel, and pine mushrooms (Sask. Forest Centre, 2007). During 2000, harvesters earned \$1 million from mushroom harvests in the province. A more comprehensive description of mushrooms and their habitat and autecology are available in publications produced by the Saskatchewan Forest Centre in 2007 and 2005.

Chanterelle mushrooms have a bright yellow-orange cap with a wavy margin (Figure 3-2). The cap becomes depressed in the middle and looks funnel shaped as the mushroom matures. The stem has the same colour as the cap. Shallow gills or ridges extend from the cap part way down the stem. These mushrooms have an apricot fragrance and a peppery after taste when eaten raw (Sask. Min. Ag., 2010).

Table 3-1. Annual Volumes of Non-Timber Forest Products Permitted in the Island Forests.

Forest	Product	Units	Species	Quantity by Operating Year (FALC)										Total	
				1999-2000	2000-2001	2001-2002	2002-2003	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008	2008-2009		
IF-FALC	Berries	Kgs	Cranberries										3000		3000
IF-FALC	Lichens	Kgs	Cladonia							500	100	100			700
IF-FALC	Lichens	Kgs	Old Man's Beard								200	200			400
IF-FALC	Lichens	Kgs	Reindeer								200	200			400
IF-FALC	Moss	Kgs						100							100
IF-FALC	Moss	Kgs	Knights Plume						100						100
IF-FALC	Moss	Pcs								300					300
IF-FALC	Mushrooms	Kgs	Chanterelles										8000		8000
IF-FALC	Nuts	Kgs	Hazelnut		2000										2000
IF-FALC	Shoots, Stocks	Pcs	All Hardwood			3200		2000	200						5400
IF-FALC	Shoots, Stocks	Pcs	Hazelnut				2000								2000
IF-FALC	Shoots, Stocks	Pcs	Bullrush						100						100
IF-FALC	Shoots, Stocks	Pcs	Blue Eye Grass							200					200
IF-FALC	Whole Plant	Pcs	Coltsfoot									200			200
IF-FALC	Whole Plant	Pcs	Hazelnut									2000			2000
IF-FALC	Whole Plant	Ltr	White Birch		25		25	30	30						110

Table 3-1 (cont'd). Annual Volumes of Non-Timber Forest Products Permitted in the Island Forests - Nisbet														
Forest	Product	Units	Species	Quantity by Operating Year										
				1999-2000	2000-2001	2001-2002	2002-2003	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008	2008-2009	Total
IF-NISBET	Birch Sap	Ltr			25		25	30	30					110
IF-NISBET	Branches, Boughs	Kgs	All Softwood						5000					5000
IF-NISBET	Leaves, Needles, Flowers	Kgs	Fireweed							25000		25000		50000
IF-NISBET	Lichens	Kgs		1250	1250									2500
IF-NISBET	Lichens	Kgs												
IF-NISBET	Lichens	Kgs	Old Man's Beard					100						100
IF-NISBET	Lichens	Kgs	Reindeer										580	580
IF-NISBET	Moss	Kgs		1250	1250	100								2600
IF-NISBET	Moss	Kgs	Knights Plume					1500	1504	1500	500	500	1500	7004
IF-NISBET	Moss	Kgs	Red Stem								500	500		1000
IF-NISBET	Moss	Kgs	Stair-Step								500	500		1000
IF-NISBET	Mushrooms	Kgs						2500						2500
IF-NISBET	Whole Plant	Pcs	Bluebell		20									20
IF-NISBET	Whole Plant	Pcs	Blue Eye Grass		40									40
IF-NISBET	Whole Plant	Pcs	Blueberries		60									60
IF-NISBET	Whole Plant	Pcs	Cranberries		60									60
IF-NISBET	Whole Plant	Pcs	Fairybells		20									20
IF-NISBET	Whole Plant	Pcs	Kinnikinnick		110									110
IF-NISBET	Whole Plant	Pcs	Reindeer		40									40

Table 3-1 (cont'd). Annual Volumes of Non-Timber Forest Products Permitted in the Island Forests - Torch														
Forest	Product	Units	Species	Quantity by Operating Year										Total
				1999-2000	2000-2001	2001-2002	2002-2003	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008	2008-2009	
IF-TORCH	Branches, Boughs	Kgs				500								500
IF-TORCH	Burls	Pcs			10									10
IF-TORCH	Cones	Hls			1									1
IF-TORCH	Conks	Pcs			20									20
IF-TORCH	Fiddle Heads	Kgs			500									500
IF-TORCH	Fiddle Heads	Kgs	Ostrich Fern					2						2
IF-TORCH	Fiddle Heads	Pcs	Ostrich Fern						600					600
IF-TORCH	Flat Birch	Pcs			10									10
IF-TORCH	Moss	Kgs			500	100								600
IF-TORCH	Mushrooms	Kgs	Chanterelles						2500	3750	30000	5000	500	41,750
IF-TORCH	Mushrooms	Kgs	Pine							3750	500			4250
IF-TORCH	Sapling	Pcs			100									100
IF-TORCH	Shoots, Stocks	Pcs	Alder				2000							2000
IF-TORCH	Sleeves	Pcs			10									10
IF-TORCH	Sphagnum Moss	Kgs			500									500
IF-TORCH	Whole Plant	Pcs	Ostrich Fern				500			600	600	600	600	2900

In Northern Saskatchewan, chanterelles are primarily found in jack pine stands that have a groundcover of reindeer lichen. Chanterelles begin to appear around mid-July and continue producing if conditions are favourable until freeze-up. These mushrooms are ectomycorrhizal, so they grow sheath-like mantles called ectomycorrhizae (“fungus roots”) around the root tips of host trees (Sask. Forest Centre, 2007). The many benefits of mycorrhizae are well-documented in the scientific literature. The primary benefits are the symbiotic relationship which exists between the tree and fungi. In this case, the fungus’ hyphae extend further into the soils to absorb and translocate moisture and nutrients to the tree, and in return the fungus acquires carbohydrates from the tree.



Figure 3-2. Chanterelle Mushrooms on a Jack Pine Site in the Torch Forest.

Presently, chanterelle mushrooms are only harvested commercially from the Torch Forest, within the Island Forests. They are likely present in other parcels of the Island Forests and are found throughout much of northern Saskatchewan. Chanterelles have been found to return after disturbances, such as fire, logging, and disk-trenching (Sask. Forest Centre, 2005). Recent forest operations within the Torch Forest has drawn some resistance to forest management practices from concerned mushroom pickers in the area, prompting the Minister to defer forest operations for a one-year period until a reasonable solution can be reached.

In a study of wild mushrooms in northern Saskatchewan (Sask. Forest Centre, 2007), it was found that both chanterelle and pine mushrooms occur in forest stands less than 20 years old, but are most commonly found growing in jack pine stands which are 50-80 years old and with crown closures less than 55%.

There are a number of different species of **morels** that can be harvested in the Island Forests. These mushrooms appear in the spring (usually late May to early June) and have a cone-shaped cap that is pitted and ridged (honeycombed) (Sask. Min. Ag., 2010). The cap and stem are hollow and fused together (see Figure 3-3).

Black and yellow morels are both harvested commercially in Saskatchewan, and particularly in the Island Forests. They are commonly known to flourish abundantly in the first year after a forest fire, providing that suitable conditions exist. The time of year of the burn and the amount of rainfall after a fire are critical factors in determining morel production.

Morels occupy a wide range of different habitats including coniferous and mixed wood forests. Morels also prefer areas in hollows or around tree stumps where the soil is moist (Sask. Min. Ag., 2010).



Figure 3-3. Black and Yellow Morel Mushrooms. (Photo - Saskatchewan Ministry of Agriculture).

The **pine mushroom** is a large fleshy mushroom which fruits in Saskatchewan from early August until late September if conditions are suitable. It is very similar to the Matsutake mushroom from Japan which is highly prized in that country. Therefore, this mushroom can command a very high price if it is harvested in its early stages and is of good quality (Sask. Min. Ag., 2010).

The pine mushroom has an overall white appearance with the cap becoming cinnamon tan. The strong, aromatic odour of the pine mushroom is its distinguishing feature (Figure 3-4).

Pine mushrooms are similar to chanterelles in that they are ectomycorrhizal in nature and that they also grow in jack pine stands with sandy soils. Because of this they are often associated with reindeer lichen. They have been harvested commercially to a lesser extent than chanterelles within the Torch Forest. They are likely present throughout other parts of the Island Forests.

In order to promote compatible management of timber and pine mushrooms on a site, a new guidebook in BC recommends one method to retain pine mushrooms on-site is to identify areas where fruiting pine mushrooms are located and to maintain them in residual forest patches (Berch and Kranabetter, 2009). The author has mentioned that that approach would also work with chanterelles (Berch, 2009).



Figure 3-4. Pine Mushrooms. (Photo - Saskatchewan Ministry of Agriculture).

3.3.6 Recreational Activities

The Island Forests, especially the Nisbet Forest, are well known for their recreational opportunities, since they are located close to many communities. Both the Nisbet Forest IFLUP and draft FALC IFLUP discuss approaches to managing aspects of recreation and the issues they create with other land uses. Volume II will integrate aspects of these recreational uses into Values, Objectives, Indicators and Targets (VOITs). An inventory of recreational areas and trails could be made and these areas mapped for land-use planning.

3.3.6.1 Skiing

The Island Forests host a number of ski trail networks which are actively used by local residents. In the Nisbet Forest, there are four key areas that have been developed by clubs for cross-country skiing. These areas include: Eb's Trails, MacDowall Ski Trails, Holbein Ski Trails, and the Little Red River Ski Trails.

The province has been involved over the years in assisting in the development of many of the ski trails. Eb's Trails, located 18 km north of Duck Lake along Highway 11, were initially started in 1977 (<http://members.shaw.ca/nordicski/EBStrails.html>). The trails have been expanded since then, and there are now cabins, toilets, ski trails and signs associated with them. The facilities are maintained by the Saskatoon Nordic Ski Club. Skiers are from Saskatoon, Prince Albert, Rosthern, MacDowall, Duck Lake and other local communities.

The Little Red River Ski Trails are maintained by the Prince Albert Ski Club. These ski trails extend from the city's Little Red River Park into private lands and the Nisbet Provincial Forest (www.paskiclub.ca).

The Holbein Ski Trails were developed south of Holbein and are maintained by the Holbein and District Community Club. There have been problems associated with snowmobilers damaging most ski trails during winter and ATV operators in other seasons (SERM, 2000).

In the FALC, the Melfort Cross Country Ski Club maintains a set of trails south of the Saskatchewan River (<http://www.crosscountrysask.ca/melfort/trails.html>) with over 20 km of trails. Although outside of the FALC, the Wapiti Valley Regional Park is a very important tourist attraction of the area with downhill ski facilities and a cottage subdivision (<http://www.skiwapitivalley.com/>).

3.3.6.2 Snowmobiling

Snowmobiling is a major winter activity in Saskatchewan and the province is rich with numerous trails, some of which connect to trans-Canada trails, and many others connecting various communities and recreational destinations.

Although snowmobiling occurs on many roads and trails in the forest in the Island Forests, there are only two areas managed and groomed by snowmobile clubs. Trail 217A goes south of the Saskatchewan River near Wapiti and follows the power line and farmland and on to Highway #6. It is maintained by the Melfort and District Trail Riders Association. The Canwood Sno-Blazers maintain trail 103C and 103B through the Canwood Forest. These snowmobile clubs are part of the Saskatchewan Snowmobile Association which maintains a registry of all clubs and their trail maps. This information can be viewed on their website at http://www.sasksnowmobiling.sk.ca/trail_maps.htm.

There are also many trails and old roads throughout the Island Forests used for local snowmobiling (SERM, 2000). Some of these include: the Nisbet Trails Recreation Site, the MacDowall area trails, and the Holbein area trails. The Nisbet Trails Recreation Site was designated in 1974 to focus snowmobiling in a given area in the Nisbet Forest, and to limit snowmobiling in the Buckland Wildlife Management Unit. These trails are no longer groomed. The North Cabin Fire of 1989 burned over some of the trails in the MacDowall area. The Holbein and District Community Club developed and maintain the snowmobile trails near that community.

There are few known conflicts over the use of resource roads and trails for snowmobiling, because most are closed to vehicular traffic in winter.

3.3.6.3 Hiking/Running/Cycling

The Little Red River Ski Trails and Eb's Cross Country Ski Trails are used for hiking, running and cycling activities. Hikers using Eb's Ski Trails have expressed safety concerns over the use of all-terrain vehicles (ATV) on hiking trails.

3.3.6.4 ATV Use

Use of ATVs in the forest for recreation purposes has increased over time. Although there are no designated sites in the Island Forests for such use, most trails have the potential for access by ATVs. There have been some organized ATV rallies in various areas of the forest, however most traffic is by local residents.

3.3.6.5 Horseback Riding

There are no trail riding agreements in the Island Forests for any equestrian group or ecotourism operation. In the Nisbet Forest, horseback riding occurs in the Steep Creek Block, the MacDowall Block, and north of the Little Red River Park near the Red River Riding & Roping Arena. Horseback riders in the MacDowall area use the shelters and toilets constructed for Eb's Ski Trails. In the FALC,

trails are actively used near Wapiti by local riders and 4-H clubs. Local enthusiasts also ride the scenic trails of the Canwood and Torch Forests.

3.3.6.6 Fishing

Most fishing within the Island Forests takes place on the Saskatchewan River system. This includes Codette Lake which is well-known for its walleye fishing and there is an annual fishing tournament held on the lake. Within the Nisbet Forest, fish stocking is carried out in the Nisbet Trout Pond and in Steep Creek. The Nisbet Trout Pond is found along a creek draining into the Sturgeon (Shell) River in the Nisbet Trails Recreation Site. The pond is stocked by the Ministry annually with 2,400 catchable rainbow trout. There is a parking area and toilet facilities at the site maintained by the Ministry.

Steep Creek, located in the Steep Creek Block of the Nisbet Forest, is stocked annually by the Ministry with 500 brook trout fingerlings. This site was improved by the Ministry and the RM of Prince Albert in 1999 to provide parking, and to stabilize water levels in the pond.

3.3.6.7 Canoeing and Kayaking

Both the North and South Saskatchewan Rivers are used for canoeing. The area of the South Saskatchewan River between Saskatoon and Nipawin is identified in Saskatchewan's 2000 Vacation Guide as Canoe Route #19. Since no registration is required, it is difficult to estimate the extent of recreational use on both rivers.

3.3.6.8 Cabins

Permits were issued in the past to the Duck Lake Métis Society to build log cabins in the MacDowall Block as a training exercise. Although dispositions for the six cabins have expired long ago, the cabins remain, and they are often used by winter recreationists as warm-up shacks.

3.3.7 Educational Activities

The Kristi Lake trail and outdoor classroom was developed and maintained by the Saskatchewan Forestry Association and is located northwest of the Little Red River Park, in the Nisbet Forest. These interpretive trails are used extensively by local area schools for education experiences.

The University of Saskatchewan and local high schools use the MacDowall Bog Protected Site, and other areas of the forest for plant and nature studies. Local Scouts and Guides use many parts of the forest for outdoor education experiences, and gathering craft products.

3.3.8 Grazing

Permits are issued for grazing in the Island Forests on an annual basis. There are 53 active grazing permit holders, for a total of 1991 head of cattle to graze on 34,310 hectares of land. This represents 15% of the Island Forests land base. Permit holders consist of individual operators, partnerships and one livestock association. Permits to individuals and partnerships range from seven cattle on 65 ha (0.25 section) of land to 100 head of cattle on 2,266 hectares (8.75 sections). The livestock association has a permit for 358 head of cattle on approximately 7,123 hectares (27.5 sections) of land. Although

licence provisions are made in *The Forest Resources Management Act* (1996) for longer grazing terms, currently none are in effect. Most of the existing annual permit holders have long histories of having grazing permits in the forest, with many instances of annual permits being issued to families from one generation to the next.

The present demand for grazing permit areas is high, as there is usually someone wanting to move cattle onto areas no longer required by a permit holder. Over the last 20 years, most of the permit holders no longer wanting to renew their grazing permits have passed their interest on to a family member. When permits are transferred from one family member to the next, an assessment to determine the appropriate carrying capacity for the permit area has not been required. However, when a non-family member applies for a permit to graze cattle in a former grazing permit area, an assessment to determine the appropriate carrying capacity is required. Since the Act has come into effect, there has been one site that application for a grazing permit was denied due to environmental stresses. No active grazing permit areas in the Island Forests have been assessed for carrying capacity.

Carrying capacities of grazing permit areas within the Nisbet Forest are currently being reviewed. Detailed range and riparian health assessments in the areas have been conducted between 2009-2011. These assessments will help guide future range management planning in the area. *The Forest Resources Management Act and Regulations* has provisions to require the completion of range management plans. The Ministry intends to have all current grazers in the Nisbet Forest complete range management plans. Range management plans allow for a review of stocking rates, but do not require an assessment for carrying capacity.

3.3.9 Visually Sensitive Areas

At present, there have been no areas specifically zoned for visually sensitive areas within the Island Forests. Current forest management practices use riparian buffer zones of varying width to both mitigate potential impacts of forest operations on riparian systems and also to minimize their visual impacts.

3.3.10 Species at Risk

In Saskatchewan, *The Wildlife Act*, *The Wild Species at Risk Regulations* and the federal *Species at Risk Act* (SARA) provide the mechanisms for both protecting wildlife and species at risk. The intent of the legislation is to prevent native species from becoming extirpated or extinct, to provide for the recovery of extirpated, endangered or threatened species, and to encourage the management of other species to prevent them from becoming threatened or endangered.

The Saskatchewan Conservation Data Centre (SKCDC) tracks a list of species which may be listed under federal or provincial legislation or simply be considered rare or have a restricted range in the province. Table 3-2 lists the tracked species with confirmed locations within the Island Forests.

None of the tracked species in Table 3-2 have been listed under the provincial *Wild Species at Risk Regulations* or the federal *Species at Risk Act*. However, the SKCDC does provide a list of species which are expected to be found within each ecodistrict. The Island Forests fall within the Prince Albert, Nisbet Forest and La-Corne ecodistricts. Listed species which may occur in the Island Forests are found in Table 3-3.

Table 3-2. Species at Risk Tracked by the Saskatchewan Conservation Data Centre which have Confirmed Locations within the Island Forests.

Common Name	Scientific Name
Great Blue Heron	<i>Ardea herodias</i>
Trumpeter Swan	<i>Cygnus buccinator</i>
Musk-root	<i>Adoxa moschatellina</i>
Large Northern Aster	<i>Aster modestus</i>
Indian Milk-vetch	<i>Astragalus aboriginum</i>
Western Moonwort	<i>Botrychium hesperium</i>
Leathery Grape-fern	<i>Botrychium multifidum</i>
Cuckooflower	<i>Cardamine pratensis</i>
Granular Sedge	<i>Carex granularis</i>
Porcupine Sedge	<i>Carex hystericina</i>
Fox Sedge	<i>Carex vulpinoidea</i>
Short-stemmed Thistle	<i>Cirsium drummondii</i>
Ram's Head Ladyslipper	<i>Cypripedium arietinum</i>
Sparrow's-egg Lady's-slipper	<i>Cypripedium passerinum</i>
English Sundew	<i>Drosera anglica</i>
Flat-stemmed Spike-rush	<i>Eleocharis elliptica</i>
White-top	<i>Erigeron strigosus</i>
Moor Rush	<i>Juncus stygius ssp. americanus</i>
Large White-flowered Ground-cherry	<i>Leucophysalis grandiflora</i>
Northern Twayblade	<i>Listera borealis</i>
Hairy Wood-rush	<i>Luzula acuminata</i>
White Bog Adder's-mouth Orchid	<i>Malaxis monophyllos var. brachypoda</i>
Canada Mountain-ricegrass	<i>Oryzopsis canadensis</i>
Purple Lousewort	<i>Pedicularis macrodonta</i>
Pink Fringed Milkwort	<i>Polygala paucifolia</i>
Five-foliolate Cinquefoil	<i>Potentilla nivea var. pentaphylla</i>
White Beaked-rush	<i>Rhynchospora alba</i>
Smooth Wild Rose	<i>Rosa blanda</i>
Tyrrell's Willow	<i>Salix planifolia ssp. tyrrellii</i>
Low Spike-moss	<i>Selaginella selaginoides</i>
Tall White Fleabane	<i>Trimorpha elata</i>

Table 3-3. Possible species at risk within the Island Forests.

Common Name	Scientific Name	Rank
Monarch Butterfly	<i>Danaus plexippus</i>	Special Concern
Canada Warbler	<i>Wilsonia canadensis</i>	Threatened
Common Nighthawk	<i>Chordeiles minor</i>	Threatened
Ferruginous Hawk	<i>Buteo regalis</i>	Special Concern
Olive-sided Flycatcher	<i>Contopus cooperi</i>	Threatened
Red-headed Woodpecker	<i>Melanerpes erythrocephalus</i>	Threatened
Rusty Blackbird	<i>Euphagus carolinus</i>	Special Concern
Short-eared Owl	<i>Asio flammeus</i>	Special Concern
Whooping Crane	<i>Grus americana</i>	Endangered
Slender Mouse-ear-cress	<i>Halimolobos virgata</i>	Threatened

3.3.11 Mineral Dispositions

There are currently nine dispositions totaling 86.23 ha in the FALC relating to diamond exploration activities which are held by either Shore Gold Inc. or Kensington Resources Inc. Most of the exploration activities within the land base tend to mitigate negative impacts to the environment and prepare an area for diamond drilling activities. There have also been two Approvals to Operate within the Star-Orion South Diamond project area, granted by the Ministry which allows for advanced exploration activities to take place (Figure 3-5).



Figure 3-5. Diamond Exploration Activities within the FALC.

3.3.12 Oil and Gas Exploration

The Ministry of Energy and Resources has issued a large permit for shallow gas exploration in a large area around Meath Park which may be extended into the FALC in the near future.

3.3.13 Land Dispositions and Leases

There are various land dispositions and leases managed by the Ministry's Lands Branch. The database which contains this information is currently being modified to project these areas spatially, so the information will be presented in the planning inventory to be prepared with the forest estate modeling report. Some of these dispositions include the diamond exploration areas mentioned above.

3.3.14 Trapping Areas

The Island Forests are covered by two Northern Fur Conservation Blocks and several Wildlife Management Zones in the South Saskatchewan Trapping Area. The Fort-a-la-Corne Forest falls within the P85 unit, and part of the Nisbet Forest is within the P27 unit. Portions of Wildlife Management Zones 50, 51, 52, 53 and 54 are also within the Island Forests boundaries.

The trapping industry is very inactive due to low fur prices and lack of participation. Block P85 (Fort-a-la-Corne) is trapped by the James Smith Cree Nation and has been quite inactive. The average annual revenue for the six-year period from 2003 to 2009 from units P27 and P85 combined was only \$4003.

3.3.15 Linear Developments

As seen on Maps 3-7 a and b (found in Appendix C), there are a number of highways passing through portions of the Island Forests, along with numerous resource roads and trails. Most in-block roads have been reclaimed since 2003 and many abandoned roads and trails have been either reclaimed or have had road closures put in place through Ministry programs.

There are several rail lines running through portions of the Island Forests. The Carlton Trail Railway (CTR) has a rail portion of the south Nisbet Forest block (south of MacDowall), a spur running north of Prince Albert through the Nisbet Forest, and one rail line going to the pulp mill site. There is another CTR rail line running from Shellbrook through the Canwood Forest, heading to Meadow Lake. There is also an abandoned rail line from Shellbrook to Prince Albert. A map of the entire Saskatchewan Rail Network can be viewed at <http://www.highways.gov.sk.ca/rail-network/>.

Extensive utility lines have been created throughout the Island Forests over time and are usually built within existing road rights-of-way. SaskPower has a couple of transmission lines running through the Island Forests. There is a switching station in Prince Albert, which then runs a 138 kV transmission line north and only passes through a small portion of the Nisbet Forest. There is a larger 230 kV line running southwest from the Nipawin Hydroelectric Station cutting through the southern portion of the FALC.

3.4 Island Forests Community and Social Profile

Information for this section has been obtained from Statistics Canada Community Profiles. The most recent census data comes from 2006. In some cases, comparison data is supplied from the 2001 census. Information is presented for the cities, towns, villages, First Nations communities, and rural municipalities within the vicinity of the Island Forests. These communities are listed in Table 3-4 and have been selected from a nominal area around the Island Forests.

Table 3-4 Communities within the Vicinity of the Island Forests³

First Nations	Rural Municipalities	Cities, Towns, and Villages
Ahtahkakoop First Nation	RM of Buckland No. 491	Albertville
Beardy's Okemasis First Nation	RM of Duck Lake No. 463	Beatty
Cumberland 100A First Nation	RM of Garden River No. 490	Birch Hills
James Smith Cree Nation	RM of Torch River No. 488	Brancepeth
Little Red River 106C	RM of Leask No. 464	Canwood
Little Red River 106D	RM of Nipawin No. 487	Chociceland
Mistawasis First Nation	RM of Prince Albert No. 461	Codette
Montreal Lake Cree Nation	RM of Kinistino No. 559	Crutwell
Muskeg Lake First Nation	RM of Shellbrook No. 493	Domremy
Muskoday First Nation	RM of Willow Creek No. 458	Duck Lake
One Arrow First Nation		Garrick
Peter Ballantyne Cree Nation		Gronlid
Peter Chapman First Nation		Holbein
Sturgeon Lake First Nation		Kinistino
Wahpeton Dakota Nation		Leask
Yellow Quill First Nation		Love
		MacDowall
		Marcelin
		Meath Park
		Melfort
		Nipawin
		Parkside
		Prince Albert
		Shellbrook
		Shipman
		Snowden
		Smeaton
		St. Louis
		Tisdale
		Weldon
		Weirdale
		White Fox

3.4.1 Human Population

Many trends affecting Island Forests communities are also affecting Saskatchewan. First Nations communities are increasing while others are decreasing, as reflected in Figure 3-6.

³ These groups are referred to as follows in the remainder of this section (including graphs): **FN**: Island Forests First Nations communities, **RM**, Island Forests Rural municipalities, **CTV**, Island Forests Cities, Towns, and Villages, **IF**, the Island Forests communities as a whole.

Between 2001 and 2006 First Nations communities within the Island Forests increased by over 12%. The population of Saskatchewan decreased by 1%, and other communities in the Island Forests area decreased by over 3% with the exception of rural municipalities which decreased by over 9%. Summary of population changes in Island Forests communities is presented in Table 3-5.

Breaking down the population by age indicates that this trend will continue for some time into the future, as can be seen by the spike in First Nations youth population in Figure 3-7.

Island Forests Population Change 2001-2006

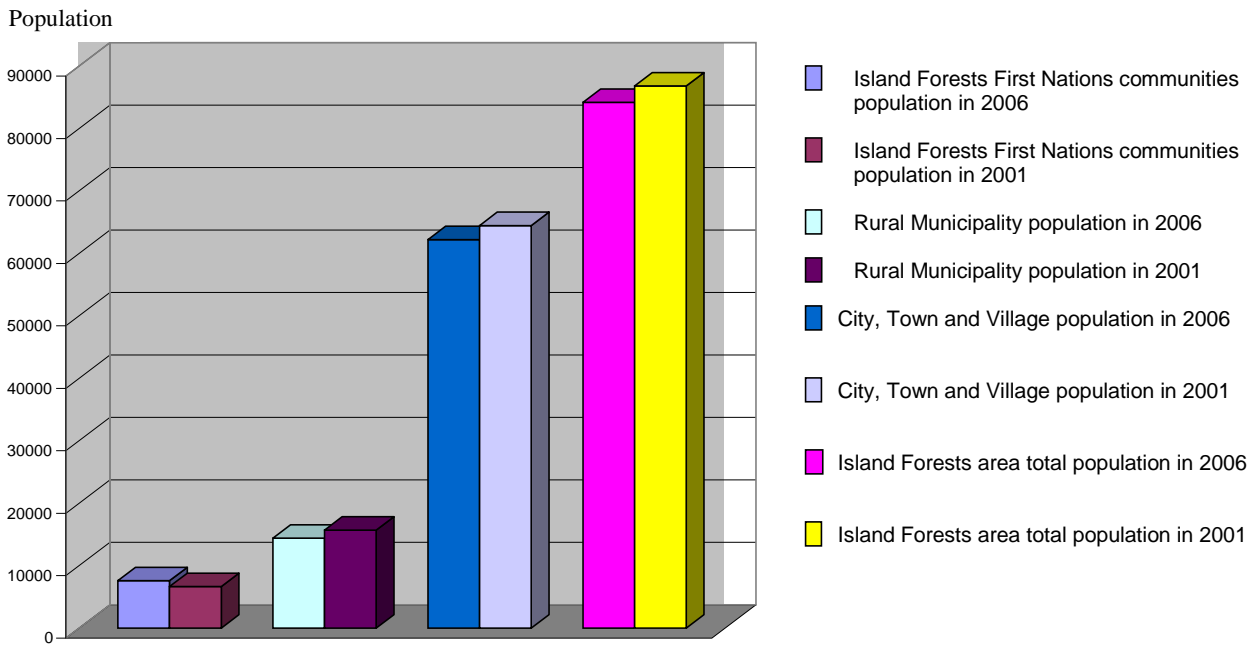


Figure 3-6. Population Change in and around the Island Forests Communities.

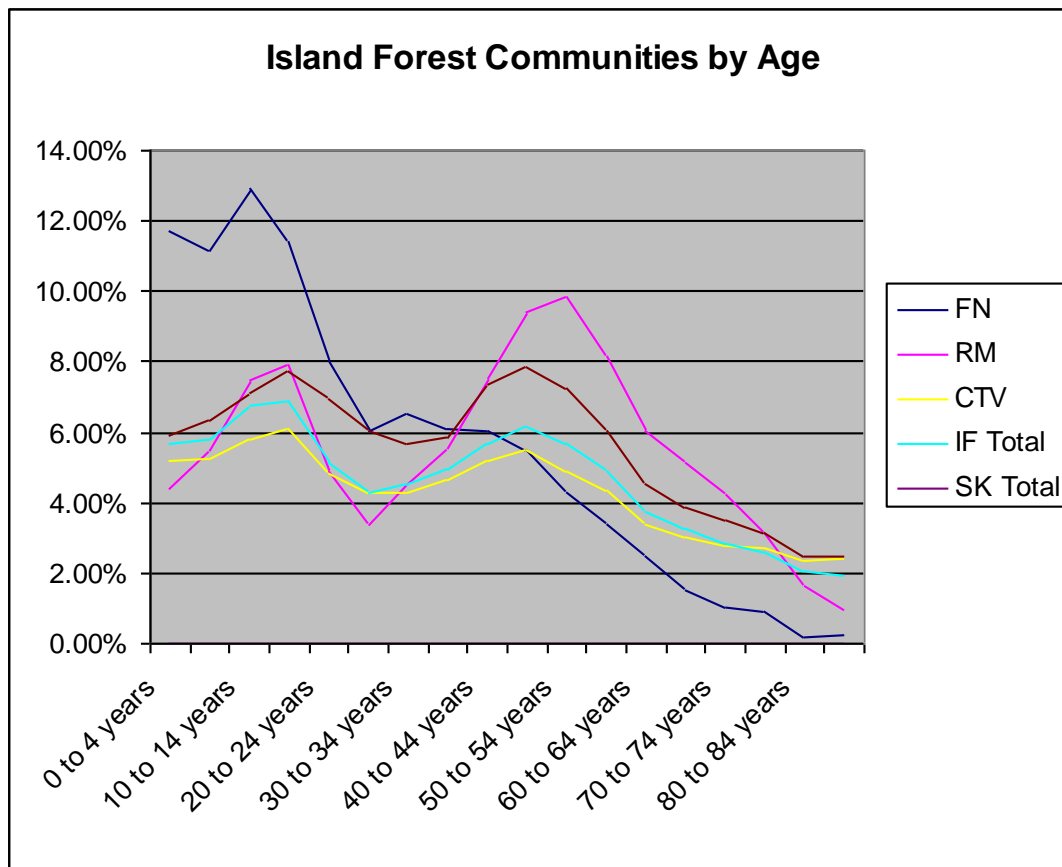


Figure 3-7. Demographics of Various Communities in and around the Island Forests.

Table 3-5. Island Forests Communities Population Change Summary.

Scale of Population Change by Community Group	Population		Percent change (%)
	2001	2006	
Island Forest First Nations communities	6650	7595	12.44
Rural Municipality	15,700	14,395	-9.07
City, Town and Village	64,464	62,208	-3.63
Island forest area total population	86,814	84,198	-3.11
Saskatchewan	978,933	968,157	-1.11

3.4.2 Educational Achievement

Education in the Island Forests area tends to closely follow Saskatchewan patterns, with the exception of First Nations communities that do not reach the same level of educational achievement. When the Island Forests population is compared to Saskatchewan as a whole, the performance is quite similar to

the rest of the province which may suggest that this pattern is not unique to the demographics of the Island Forests, which is presented in Figure 3-8.

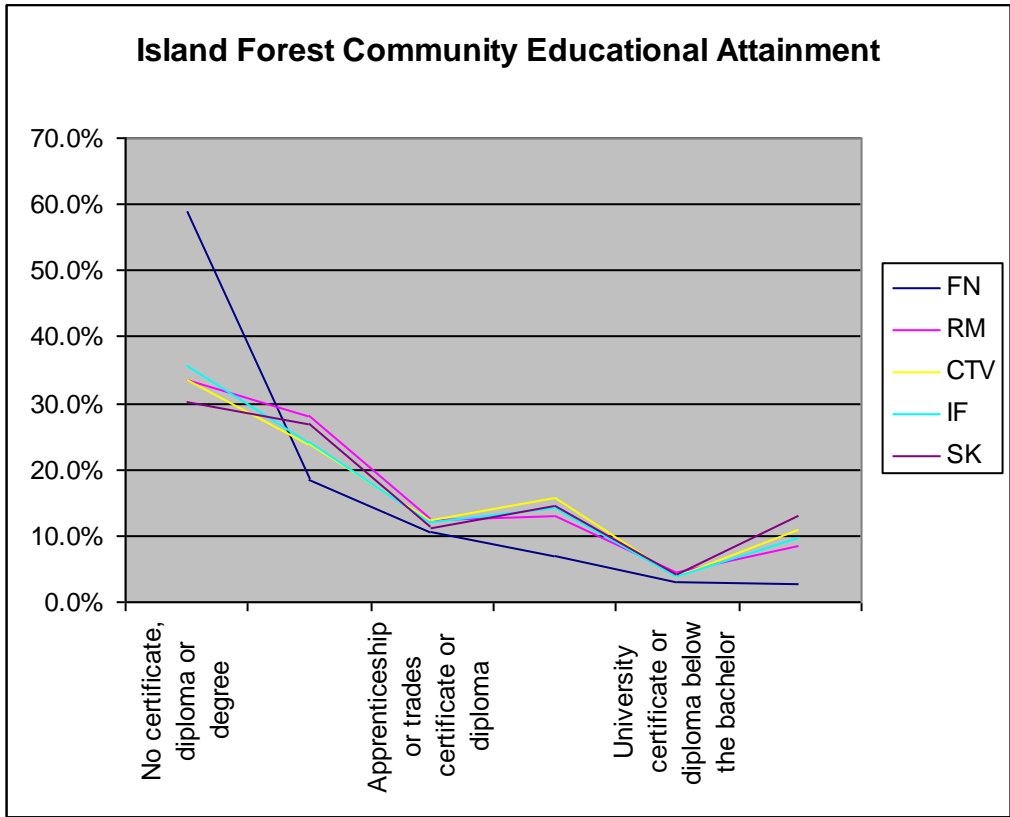


Figure 3-8 Profile of Educational Attainment within the Island Forests and Surrounding Communities

3.4.3 Employment

Employment data specifically for the Island Forests is limited since Statistics Canada community profiles aggregates forest sector employment with those of both agriculture and resource sector employment (Figure 3-9). The closure of the Prince Albert pulp mill in 2006 caused a decrease in forest operations. More accurate and current statistics are needed to determine the economic importance of the forest sector in the Island Forests. Based on Statistics Canada data, 12.7% of the inhabitants of the Island Forests communities make their living in this sector.

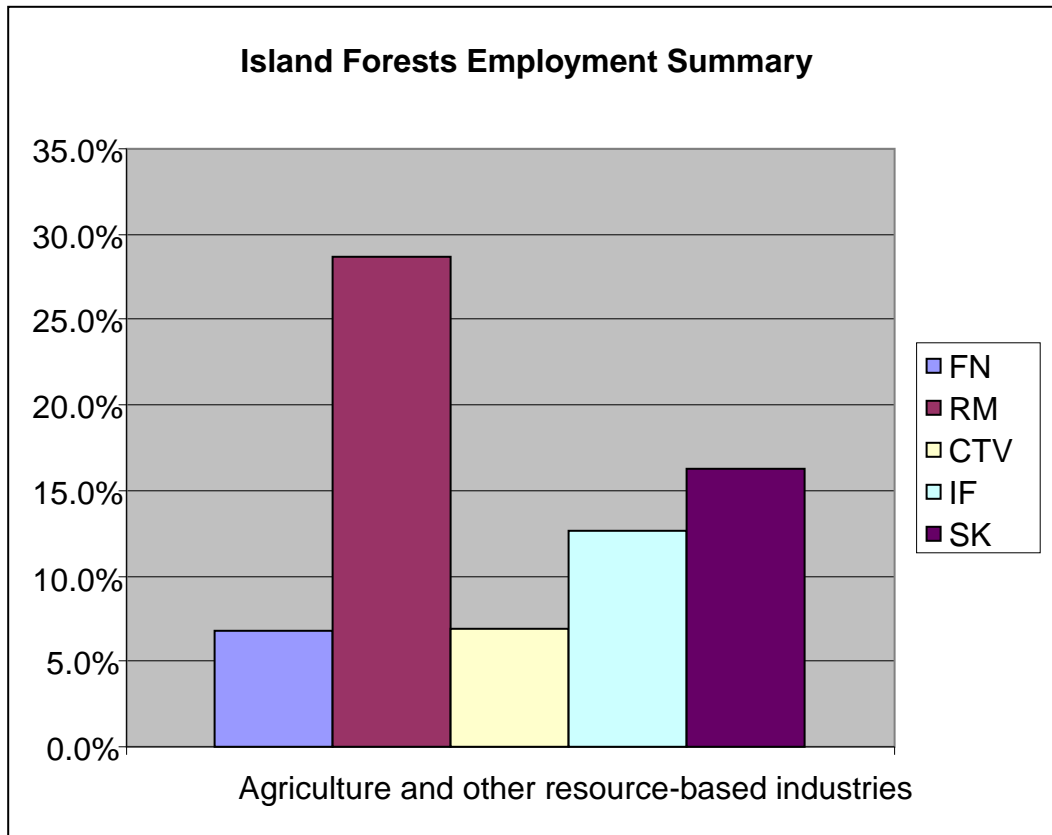


Figure 3-9 Profile of Employment within the Island Forests and Surrounding Communities

The Canadian Forest Service has gathered interim data on primary wood producers in 2005 that shows 49 enterprises in the Island Forests area. This data was gathered before the Prince Albert pulp mill was closed, and it is unknown how many of the 49 operators were affected.

3.4.4 Income

Annual individual income in the Island Forests is lower than the provincial median of \$23,733 average with the exception of Prince Albert that comes close at \$23,709, as depicted in Figure 3-10. The median income of the remaining towns and villages excluding Prince Albert is \$15,075.

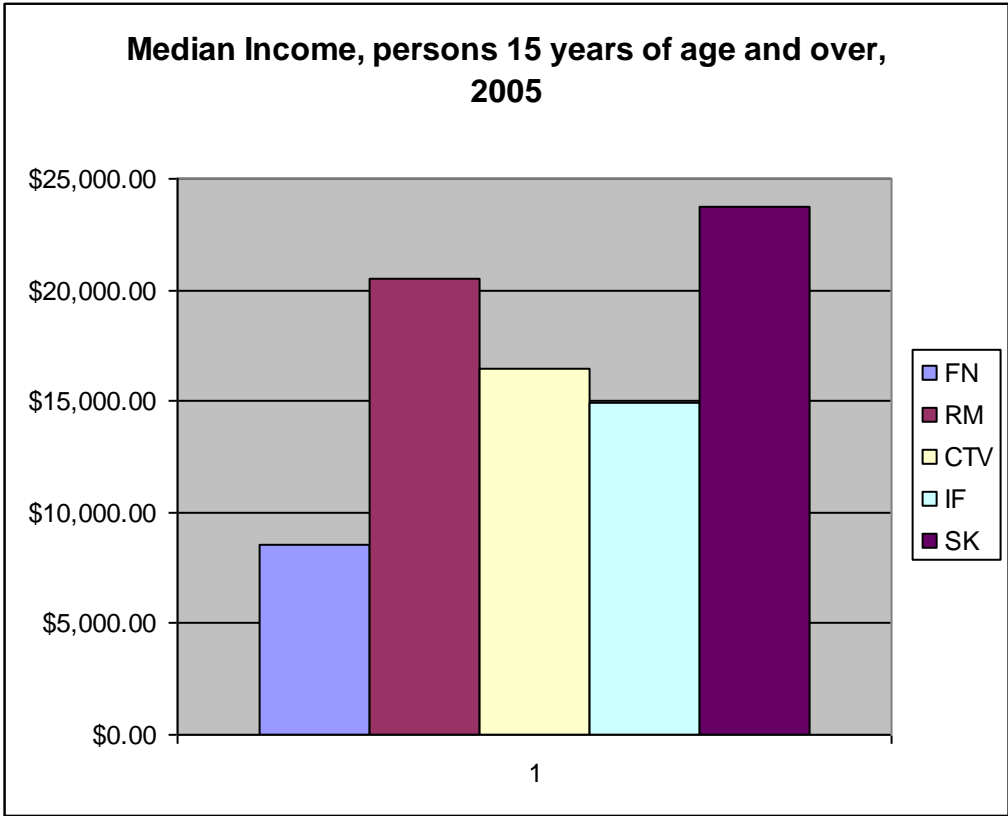


Figure 3-10 Median Annual Incomes of People Living in and around the Island Forests

3.5 Licensee Description

Because of the small size and individual detached components, the Island Forests are managed differently from large area-based licence tenures. The Island Forests are not under a single area-based licence but rather are managed using Forest Product Permits (FPP) and small Term Supply Licences (TSLs). Currently there are 14 FPP holders and six small TSLs. They are collectively termed “independent operators”.

The 2011/12 operating plan for the Island Forests (SRC, 2011) states that the total annual harvest allocation for the Island Forests is 86,200 m³ of softwood and 77,400 m³ of hardwood. Volume commitments in the Island Forests are largely through FPPs, except for six TSLs issued to the licensees listed in Table 3-6. Other than these licensees, there are no other long-term allocations in the Island Forests

Table 3-7 is modified from the 2011-2012 operating plan and lists the independent operators who are currently active in the Island Forests. Additionally, there are a small number of individuals who acquire FPPs amounting to less than 500 m³. The number of these individuals fluctuates annually, as they are usually local landowners or farmers who require a small amount of wood volume.

Table 3-6. Term Supply Licences in the Island Forests.

Licensee	Licence Term	Volume Allocation (m ³)	
		Softwood	Hardwood
First Nations Island Forests Management Inc. (FNIFMI)	2007 – 2012	60,000	50,000
Valley Forest Products (James Hamm)	2009-2014	20,000	2,000
CLP Wood Supply (Bob Peters)	2008- 2013	67,500	10,000
Bednarz Bros.	2010-2015	2,500	500
R & C Logging Inc. (Rodney Jonasson)	2010-2015	60,000	10,000
Wild Country Log Homes & Buildings (Don Newton)	2011-2016	40,000	25,000

Most of these independent operators own and operate their own sawmills. In the past, many have sold harvested wood to pulp mills particularly to Weyerhaeuser Canada Ltd., Prince Albert Pulp Mill until its closure in 2006 and then to the Tolko pulp mill in The Pas, MB. In addition to this, they also sold wood to the Oriented-Strand Board (OSB) mill owned by Weyerhaeuser Canada Ltd. in Hudson Bay. Further, some of these independent operators specialize in both post and rail manufacture, while others produce specialty products such as building logs.

3.5.1 Forest Management Principles and Certification

The mandate of the Ministry of Environment is to protect and manage Saskatchewan's environmental and natural resources so as to maintain a high level of environmental quality, ensure sustainable development, and provide economic and social benefits for present and future generations (Ministry of Environment, 2009). The Ministry is composed of a number of different branches of which the Forest Service Branch is one of them. The Forest Service develops and administers policies and programs focused on an ecosystem-based approach to the sustainable management of the provincial forest. The Forest Service allocates forest resources to promote forest industry development based on this goal. To this end, the Forest Service monitors forest health, administers forest inventory and forest management activities such as harvesting, road construction and renewal.

In managing the forest resource, the Forest Service is guided by the principles of ecosystem-based management, sustainable forest management, adaptive management, public involvement and accountability. These principles are more fully articulated in the draft Forest Management Planning Standard.

Table 3-7. Island Forests Timber Allocations for 2011/12.

ISLAND FORESTS OPERATOR	VOLUME (M ³)		TOTAL VOLUME (M ³)	
	Softwood	Hardwood		
1. Ross Barton	3,000	3,000	6,000	
2. Bednarz Bros. (TSL)	500	100	600	
3. Ted Bieker	6,000	5,000	11,000	
4. FNIFMI (TSL)	12,000	20,000	32,000	
5. Wayne Fox	400	100	500	
6. James Hamm (TSL)	4,000	400	4,400	
7. Harvey Harder	1,000	200	1,200	
8. Rodney Jonasson (TSL)	12,000	6,000	18,000	
9. Terry Lorensen	5,000	2,000	7,000	
10. Don Newton (TSL)	6,000	5,000	11,000	
11. Stan Pederson	500	100	600	
12. Bob Peters (TSL)	13,500	10,000	23,500	
13. Dale Romanchuk	2,000	200	2,200	
14. Cliff and John Smith	14,000	20,000	34,000	
15. Vermette Wood Pres.	3,000	200	3,200	
16. Les White	3,000	5,000	8,000	
17. Fred Wilkinson	300	100	400	
Totals	17 operators	86,200	77,400	163,600

Funds for forestry activities such as operational planning (i.e., harvest blocking and road layout and construction) are generated through forest management fees which are collected by the Forest Service and managed through the Island Forests Fund.

The Forest Service does not prescribe to any of the common forest certification schemes such as the Forest Stewardship Council (FSC), Sustainable Forestry Initiative (SFI), or Canadian Standards Association (CSA) Sustainable Forest Management. These certifications and associated chain of custody requirements are usually market-driven and are designed to maintain market access. To date, the forest harvesting operators in the Island Forests have not expressed an interest in obtaining forest certification for their operations.

When Volume II is prepared for the Island Forests FMP, the VOITs developed will align with many of the requirements of other forest certification standards. This will be of great assistance to independent operators who wish to obtain forest certification.

3.5.2 Island Forests Economic Profile

Because of the fragmented approach to the allocation of wood in the past, it is difficult to develop a comprehensive economic profile for the Island Forests. Based on the requirements of the 2007 version of FMPD, eight tables are compiled during the preparation of this volume. These tables are associated with an economic profile of the area and are largely based on the premise that there is to be a single forest management licensee. The information requested is used by the licensee, the Ministry, stakeholders and the public to assess how forest management activities contribute to the local economy.

Many mills in the province do receive and process timber purchased from independent operators. Some of these mills are as far away as Carrot River and more recently, The Pas, MB. Table 3-8 summarizes the estimated person-years of mill employment during the 10-year term, from 1999/00 to 2008/09, resulting from wood received and processed from the Island Forests by these mills. This approximation is based primarily on knowledge of Forest Service staff.

Table 3-9 denotes small local sawmills (producing < 100M fbm) which generate local employment from timber received and processed from the Island Forests. Unfortunately, no records of mill employment have been retained from these facilities which are operated by independent operators. Hence, the table indicates which years the mills actually operated and so provided employment.

No records have been retained for woodlands operations' employment (FMP-Table 2-4), so this table has not been included in this plan.

Table 3-10 provides an approximation of the quantity of forest products produced from timber received and processed from the Island Forests during the 10-year period from 1999/2000 to 2008/09. However, these facilities do not report their actual production to the Forest Service, so approximations have been made for five major forest products, which include sawlogs, pulp, OSB, along with posts (includes rails) and firewood and are produced locally. These figures have been generated based on timber volume in cubic metres harvested from the Island Forests and appropriate conversion factors associated with each product.

Table 3-8. Employment from Mills which Receive and Process Timber from Island Forests.

Estimated Person-Years of Mill Employment													
Mill Name	1999 /00	2000 /01	2001/ 02	2002/ 03	2003/ 04	2004 /05	2005/ 06	2006/ 07	2007 /08	2008 /09	2009 /10	2010 /11	Total
Carrier Forest Products	4	2	2	4	4	4	6	10	8	2	1	4	51
Weyerhaeuser Prince Albert Pulp Mill	10	4	4	4	4	2	4	0	0	0	0	0	32
Weyerhaeuser Carrot River Sawmill	4	2	1	4	4	4	6	10	8	2	0	0	45
Weyerhaeuser OSB – Hudson Bay	0	0	0	0	0.4	0.4	0.4	0.4	0.4	0.4	0	0	2.4
Tolko Pulp Mill – The Pas, MB	0	0	0	0	0	0	0	2	2	2	1	1	8
Ross Barton	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	8.4
D&A Halland Co.	0	0	0	0	0	0	0.4	0	0.4	0.4	0	0	1.2
Don Newton	1	1	1	1	1	1	1	1	1	1	1	1	12
Stan Pederson	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	6
Green’s Lumbering	2	0	0	0	0	0	0	0	0	0	0	0	2
Ron Harris	1	1	1	1	1	1	0	0	0	0	0	0	6
L&D Enterprise Inc.	0.8	0	0	0	0	0	0	0	0	0	0	0	0.8
Grant LaPointe	0.5	0	0	0	0	0	0	0	0	0	0	0	0.5
Terry Lorensen	2	2	2	2	2	2	2	2	2	2	1	1	22
Mervin Neufeld	0.4	0.4	0.4	0	0	0	0	0	0	0	0	0	1.2
Earl Stewart	0.3	0	0	0	0	0	0	0	0	0	0	0	0.3
Aalcan Wood Preservers	0	8	8	6	6	1	1	0	0	0	0	0.5	30.5
Vermette Wood Preservers Ltd.	2	2	4	4	1	1	2	2	2	0	0	0	20
Valley Forest Products	1	1	1	1	1	1	1	1	1	1	1	1	12
V&R Sawing	0	0	0	1	1	1	2	2	2	2	2	2	15
Harvey Harder	0	0	0	0.4	0.4	0.4	0.4	0.4	0	0	0	0	2
Don Deforest	0	0	0	0	0	0	0	1	1	1	1	1	5
Les White	0	0	0	0	0	0	1	1	1	1	1	1	6
TOTALS	30.2	24.6	25.6	29.6	27	20	28.4	34	30	16	10.2	13.7	289.3

Table 3-9. Employment from Small Mills which Receive Timber from the Island Forests.

Small Sawmills which Produce < 100M fbm Generating Local Employment[1]												
Mill Name	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11
Fred Wilkinson	√	√	√	√	√	√	√	√	√	√	√	√
Bill Fengstad	√	√	√	√	√	√	√	√	√	√	√	√
Robert Harmon	√	√	√	√	√	√	√	√	-	-	-	-
Rick Hebert	√	√	√	√	√	-	-	-	-	-	-	-
Paul L'Heureux	√	√	√	√	√	√	√	√	√	√	√	√
Dan Lundell	√	√	√	√	√	√	√	√	√	√	-	-
Don Reimer	√	√	√	√	√	√	√	√	√	√	-	-
Kevin Newton	√	√	√	√	√	√	√	√	√	√	√	√
Gerald Franc	√	√	√	√	√	√	√	√	√	√	√	√
Morgan Nolan	-	-	-	-	-	-	-	-	-	√	√	√
Adam Moreland	-	-	-	-	-	-	-	-	-	-	√	√

Table 3-10 Quantity of Forest Products Produced in the Island Forests between 1999-2011

Forest Product	1999 - 00	2000 - 01	2001 - 02	2002 - 03	2003 - 04	2004 - 05	2005 - 06	2006 - 07	2007 - 08	2008 - 09	2009 - 2010	2010 - 2011	Total	12 Year Average
Sawlog	45,108	26,766	19,645	50,416	36,672	38,162	56,403	73,829	52,785	24,920	7,649	21,946	454,300	37,858
Posts	795	17,794	17,630	12,405	14,845	1,576	1,732	3,475	3,276	0	3,827	2,443	79,796	6,650
Firewood	1,969	382	727	1,789	4,494	2,640	4,020	3,654	4,951	5,209	8,803	10,464	49,103	4,092
Pulp	58,843	22,253	26,847	16,803	25,688	11,271	20,943	7,413	11,987	4,184	3,300	3,123	212,656	17,721
OSB	0	0	0	0	1,153	1,589	1,465	2,414	200	258	0	1,500	8,579	715
Totals	106,715	67,195	64,849	81,413	82,852	55,237	84,563	90,784	73,200	34,571	23,579	39,476	741,378	74,138

Information to generate FMP-Tables 2-6 through to 2-10 have not been tracked and they are therefore not included in this plan.

The forest sector's downturn in the later part of the last decade has had a negative impact on the economic situation of the Island Forests, especially with the closure of Weyerhaeuser's Prince Albert pulp mill in 2006. The closure of Weyerhaeuser's pulp mill and sawmills has significantly affected many independent operators who have limited local markets for excess timber. Some independent operators have resorted to selling pulpwood-value logs to Tolko's pulp mill in The Pas, MB, but with current fuel costs, the economics are poor.

However, independent operators harvesting timber from the Island Forests provide a positive contribution to the socio-economics in the Prince Albert region. Local businesses specializing in niche markets including custom sawing, post and rail production and even firewood harvesting have been able to survive during the downturn in markets.

The Forest Service continues to work closely with the Ministry of Energy and Resources to attract forestry-related business ventures to the province. For example, Edgewood Forest Products Ltd. has purchased Weyerhaeuser's softwood mills in both Hudson Bay and Carrot River. Both Ministries have also been working closely with Sakâw-Askiy Management Inc., which is the new forest management entity that has recently acquired the Prince Albert FMA area. This new entity represents a number of forestry companies, such as Carrier Forest Products and Meadow Lake OSB, which in the past have purchased timber from independent operators harvesting in the Island Forests. However, due to the ongoing uncertainty in the national forest sector, it is difficult to predict future economic trends. It is anticipated that a revival in the provincial forest economy will benefit the independent operators harvesting timber from the Island Forests.

4.0 Current Forest Condition

Overall, the Island Forests consist of 226,571 ha, of which 98% is Crown land. Some of this has been designated as recreation area under the Parks Act. As well, there are other designations, including areas which are part of the representative area network. The remaining 2% is private land, Indian Reserve lands or federal lands. These lands have been excluded from this FMP. The forest characterization report, which will be generated as part of this FMP will provide further details on these areas and where they are located throughout the Island Forests.

Table 4-1 presents the current status of the landbase for the Island Forests, of which 97.8 % is considered Crown forest land, of which approximately 88.7% is productive Crown forest land.

Table 4-1 Island Forests Area Land Summary

Land Ownership and Type		Crown		Other (ha)	Total (ha)
		Managed (ha)	Designated (ha)		
Forested		195,828	23,941	1,881	221,650
	Productive Forest	177,262	22,068	1,804	201,134
	Non-productive Forest	18,566	1,873	77	20,516
	Treed Wetland	2,826	198	1	3,025
	Open Wetland	10,494	1,009	32	11,535
	Brush and Alder	2,510	397	44	2,951
	Grass	2,736	269	0	3,005
Non-forested		4,403	486	32	4,921
	Water	1,682	0	0	1,682
	Other Land	2,721	486	32	3,239
	Developed Agricultural Land	0	0	0	0
	Unclassified	304	0	0	304
	Other	2,417	486	32	2,935
Un-surveyed		0	0	0	0
Total		200,231	24,427	1,913	226,571
Total Crown:		224,658			

A new Saskatchewan Forest Vegetation Inventory (SFVI) was created in 2007, based on 2004 aerial photography. The digital SFVI inventory is available free of charge to the general public and can be accessed via the Ministry's website using the following link (<http://gisweb1.serm.gov.sk.ca/imf/imf.jsp?site=forestinv>).

A summary of the productive forest lands from the SFVI is presented in Table 4-2. A graphic presentation of this information is also displayed in Figure 4-1. A description of Provincial Forest Types (PFTs) is found in Table 4-3. Four maps have been generated to spatially depict how the provincial forest types and their various seral stages are distributed across the Island Forests and are

found in Appendix C. The first map consists of the PFTs for the western portion of the Island Forests areas, which includes the Canwood and Nisbet Provincial Forests (Map 4-1a - Provincial Forest Type (West)). The second map consists of the PFTs for the eastern portion of the Island Forests areas, which consist of the FALC and Torch Provincial Forests (Map 4-1b - Provincial Forest Type (East)).

Table 4-2. Forest Area in the Island Forests by Provincial Forest Type and Seral Stage.

Provincial Forest Type (PFT)	Young	Immature	Mature	Old	Very Old	Grand Total
WSF	455	617	2,105	5,258	1,245	9,679
BSL	1,251	3,372	3,005	7,539	4,132	19,300
JLP	17,377	28,511	18,078	12,510	660	77,135
BSJ	269	418	699	730	142	2,259
SMW	402	574	993	1,348	246	3,563
PMW	2,472	3,633	1,325	560	47	8,038
HSM	265	2,688	1,459	166	34	4,613
HPM	3,467	5,995	909	171	11	10,553
TAB	7,060	40,020	15,153	548	9	62,790
AOH	223	2,104	845	33	0	3,205
Grand Total	33,240	87,932	44,572	28,863	6,528	201,135

Table 4-3. Description of Provincial Forest Types in Saskatchewan.

PFT	Broad Description of Forest Type and Non-Forested Areas
WSF	White spruce or balsam fir dominated softwood stands
BSL	Black spruce or tamarack/larch dominated softwood stands
BSJ	Black spruce and Jack pine dominated mixed softwood stands
JLP	Jack or lodgepole pine dominated softwood stands
PMW	Pine dominated mixedwood stands
SMW	Spruce dominated mixedwood stands
HSM	Hardwood with spruce (bS, wS, bF, and tL) mixedwood
HPM	Hardwood with pine mixedwood
TAB	Trembling aspen or white birch dominated hardwood stands
AOH	Any other hardwood dominated hardwood stand except TAB

The third map consists of the seral stages for the western portion of the Island Forests areas, (Map 4-2a – Seral Stages (West)), while the fourth map consists of the seral stages for the eastern portion of the Island Forests areas (Map 4-2b - Provincial Forest Type (East)).

4.1 Natural Disturbance

The Island Forests have been subjected to a number of large wildfires. Some of these wildfires have threatened landowners in the general area. Table 4-4 quantifies the total area of disturbances exceeding 10 ha in size which have occurred in the Island Forests from 1999-2009.

Figure 4-2 shows the area disturbed by fire >10 ha in the Island Forests between 1999-2009 by PFT and seral stage. A large amount of both mature and immature jack pine has been burnt over the 10-year period by several fires, notably the Crutwell (2002) in the Nisbet Forest, the Beaver (2000) in FALC, and the Windy (2009) in the Canwood. Figure 4-3 shows an aerial view of the Windy Fire. Several very large fires took place in the Island Forests prior to 1999 and are still quite evident on the landscape. These include the Steep Hill (1967), the Henderson (1989) and the English (1995) in the FALC and the North Cabin (1989) fire in the Nisbet Forest. Figure 4-4 shows the extent of the North Cabin fire in the Nisbet Forest in the Lily Plain area.

Some of these wildfires have had a dramatic impact on the landscape. For example, the English fire overlapped the boundaries of a previous fire. This has led to regeneration challenges in jack-pine dominated stands, resulting in large areas being designated to NSR status.

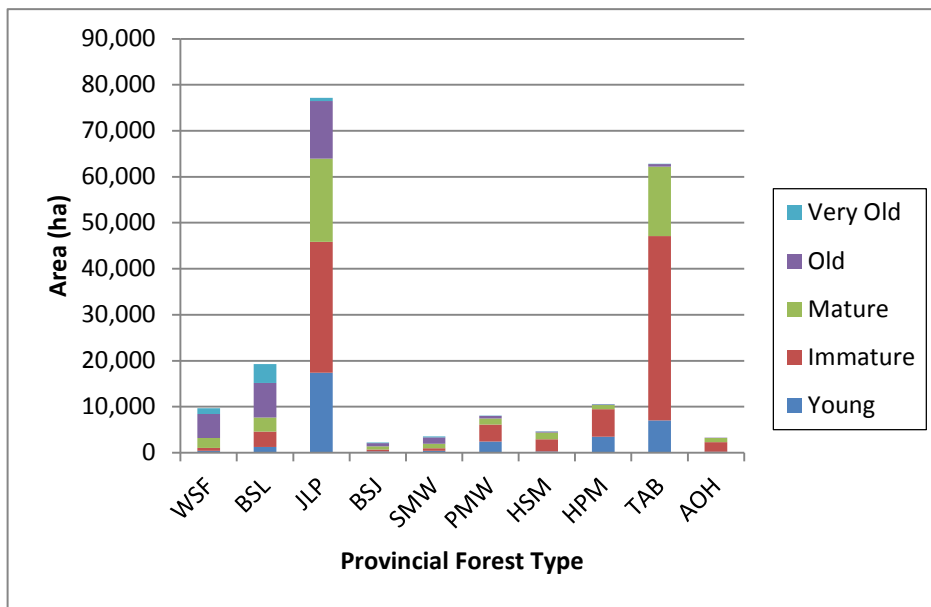


Figure 4-1 Area by Provincial Forest Type and Seral Stage for the Island Forests

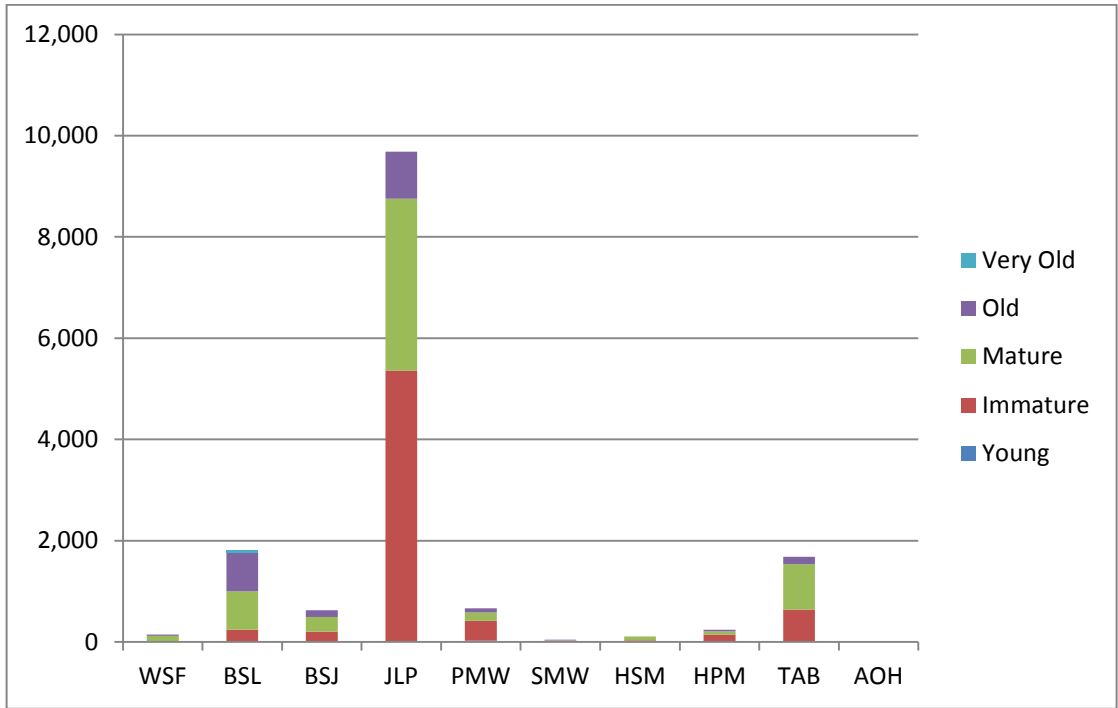


Figure 4-2 Area Disturbed from Fires >10 ha in the Island Forests Between 1999-2011 by Provincial Forest Type and Seral Stage



Figure 4-3 The 2009 Windy Fire in the Canwood Forest



Figure 4-4 Remnants of the North Cabin fire of the Nisbet Forest in the Lily Plain area

Weather-related disturbances have also impacted the Island Forests between 1999 and 2011. The most notable impact has been from tornados occurring in 2008 around sections of the Nisbet Forest. Small tracts of primarily jack pine forest were destroyed after tornado funnels touched down and destroyed most of the trees within the funnel's vicinity. Figure 4-5 shows the aftermath of one of these events from August 25, 2008 in the Nisbet Forest.

Although outside of the term of the plan, a plow wind with gusts in excess of 90 km per hour hit the sections of the Nisbet Forest on July 5, 2010. Damage was primarily isolated to small patches of forest in several sections of the Nisbet Forest near Prince Albert. The impacts though have not been mapped, so there is no supporting data to complete FMP-Figure 2-5.

Other natural disturbances over the past 10 years include small outbreaks of various insect pests which have caused damage to the forests. Table 4-4 summarizes these outbreaks and Figure 4-6 provides a graph of these outbreak activities throughout the Island Forests.

Table 4-4 Area Affected by Natural Disturbances > 10 ha in the Island Forests between 1999 and 2011

Provincial Forest Type	Seral Stage	Area Disturbed (ha)				Total
		Fire	Insect	Disease	Other	
WSF	Young	0	0	19	0	19
WSF	Immature	2	0	55	0	57
WSF	Mature	122	20	258	0	400
WSF	Old	25	99	194	0	318
WSF	Very Old	0	0	2	0	2
BSL	Immature	244	0	217	0	461
BSL	Mature	759	21	1,078	0	1,858
BSL	Old	760	5	447	0	1,212
BSL	Very Old	47	0	79	0	126
BSJ	Immature	205	0	287	0	492
BSJ	Mature	287	7	430	0	724
BSJ	Old	136	0	79	0	215
JLP	Young	20	0	91	0	111
JLP	Immature	5,341	12	12,962	0	18,315
JLP	Mature	3,394	6	5,628	0	9,028
JLP	Old	926	0	581	0	1,507
PMW	Young	25	0	47	0	72
PMW	Immature	396	0	912	0	1,308
PMW	Mature	161	0	176	0	337
PMW	Old	83	0	14	0	97
SMW	Young	0	0	4	0	4
SMW	Immature	29	10	57	0	96
SMW	Mature	7	0	137	0	144
SMW	Old	8	7	47	0	62
SMW	Very Old	0	0	2	0	2
HSM	Young	0	0	50	0	50
HSM	Immature	33	5	78	0	116
HSM	Mature	76	43	290	0	409
HPM	Young	3	0	69	0	72
HPM	Immature	144	0	236	0	380
HPM	Mature	66	0	338	0	404
HPM	Old	29	0	151	0	180
TAB	Immature	637	75	2,292	0	3,004
TAB	Mature	900	149	4,273	0	5,322
TAB	Old	143	0	153	0	296
AOH	Mature	1	0	30	0	31
AOH	Old	0	0	14	0	14
Total		15,009	459	31,777	0	47,245



Figure 4-5 Impact of a tornado event during 2008 in the Nisbet Forest

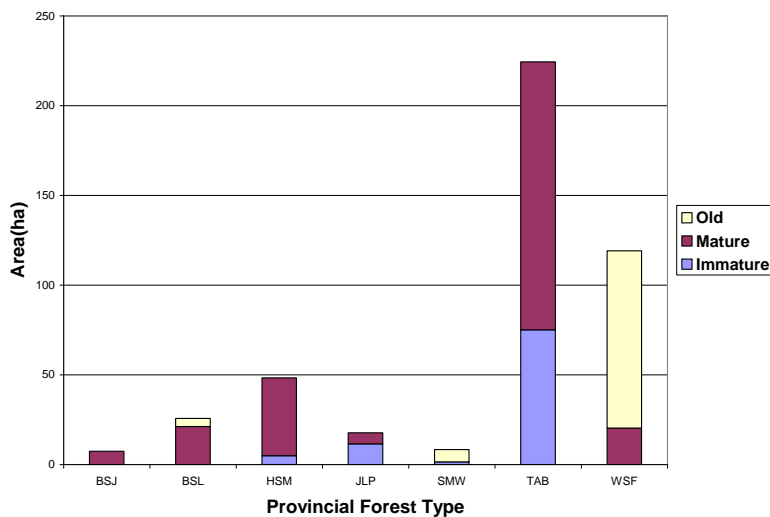


Figure 4-6 Area Disturbed by Insects in the Island Forests from 1999-2011 by Provincial Forest Type and Seral Stage

One of the most destructive insects has been the eastern larch beetle (*Dendroctonus simplex L.*). This beetle attacks tamarack that has been weakened by previous infestations of larch sawfly (*Anoplonyx luteipes*) and other environmental factors, such as flooding. Larch sawfly does defoliate tamarack every so often, but is usually not fatal to the trees, unlike the eastern larch beetle. The beetle has had a significant impact on tamarack trees in northern Saskatchewan due to the trees being weakened by rising water levels (flooding) in wetland areas since 2004. Figure 4-7 shows the result of an eastern larch beetle infestation in the FALC.

Table 4-3 summarizes the data from disease surveys carried out over the past 10 years in the Island Forests. Figure 4-8 provides a graph which illustrates the level of forest diseases and/or parasites occurring within the Island Forests.



Figure 4-7 Result of a Recent Eastern Larch Beetle Infestation in the FALC

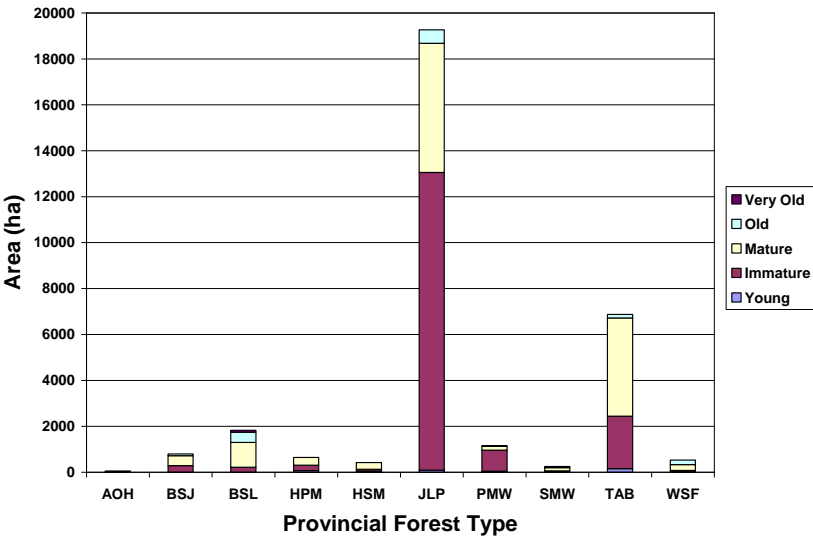


Figure 4-8 Area Disturbed by Disease in the Island Forests from 1999-2011 by Provincial Forest Type and Seral Stage

Dwarf mistletoe has the most significant impact on the Island Forests with 26,453 ha of jack pine infected with this parasite. Its presence is often characterized by large witches brooms (Figure 4-9). It can be treated by removing the infected tree through management activities such as forest harvesting or forest fire. In order for these treatments to be successful though, all trees must be killed on the site and a buffer of 20 meters is required to ensure new pine established on the site will not be infected.

Many infected pine stands are moderately to severely infected by dwarf mistletoe and due to their low economic value, have not received any treatment. More information on dwarf mistletoe can be found on the Ministry's website <http://www.environment.gov.sk.ca/forests>.



Figure 4-9 Typical Dwarf Mistletoe Infection found on Jack Pine Stands in Island Forests

4.2 Forest Management Activities

Annual reports of past forest operations since 2002 have been prepared by the Forest Service and submitted to SRC for digital entry into the timber forest manager, which is a digital forest management reporting system managed by SRC.

Figure 4-10 and Table 4-5 show the planned versus actual area harvested during the FMP term. The majority of the area harvested (49 %) during this period was mature jack pine (depicted as provincial forest type JLP).

A portion of this area harvested consists of timber salvaged from natural disturbances – primarily fires; however 86.2 ha are recorded from other natural disturbances. Table 4-6 presents the forested area salvaged. Area salvaged from the 2000 Beaver Fire in the FALC is based on estimates from the Forest Service. This also applies to the areas salvaged from insect, disease and blow-down events.

Areas harvested from 1999 to 2003 have been surveyed to assess their regeneration success rates. Table 4-7 and Figure 4-11 show this information. Additional “Free to Grow” surveys will be conducted in time, which are critical in verifying that a regenerated stand is adequately renewed and will likely reach maturity.

SRC conducted additional surveys in 2010, but the results have not been compiled at the time of the writing of this plan. Early review of the data suggests that 82% of the blocks surveyed are sufficiently regenerated (SR), and 18% of the blocks are NSR. The latter reflects the impact of the drought conditions from 2002 to 2004 which made regeneration challenging. As the FMP is developed, silvicultural ground rules (SGRs) will be drafted and will form the basis of the silvicultural effectiveness monitoring program.

Table 4-8 provides a summary of renewal activities in the Island Forests which have been implemented by both the Island Forests Fund and the Forest Service. Island Forests Fund activities were delivered by the Saskatchewan Forest Center until 2009, and are currently delivered by SRC. 10,575 ha have been renewed from 1999 to 2012.

The Forest Service tracks historical roads and new road developments through the operating plan and annual reporting process. Very few all-season roads were constructed during the 11-year period, with only 6.9 km identified. Table 4-9 summarizes road construction activities during this period.

Road classes are as defined in FMA standards and guidelines and have been applied in this FMP to maintain consistency. It is important to note that class 3 roads only include inter-block roads, as they are all-season in nature while in-block class 3 roads are reclaimed in both the Island Forests and FMA areas throughout the province.

Since the Island Forests have a significant amount of historical roads and trails, the Forest Service tries to minimize the impact of new roads developed in the Island Forests by upgrading existing road corridors where possible to handle forest operations. Table 4-10 summarizes a total of 14.3 km of road upgrades that have taken place during the FMP term. However, road upgrades only track roads which are to be classed as all-season roads. The FMPS also requires licensees to track reclamation of any all-

season roads in the licence area. This excludes class 3 in-block roads. There were no records of road reclamation being carried out in the Island Forests and this is reflected in Table 4-11.

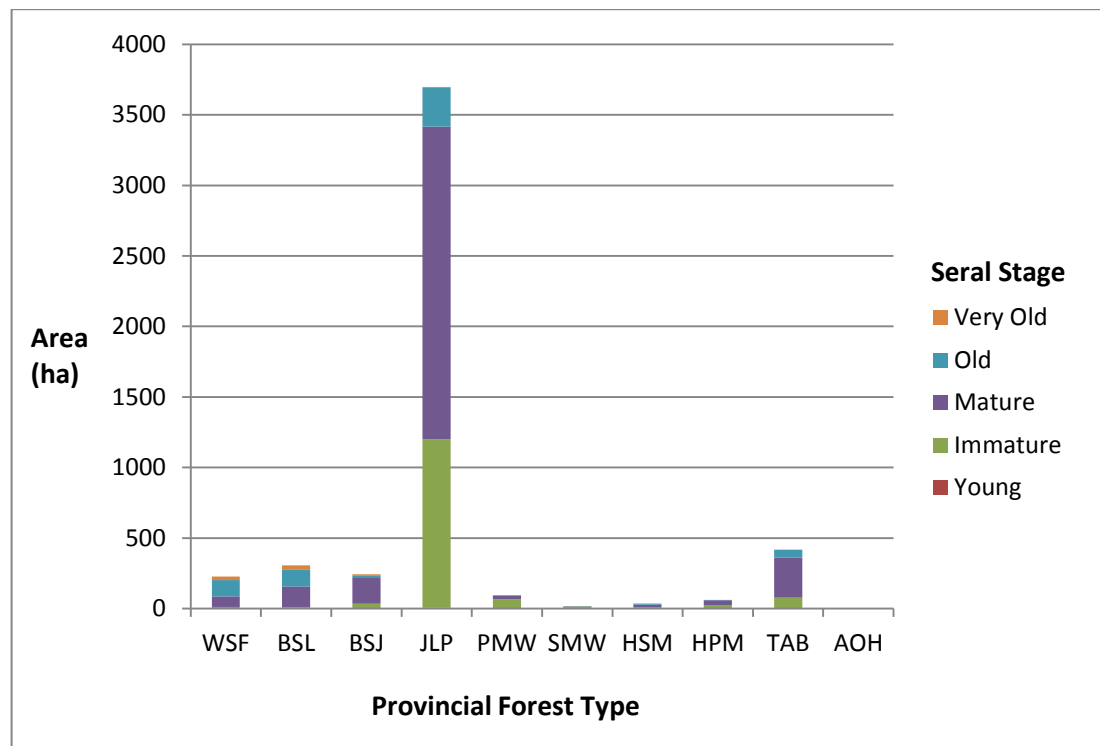


Figure 4-10 Area Harvested by Provincial Forest Type and Seral Stage

Table 4-5 Planned Versus Actual Hectares of Harvesting by Provincial Forest Type and Seral Stage

PROVINCIAL FOREST TYPE	SERAL STAGE	Total hectares of harvesting for the current FMP term	Planned hectares of harvesting for current FMP term ⁴	Difference between total and planned hectares of harvesting for FMP term
WSF	Young	0.0	0.0	0.0
	Immature	10.5	16.8	6.3
	Mature	74.8	74.8	0.0
	Old	116.3	152.5	36.2
	Very Old	26.1	31.2	5.2
	Total	227.7	275.4	47.7
BSL	Young	0.0	0.0	0.0
	Immature	9.3	15.7	6.4
	Mature	146.5	224.9	78.4
	Old	118.5	136.1	17.6
	Very Old	31.1	45.4	14.3
	Total	305.5	422.1	116.7
BSJ	Young	0.0	0.0	0.0
	Immature	35.2	46.7	11.5
	Mature	187.4	219.5	32.1
	Old	13.5	29.5	16.0
	Very Old	5.9	2.1	-3.9
	Total	242.1	297.7	55.6
JLP	Young	6.2	6.4	0.2
	Immature	1,193.0	1733.2	540.1
	Mature	2,217.5	3288.9	1071.4
	Old	274.4	430.5	156.0
	Very Old	7.4	0.0	-7.4
	Total	3,698.5	5459.0	1760.5
PMW	Young	2.3	6.9	4.6
	Immature	64.0	107.2	43.2
	Mature	24.1	32.4	8.3
	Old	5.4	8.8	3.4
	Very Old	0.0	0.0	0.0
	Total	95.7	155.3	59.7
SMW	Young	0.0	0.0	0.0
	Immature	1.3	8.4	7.1

⁴ Note: 1999/00 – 2001/02 operating years did not have a planned harvest

PROVINCIAL FOREST TYPE	SERIAL STAGE	Total hectares of harvesting for the current FMP term	Planned hectares of harvesting for current FMP term⁴	Difference between total and planned hectares of harvesting for FMP term
	Mature	6.3	11.0	4.7
	Old	9.3	15.8	6.5
	Very Old	2.1	0.0	-2.1
	Total	19.1	35.3	16.2
HSM	Young	0.0	4.4	4.4
	Immature	8.7	6.0	-2.7
	Mature	18.4	37.6	19.2
	Old	6.6	6.3	-0.3
	Very Old	3.2	0.0	-3.2
	Total	36.9	54.3	17.3
HPM	Young	0.0	0.0	0.0
	Immature	25.8	48.6	22.8
	Mature	32.4	50.9	18.5
	Old	0.2	7.4	7.2
	Very Old	0.0	0.0	0.0
	Total	58.4	106.9	48.5
TAB	Young	0.0	0.0	0.0
	Immature	78.0	169.6	91.7
	Mature	282.4	679.8	397.4
	Old	56.3	127.2	70.9
	Very Old	0.0	0.0	0.0
	Total	416.8	976.5	559.8
AOH	Young	0.0	0.0	0.0
	Immature	0.4	0.1	-0.3
	Mature	0.0	0.0	0.0
	Old	0.0	0.0	0.0
	Very Old	0.0	0.0	0.0
	Total	0.4	0.1	-0.3
Totals		5,101.0	7782.6	2681.6

Table 4-6 Area Salvaged from Natural Disturbances in the Island Forests

PROVINCIAL FOREST TYPE	SERAL STAGE	Area Salvaged(hectares)				
		Fire	Insect	Disease	Blow Down	Total
WSF	Mature	54.7				54.7
	Old	5.3				5.3
	Total	60.0				60.0
BSL	Immature	5.0				5.0
	Mature	20.0	2			22.0
	Old	86.1				86.1
	Very Old	4.1				4.1
	Total	115.3	2			117.3
BSJ	Immature	6.0				6.0
	Mature	8.0				8.0
	Old	1.5				1.5
	Total	16.0				16.0
JLP	Young	3.6				3.6
	Immature	592.8				592.8
	Mature	1251.4		27.2	8	1304.6
	Old	1.0		49		32.0
	Total	1847.8		76.2		1932.0
PMW	Young	1.0				1.0
	Immature	17.8				17.8
	Mature	3.0				3.0
	Total	21.8				21.8
SMW	Mature	0.0				0.0
	Old	2.0				2.0
	Total	2.0				2.0
HSM	Immature	2.8				2.8
	Mature	4.0				4.0
	Total	5.8				5.8
HPM	Immature	8.0				8.0
	Mature	1.2				1.2
	Total	9.2				9.2
TAB	Immature	13.0				13.0
	Mature	54.3				54.3
	Total	68.3				68.3
Totals		2146.2	2	76.2	8	2232.4

Table 4-7 Regeneration Status of Areas Harvested in the Island Forests between 1999-2004 by Provincial Forest Type

PFT	Regeneration Block Status (ha)		Total	% of Total
	SR	NSR		
WSF	0	13.2	13.2	0
SL	28.7	13.6	42.3	0
BSJ	7.2	66.6	73.8	1
JLP	3,057.6	829.3	3887	44
PMW	351.9	399.1	751	8
SMW	16.3	2.8	19.15	0
HSM	53.7	66.6	120.3	1
HPM	1710.5	71.1	1782	20
TAB	2,058.0	118.5	2,176	25
AOH	6.3	0	6.3	0
TOTAL	7,290.2	1,580.84	8,871	
% of Total	82	18		

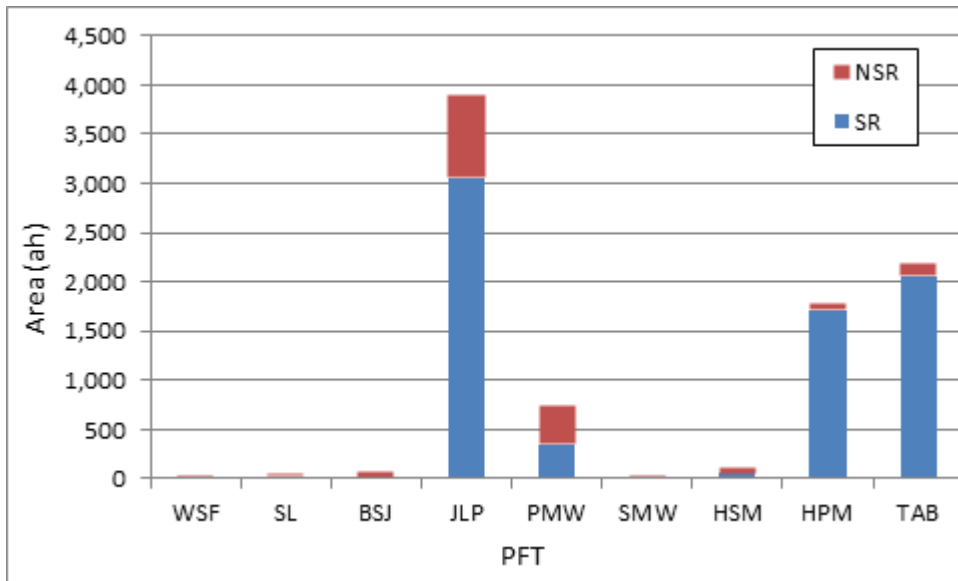


Figure 4-11 Regeneration Status of all Harvested Areas in the Island Forests between 1999 and 2004 by Provincial Forest Type

Table 4-8 Summary of Renewal Activities in the Island Forests between 1999 and 2011

Operating Year	Area Receiving Renewal Treatment (ha)										Grand Total
	Site Prepared & Planted		Plant		Scarification		Natural		Total		
	Forest Service	Trust Fund	Forest Service	Trust Fund	Forest Service	Trust Fund	Forest Service	Trust Fund	Forest Service	Trust Fund	
1999/00			271						271		271
2000/01	200		206						406		406
2001/02	513		314						827		827
2002/03	763		239		185			811	1,187	811	1,998
2003/04	317		802	114	45	9		923	1,164	1,046	2,210
2004/05	697		165					18	862	18	880
2005/06	615		43	285				12	658	297	955
2006/07				531		492		78		1,101	1,101
2007/08		101				103		4		208	208
2008/09		393		85				58		536	536
2009/10		245								245	245
2010/11				37		74				111	111
2011/12	123		335						458		458
Total	3,228	862	2,376	1,298	230	678		1,905	5,833	4,742	10,575

Table 4-9 Road Construction in the Island Forests for the Current FMP Term

ROAD CLASS	Historical Road Construction (km)	Actual Constructed Between 1999 -2011 (km)	Total (Historical + Actual) (km) (A)	Current FMP Term Road Construction Targets (km) (B)	Difference Between A & B (km)
Class 1	0	0	0	0	0
Class 2 (Secondary All Weather Road, TFM codes 10 and 20)	229	0	229	0	229
Class 3 Inter-block (Bush Roads, TFM code 30)*	2,952	6.9	2,958.9	2.8	2,956.1

Table 4-10. Road Upgrades in the Island Forests for the Current FMP Term.

UPGRADED ROAD CLASS	Original Road Class	Total Upgrades in First Ten Years (km)	Total Upgrades (km) (A)	Current FMP Road Upgrade Targets (km) (B)	Difference Between A & B (km)
Class 1	Class 2	0	0	0	0
	Class 3	0	0	0	0
	Trail	0	0	0	0
Class 2	Class 3	0	0	0	0
	Trail	0	0	0	0
Class 3 (Inter-block)	Trail	14.3	14.3	16.1	1.8

Table 4-11 Road Reclamation Activities in the Island Forests for the Current FMP Term

ROAD CLASS	Actual Reclamation in First Ten Years (km)	Total Reclamation (Actual + Planned) (km) (A)	Current FMP Targets for Reclamation (km) (B)	Difference Between A & B (km)
Class 1*	0	0	0	0
Class 2*	0	0	0	0
Class 3 (Inter-block)*	0	0	0	0

Appendix C includes maps (Map 3-7 A & B) which depict the actual harvest history and road development in the Island Forests for the 10-year period from 1999/2000 to the 2010/2011 operating year and projects planned activities for the 2011/12 operating year. Another map (Map 4-3) shows the NSR areas throughout the Island Forests which include historical NSR (i.e. – harvested prior to 2002).

4.3 Independent Operators

Since the Island Forests are not managed by a large area-based tenure, the information presented in section 3.5 provides an adequate overview of the independent operators.

4.4 Significant Changes Expected to Affect Wood Supply and Forest Management Practices

There are no significant changes expected to affect wood supply and forest management practices at present, but there have been improvements in forest management systems which may provide a more accurate harvest volume schedule determination when the wood supply analysis is done with a forest estate model. As mentioned earlier, an SFVI was completed for the entire Island Forests in 2007, along with temporary sample plots (TSPs). The TSPs have provided growth and yield information which is specific to the Island Forests. This in turn has led to the development of growth and yield curves for major development types found in the Island Forests. This information will be presented in the forest development report to follow in the FMP process.

Mountain pine beetle is a future threat to jack pine throughout the Island Forests as it has established itself in jack pine forests in the Fort McMurray area of Alberta and could move eastward. The potential impacts of climate change remain a future threat to the Island Forests.

5.0 Historical Review of the Island Forest Area

5.1 General Harvest Trends

The closure of the Prince Albert pulp mill in 2006 significantly impacted forest management activities in the Island Forests. The small sawlog and fencepost operators routinely sold pulp logs to the pulp mill. Since 2006, these operators have reduced their overall harvested volume by targeting just sawlog and fencepost stands and avoiding stands containing any amount of pulpwood. For example, where the general area is a clumpy mixture of sawlog and pulpwood trees, permits are issued for only the softwood sawlog clumps, resulting in small openings. A shift from harvesting jack pine stands to white spruce stands is also occurring. These have higher sawlog potential and less pulpwood. Even with these measures some pulpwood is generated by the operators. They either sell the pulp material to the local firewood market, or deliver it to The Pas, MB.

5.2 Access Development

The Island Forests have an abundance of historic trails throughout the forest with the main haul routes being long established. Harvest operators routinely use the existing trails to connect their harvest area to the main haul routes. Road development, if any, is limited to upgrading unimproved trails. Where new access is required or in-block roads are needed, roads are built to a very low standard with minimal ditching or stump removal.

All roads are user maintained, other than the numbered highways, along with the occasional rural municipality road. The harvest operator's maintenance of main haul routes and other forest roads is usually limited to snow removal and grading. Road and crossing repairs are often left neglected with alternate routes found around the problem area.

In the 1990s a road closure program of roads and trails was initiated by the Ministry over concerns of access to wildlife and wildlife habitat. This program included extensive public consultation, explaining the need for the closure program and identifying which roads would be closed with impassable ditches or berms. The program ended in the early 2000s and was very successful. Today most approved harvesting and silviculture plans routinely include road closures, slash roll back, and the reforestation of in-block roads.

During the last 10 years some of the key road-related activities of note include:

Fort a la Corne:

- Replacement in 2006 of a low level ford with a new bridge by Shore Gold at the entrance of the Shipman trail (White Fox River);
- Road realignment and road compaction/maintenance by Shore Gold of the Shipman trail (~12 km), and upgrading the trail from the Division Road to Shore Gold's exploration camp (~ 6 km);

- Removal in 2007 of the unsafe Inland trail bridge by the Forest Service (White Fox River), site fully decommissioned in 2010;
- Replacement in 2007 of a washed-out culvert by the Forest Service at km 12 of the Division Road East with a 1600 mm culvert. The Forest Service also replaced a non-functional culvert at 12.3 km on the Division Road in 2002;
- Division Road realignment took place in 2006. Work consisted of upgrading approximately 5 km of existing trail to create access to Highway 6. This project was initiated to avoid a failed culvert crossing on the historic Division Road at Poplar Creek;
- Installation in 2007/2008 of a low-level ford/cattle guard crossing by Shore Gold at Caution Creek on the Division Road;
- Twinning highway project through the Nisbet Forest. The initial survey was completed in 2009, construction work commenced in 2011 and completed in 2012;
- The Forest Service decommissioned the Poplar Creek culvert crossing and closed 4 km of the historic Division road to highway traffic, February 2011;
- The Forest Service made repairs to English Creek bridge abutments/approaches repaired, February 2012; and
- The Forest Service replaced two nonfunctioning culverts on the Inland trail with 400mm culverts, February 2012.

Nisbet Forest:

- The Forest Service decommissioned the washout at Smith Creek and erected a road closure at the site to through highway traffic, March 2012.

Details of road construction with respect to forest management activities were presented in Section 4.2.

5.3 Silvicultural Accomplishments

In April of 2002, a trust fund was established for renewal and forest planning activities in the Island Forests. Prior to establishment of this fund, renewal and planning activities relied on the operational budgets of the Forest Service. In 2003, the Forest Service signed a management agreement with the Saskatchewan Forest Center (SFC) to administer the fund and provide planning and renewal services. In 2009, the management agreement and administration of the Island Forest fund was transferred to SRC.

SRC develops and implements the silviculture (renewal) plans for areas harvested after April 1, 2002. Using fund money, SRC issues and monitors contracts for planting, site preparation and other silvicultural activities. Collectively, various delivery agents of the Island Forests fund have renewed a total of 4018 ha between 2002 and 2009. Details on various treatments applied during this timeframe were provided earlier in Section 4 (Table 4-8).

5.4 Inventory Program

New aerial photography was carried out in 2004 for the Island Forests leading to the development of a complete set of orthophotos for the area. A new SFVI inventory based on this information became available in 2007. This inventory replaces the 1995 Universal Transect Mercator (UTM) inventory for the FALC, the 1991 UTM inventory for Nisbet/Canwood Forests and the 1984 UTM inventory for the Torch Forest.

5.5 Growth and Yield Program

Almost 1,000 fixed-area temporary sample plots (TSPs) were established across the Island Forests in 2007 and 2008. Sample allocation used a stratified random sampling approach, with strata defined by provincial forest type, height class, and crown closure class. The TSP data has been used to develop new stand and stock tables for estimation of current growing stock as well as new yield curves to be used as input to forest estate models for wood supply analysis.

Nine active natural stand permanent sample plots (PSPs) are located in the Island Forests. Most of them are located in the FALC. These have been plotted on Map 4-3 in Appendix C. Data from an additional six inactive PSPs (e.g. destroyed by harvest or fire or rejected due to illegible tree tags or lost corner posts) has been retained. Periodically re-measured PSP data is used to develop and validate stand-level growth models and succession models.

5.6 Research Program

5.6.1 Non-native Conifer Tree Species Trial

In cooperation with the SFC, the Forest Service established a non-native species trial, consisting of three different sites in 2007 and 2008. The intent of the trial is to investigate growth and yield of selected non-native tree species and their associated benefits and risks. Two species native to the region and six non-native species from various regions of North America and the circumpolar boreal forest were planted. All species have been previously introduced at various scales to these forests and have shown good potential and have been identified for further study.

Species not native to the Island Forests, include red pine, ponderosa pine, lodgepole pine, Scots pine, blue spruce and Siberian larch. Native species including jack pine and white spruce were planted for comparative purposes. The trial plantings are about 40 ha in size replicated in three separate locations, for a total of about 120 ha and 190,000 seedlings. One replication is in the Canwood Forest, another in the Nisbet Forest and another in the FALC. SRC's silviculture forester is shown with a healthy scots pine seedling in Figure 5-1.

Selected sites were previously harvested and each species was planted in predetermined areas within a harvest block. Site preparation with a TTS Delta disc trencher was begun in the fall of 2006 and was completed in the spring of 2007. The trees were all originally scheduled to be planted in 2007. However, due to poor germination of some seed lots in the nursery, only about

10 ha of the project was completed in 2007/2008. The rest of the planting was completed in 2008.



Figure 5-1. Thrifty Scots Pine Seedling Established for the Non-Native Species Trial.

A network of 123 permanent sample plots was established throughout the trial, monitoring the growth and development of about 1,100 trees. Environmental growing conditions are also monitored by a series of weather stations established at seedling height.

5.6.2 Aerial Seeding Trial

In the spring of 2005, an aerial jack pine seeding trial was established in the FALC. The objective of the trial was to evaluate the use of aerial seeding as a low-cost reforestation treatment on dry sites. Two different site preparation methods and three different seed application rates (50, 75 and 100 thousand seeds per hectare) were implemented on six different sites.

Two years of measurements show that variation in observed germinant success within each treatment is high. Mean germinant success varied from about 200 to 600 recruits per hectare between treatments. Surviving germinants showed a slight trend toward lower survival in the barrel and chain scarification compared to that of the disc trencher. The latter treatment resulted in more exposed mineral soil which appears to influence germination. Seed application rate has no relationship with observed germination.

Observed germinant density is too low to ensure that the sites meet Saskatchewan's regeneration assessment 80 % stocking standard. Therefore, all treatment blocks were planted in the spring of 2006. Planted seedlings, with pre-developed root systems, are able to take advantage of moisture lower in the soil profile and have a higher likelihood of survival; whereas newly emergent germinants are vulnerable to surface drying.

As moisture availability fluctuates annually, it is not possible to conclude that aerial seeding jack pine is a poor silviculture treatment in the Island Forests. However, the two years this trial was monitored were not drought years.

5.6.3 2006 Compost Spreading Trial

Composted biosolids from the Prince Albert sewage treatment facility were spread on a young regenerating forest adjacent to highway 3. The goals of the project were first of all to improve tree growth. The second goal was to demonstrate this soil additive to the agriculture community for consideration in their farming operations. The area was logged for a fuel break in 1990, and then planted to jack pine in 2001. In 2006, during the time of composted biosolids application, the jack pine trees were 0.2m to 0.4m in height growing on sandy soils.

5.6.4 Forest Management Effects Monitoring Program

The Forest Management Effects Monitoring program was based on the Forest Ecosystem Impacts Monitoring Framework. The objective of the framework was to facilitate "the protection of long-term forest ecosystem health within the necessary context of our social, cultural, and economic goals through objective comparisons between the range of conditions and values resulting from historical sources of disturbance, to those resulting from current and future sources". Since 1999, the Forest Service has been establishing numerous permanent ecological sample plots (PESPs) in various areas of the province (including the Island Forests) with the intent of comparing vegetative response to both fire and harvesting. The PESPs in the Island Forests have been plotted on Map 4-3, located in Appendix C.

However, the Forest Management Effects Monitoring program has been discontinued since 2009 due to various factors.

5.6.5 Federal Trials

Some of the oldest forest research trials in Canada were originally established by the Dominion Forest Service, some near Holbein and on the Department of Natural Defence (DND) gun range across from the Provincial fire centre north of Prince Albert, as well as the FALC. These trials were established to assess the success of various silvicultural treatments used elsewhere in Canada and their applicability in Saskatchewan.

5.7 Tree Improvement

There have been no recorded tree improvement trials established in the Island Forests and only seed collected from naturally occurring areas is used for reforestation. However, previous

provincial natural resource agencies planted various trials of improved seed and alternate species over the past 70 years.

5.8 Work with Stakeholder, Community and Aboriginal Groups

5.8.1 Stakeholders

Communication with stakeholders, communities and Aboriginal groups has greatly improved during the last decade. For example, in 2000 the Ministry initiated Integrated Land Use Planning processes for both the Nisbet Forest and the FALC forest, engaging local stakeholders to understand how these forests should be managed. Meeting regularly between 2000 and 2005, these advisory groups developed recommendations for forest land zoning into different levels of acceptable activities and also made recommendations to the Minister on land and resource management in these forests. These advisory groups also had direct input in the proposed Representative Area Network program for these forests.

Meanwhile, since 2003, the SFC (and now SRC) has routinely held stakeholder meetings and public open houses to review the Island Forests five-year operating plan submission and to discuss operational issues. The Forest Service had also established separate local advisory groups for both the Canwood and Torch Forests, which have since been dissolved.

5.8.2 Community Development

The management of the Island Forests involves many local communities. Recognizing the potential for a diamond mine and other businesses opportunities in the forest, the Ministry works with rural municipalities, city committees and economic development officers on potential forestry related opportunities and on other common issues.

The Forest Service also works with the communities in several other ways including such activities as assisting or leading student field trips, working with the natural resources program at SIAST in identifying outdoor laboratory locations (i.e. thinning sites), and helping recreation groups with planning recreation trails.

5.8.3 Aboriginal Groups

The Forest Service has taken a proactive approach to engaging local Aboriginal groups in forest management, as presented in Section 2.1.4.

5.9 Historic Development of Manufacturing Plants Supported by the Licence Area

There has been no recorded historical development of manufacturing plants in the Island Forests.

5.10 Other Similar Topics

Much of the Island Forests contain large amounts of mistletoe-infected jack pine stands resulting in dead or dying trees and a significant risk of fire to Prince Albert and other communities

located in or adjacent to the forest. In the late 1990s and early 2000s, fuel breaks were established by harvesting timber in large linear corridors to the west and north of Prince Albert, as well as in the Canwood Forest. The benefits of fuel breaks were illustrated in 2002 when the rapid advance of the Crutwell fire was stopped at a fuel break, avoiding significant damage to communities.

6.0 Public Engagement Outcomes

Public Information Sessions

Island Forests Forest Management and Renewal Plans

The Ministry of Environment is hosting public information sessions to discuss a 20-year Forest Management Plan (FMP) now being prepared for the Island Forests. The Canwood, Nisbet, Fort a la Corne and Torch River provincial forests consist of more than 226,000 hectares of Crown forest land in north-central Saskatchewan. As well, staff from the ministry's forest renewal program and the Saskatchewan Research Council (SRC) will each present their draft 2013-2014 annual forest renewal operating plans for the area and report on 2012 activities.

Each session runs from 7:00 p.m. to 9:30 p.m. and will begin with presentations, followed by questions and discussion. Sessions are planned for:

Wednesday January 9	Shellbrook, Seniors Hall
Thursday January 10	Prince Albert, Travelodge
Monday January 14	Nipawin, Evergreen Centre
Wednesday January 16	Melfort, Canalta Hotel
Thursday January 17	Duck Lake, Legion Hall

The draft *Island Forests Forest Management Plan – Volume I*, a background document covering the last 12 years, is available online:
www.environment.gov.sk.ca

For more information about the sessions or the FMP, please contact the Ministry of Environment, Forest Service at 306-953-2221.



Ministry of
Environment

SRC SASKATCHEWAN
RESEARCH COUNCIL

January 9, 2013- Shellbrook

Attendance

<u>Name:</u>	<u>Address:</u>
1. Wayne Stene	Shellbrook
2. Ray Blakeney	Holbein
3. Lloyd Thomas	Holbein
4. Keith Monitz	Canwood
5. Shawn Renas	Shellbrook
6. Bob Gerow	Debden
7. Dave Knight	Prince Albert
8. Tara Kerber	Prince Albert
9. Doreen Chapman	Saskatoon
10. Randy Chapman	Saskatoon
11. Darin Stene	Shellbrook
12. Mike Fineday	Spiritwood

Summary of Discussion

1) There were some questions about whether or not woodland caribou were found in the Island Forests.

Response: The Island Forests are outside of the current distribution range of woodland caribou within the Boreal Plain, but there have been sightings of them at times.

2) General questions about mountain pine beetle (MPB) and what the Province is doing to address it.

Response: Saskatchewan has been collaborating (and providing funding) to Alberta to hold the eastward line (leading edge zone) of where these beetles occur. Saskatchewan also undertakes surveys for MPB on the west side of the province in susceptible jack pine forests. A strategy on how the Forest Service will address forest insect and disease pests will be addressed in the Island Forests FMP – Volume II.

January 10, 2013- Prince Albert

<u>Name:</u>	<u>Address:</u>
1. Kevin Weingerber	Prince Albert
2. Tammy McGunigal	MacDowall
3. Murray McGunigal	MacDowall
4. Linda Clavelle	Prince Albert
5. Howard Clavelle	Prince Albert
6. Steve Lawrence	Prince Albert
7. Bob Pocha	MacDowall
8. Gordon Pocha	MacDowall
9. Ted Hradec	Prince Albert
10. Tina Settee	Tweedsmuir
11. Brian Lee	Fish Lake
12. Elaine Sukuda	Lily Plain
13. C. Donison	Prince Albert
14. Lon Borgerson	MacDowall
15. Dave Harman	Prince Albert
16. Paul Ross	Prince Albert
17. Matthew Abramyk	Prince Albert
18. Elizabeth Moar	Prince Albert
19. Owen Price	Prince Albert
20. Graham Parson	Prince Albert
21. Norma Sheldon	Prince Albert
22. James Fischer	Prince Albert
23. Dale Romanchuk	Prince Albert
24. Robert Harrison	Lily Plain

Summary of Discussion

1) How does the blowdown impact the wood supply?

Response: Due to the magnitude of area impacted by the 2012 blowdown event in the Island Forests, the Forest Service has undertaken a detailed inventory of the damage incurred and its classification. This information will then be incorporated into the planning inventory and the forest estate model will calculate the harvest volume schedule (HVS).

2) How were the Representative Areas in the RAN program determined?

Response:

These were determined through the Integrated Forest Land Use (IFLUP) planning processes undertaken for both the Nisbet and Fort-a-la-Corne provincial forests.

3) How do we protect sites with rare plants and cultural/historical artifacts?

Response: If a rare plant is found in the Island Forests, they are given careful management consideration. The level of management consideration will vary depending if the species is identified by legislation as needing protection.

The Heritage Property Act provides for the preservation, interpretation and development of heritage property in Saskatchewan, so forest operations are screened by the Heritage Branch of the Ministry of Tourism, Parks, Culture and Sport to determine if heritage resource impact assessments are required.

4) Concern from Fish Lake Metis Local #108 – (President - Bryan Lee) - they did not receive a consultation letter and feel that they should be consulted.

Part of the area they claim as traditional territory includes portions of the Nisbet and Fort a la Corne forests.

Resolution: A consultation letter was sent to Metis Local #108 on January 22, 2013 and they have been included in the contact list for the Island Forests).

5) Concerns were raised regarding the damage in the Nisbet MacDowell block caused by ATVs.

Response: The ministry is aware of the damage caused by improper use of ATVs in the provincial forests and the draft Nisbet IFLUP has a management action to develop an access management plan for the Nisbet Forest. This process will identify areas of the forest where access should be restricted due to the sensitive nature of the site. Priority areas for access management include both protected and sensitive zones.

January 14, 2013- Nipawin

<u>Name:</u>	<u>Address:</u>
1. Barry MacLeod	White Fox
2. Lorna Blaine	White Fox
3. Michelle Tresidder	Garrick
4. Lorne Terry	White Fox
5. Steve McKechnie	White Fox
6. June Bougher	Nipawin
7. Evan Jansen	Love
8. Linda Swehla	Nipawin
9. Brennan Jardine	White Fox
10. Marg Jardine	Nipawin
11. Bernice Smith	White Fox
12. Jude Bird	Prince Albert
13. Chris Hudyma	Nipawin
14. Dale Neufeld	Nipawin
15. Morgan Nowlin	White Fox
16. Ken Runn	White Fox
17. Janis Patrosh	White Fox
18. Arlene Christensen	White Fox
19. Lyle Perkins	Nipawin
20. Heather Tresidder	Garrick
21. Bernice Barks	White Fox
22. Margaret Funk	White Fox
23. Robert Allen	White Fox
24. Bob Lidster	Nipawin
25. Rick Douslin	Nipawin
26. Gladys Young	Love
27. K. Gawe	Nipawin
28. Theresa Penner	Love
29. Bud Jardine	White Fox
30. April Griffin	Arborfield
31. Paul L'Heureux	White Fox
32. Joy Sim	Nipawin
33. Terry Fehr	Love

Comments

- 1) Lots of interest was expressed in considering the selective harvest of jack pine.

Response: Variable retention is the proper ecological silvicultural system used when harvesting jack pine in the boreal forest.

- 2) A lot of concern was raised about what might happen to the Torch River provincial forest under a Forest Management Plan...activities such as harvesting...site preparation and planting.

Response: Consideration of where these activities will occur will happen at a strategic level for all of the Island Forests. Our next round of meetings will be to discuss the forest estate modelling outputs.

- 3) Is the Forest Service planning to harvest the entire Torch Forest?

Response: No – the intent of the FMP is to determine what areas in the Island Forests are suitable for harvest and when they can be scheduled for harvest while maintaining a balance of other non-timber uses of the forest.

January 16, 2013- Melfort

<u>Name:</u>	<u>Address:</u>
1. Gerry Bednarz	Melfort
2. Tom Bednarz	Melfort

Comments

Due to the small group size, there was a more focused discussion regarding the Island Forests FMP and where certain economic activities would be made available.

January 17, 2013- Duck Lake

<u>Name:</u>	<u>Address:</u>
1. K.C. (Ken) Turner	Saskatoon
2. Lucien Forseille	Duck Lake
3. Michel Forsielle	Duck Lake
4. Neal Nicolas	Duck Lake
5. Alfred Gamble	Duck Lake

Comments

- 1) How is the FMP going to address dwarf mistletoe?

Response: The Forest Service incorporated existing dwarf mistletoe (DMT) inventories that have taken place for the Island Forests as a key data layer to address DMT management in the Island

Forests. It is likely that there will be a certain proportion of forest targeted for DMT harvest in the FMP to decrease its abundance throughout the Island Forests.

2) Has mountain pine beetle been found in Saskatchewan yet?

Response: No (except Cypress hill in the south) and the Forest Service is currently monitoring our forests to detect its presence.

7.0 Literature Cited

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Appendix A. Cross Reference of Required Tables, Figures and Maps of the FMPD.

Table in FMPD	Table in Island Forests FMP
FMP-Table 2-1	n/a
FMP-Table 2-2	n/a
FMP-Table 2-3	Table 3-8 & 3-9
FMP-Table 2-4	n/a
FMP-Table 2-5	3-10
FMP-Table 2-6	n/a
FMP-Table 2-7	n/a
FMP-Table 2-8	n/a
FMP-Table 2-9	n/a
FMP-Table 2-10	n/a
FMP-Table 2-11	4-1
FMP-Table 2-12	4-2
FMP-Table 2-13	4-4
FMP-Table 2-14	4-5
FMP-Table 2-15	4-6
FMP-Table 2-16	4-7
FMP-Table 2-17	4-9
FMP-Table 2-18	4-10
FMP-Table 2-19	4-11
Figure in FMPD	Figure in Island Forests FMP
FMP-Figure 2-1	4-1
FMP-Figure 2-2	4-2
FMP-Figure 2-3	4-5
FMP-Figure 2-4	4-7
FMP-Figure 2-5	n/a
FMP-Figure 2-6	4-10
FMP-Figure 2-7	4-11
FMP-Figure 2-8	Title Page; p. ii
FMP-Figure 4-2	Title Page; p. iii
FMP-Figure 4-3	Title Page; p. iv
Map in FMPD	Map in Island Forests FMP
FMP-Map 2-1	3-1
FMP-Map 2-2	3-2
FMP-Map 2-3	3-4
FMP-Map 2-4	3-3
FMP-Map 2-5	3-5
FMP-Map 2-6	4-1a&b
FMP-Map 2-7	4-1a&b
FMP-Map 2-8	3-7a&b
FMP-Map 2-9	4-3

Appendix B. Summary of Public Issues and Concerns Related to Forest Management within the Island Forests.

Public Issues and Concerns Summary Related to Forest Management within the Island Forests				
Subject Area	Issue/Concern	Ministry Response	Forest Area	Document Source
Aboriginal	Meaningful consultation and participation in forest planning	The Ministry of Environment contacts each Métis local and First Nations for comments when an Operating Plan is submitted and also offers to meet in their communities. Prior to submission open houses are held in several local communities to discuss concerns with the plan. A consultation process will occur with Métis locals and First Nations as the 20-year Forest Management Plan (FMP) is being developed.	All	2008 Operating Plan (OP)
Aboriginal	Employment opportunities, economic development and revenue sharing	A number of initiatives have been undertaken with the local First Nations, including a joint working agreement with the First Nations Island Forests Management Association in 2003. See subsection 2.1.4 - Agreements with Aboriginal Groups.	FALC	-Concerns raised by local aboriginal communities. -1999 Initial IFLUP meeting in Gronlid.
Aboriginal	Consultation has not been established per the June 2003 joint working agreement and commenting on harvesting plans is inappropriate at this time.	Implementation of the 2003 working agreement is ongoing. The Ministry continues to consult directly with Métis local and First Nations on Operating Plans to ensure Treaty and Aboriginal rights are not adversely impacted.	All	Concerns raised by a local aboriginal community.
Aboriginal	Designation of old fur trading sites, historic sites, cultural sites, traditional sites, and trails as historic sites. Old cabins have been removed	The Ministry of Tourism, Parks and Culture designates historic or heritage sites. The Ministry of Environment gathers information to mitigate impacts to these sites	FALC	FALC Background Document Oct., 1999

Public Issues and Concerns Summary Related to Forest Management within the Island Forests

Subject Area	Issue/Concern	Ministry Response	Forest Area	Document Source
	without compensation or have been abandoned or have been vandalized	and trails when approving operating plans through government records and through the plan consultation process.		
Aboriginal	First Nation and Métis people have traditionally used and continue to rely on the land and resources of the planning area. These uses include but are not limited to the following: hunting, trapping, fishing and the gathering of special forest products for food and medicine. The planning area also holds cultural and spiritual significance for the First Nation and Métis cultures. This information is sensitive and inquiries of this nature must be directed to the appropriate First Nation Band office or Métis local.	When available the Ministry of Environment will use this information in all levels of planning, including IFLUP, FMP and operating plans.	All	FALC Background Document Oct., 1999
Agriculture	Haying before July 15 may affect nesting birds	Both the Nisbet Forest and FALC IFLUPs address this issue and the Nisbet Forest plan provides some management actions to deal with this. One is to review and establish an appropriate start date for haying activities. <u>The Forest Resources Management Regulations</u> currently provide this flexibility.	FALC	Fort-a-la-Corne IFLUP March, 2008
Agriculture	Areas along the forest boundary have been cleared without approval	Ministry is aware of this concern and conducts investigations with respect to this concern.	FALC	FALC Background Document, Oct., 1999
Agriculture	The impact of the forest/agriculture	The Ministry monitors wildlife activities in	Nisbet	Nisbet Forest

Public Issues and Concerns Summary Related to Forest Management within the Island Forests				
Subject Area	Issue/Concern	Ministry Response	Forest Area	Document Source
	interface affecting wildlife.	both the forest and agricultural areas.		Background Document – Dec., 2000
Agriculture	Agricultural, residential and industrial activities on adjacent lands that have drainage activities to enhance their productivity and value can have a negative impact on water regimes, waterfowl and furbearing animal habitat within the forest.	The Saskatchewan Watershed Authority (SWA) has been working with agricultural, residential and industrial land-users through the North Saskatchewan Watershed Plan to mitigate impacts to the watershed as a whole.	Nisbet	Nisbet Background Document – Dec., 2000
Allocation	Concern that the James Smith Band/Suntec would have exclusive use of the forest	Harvest allocations in the past 10 years have attempted to balance existing needs in both Aboriginal and non-aboriginal communities. Refer to Section 4.2 – Forest Management Activities.	FALC	IFLUP meeting Oct 1999, Nipawin
Allocation	Small operators have expressed interest in larger allocations, while others feel there is too much harvesting already.	Development of the FMP Volume II and new HVS calculations of the Island Forests will determine the sustainable harvest level	FALC	FALC Background Document Oct., 1999
ATV	ATV damage in the forest and the increasing number of ATVs (i.e. rallies) and potential conflicts with other users.	The IFLUP process has recognized known trails. Regulating ATV use or designated areas for motorized recreation is best addressed in the IFLUP process. The Nisbet Forest IFLUP may restrict access in some sensitive areas and investigates degraded areas.	FALC/ Nisbet	Fort-a-la-Corne IFLUP March 2008 Nisbet Forest Background Document, Dec., 2000 Nisbet IFLUP Draft 4 March, 2008
Biodiversity	Ensure FALC IFLUP follows the recommendations found in the 2002 Biodiversity Action Plan	The FALC IFLUP follows the recommendations found in the Biodiversity Action Plan. A Progress report is available on the Government of Saskatchewan website http://www.gov.sk.ca/programs-	FALC	Fort-a-la-Corne IFLUP March, 2008

Public Issues and Concerns Summary Related to Forest Management within the Island Forests				
Subject Area	Issue/Concern	Ministry Response	Forest Area	Document Source
		services/nature-environment/		
Biodiversity	Maintain appropriate levels of biodiversity especially through the review and approval process for development plans	The Ministry routinely considers biodiversity issues when reviewing and approving operating and renewal plans.	FALC	Fort-a-la-Corne IFLUP March, 2008
Climate change	<p>Possible declining forest productivity with increased drought. Moisture stress will have the greatest impact on younger trees, and on the success of new forest establishment. Older trees suffering from moisture stress are more susceptible to insect and disease impacts. There is an increased possibility of more land regenerating to grass.</p> <p>Introduction of non-native tree species to adapt to climate change.</p> <p>Several people do not agree with clear cuts in light of global warming and impacts to wildlife (McDowell Area – Nisbet Forest)</p>	<p>Volume III of the FMP will include strategies to address climate change and will be made available to the public as a draft.</p> <p>Large-scale introduction of species that are not native to this forest to deal with climate change must be developed in consultation with the public.</p> <p>Some wildlife species require young forest habitat to survive. Modified clear cuts with residual trees structurally resemble natural forest disturbance so future forest growth will be similar to that found after a fire disturbance.</p>	FALC/ Nisbet	<p>Fort-a-la-Corne IFLUP March, 2008</p> <p>Nisbet IFLUP Draft 4 March, 2008</p> <p>2008 Operating Plan</p>
Dispositions	There are continued demands for lease or transfer of ownership of forested lands. Sale or lease of pockets of	Since the start of the IFLUP process very few dispositions have been approved in the Island Forests. Any new dispositions are	FALC/ Nisbet	Nisbet Background Document - Dec., 2000

Public Issues and Concerns Summary Related to Forest Management within the Island Forests

Subject Area	Issue/Concern	Ministry Response	Forest Area	Document Source
	<p>forested lands results in more fragmentation, making wildlife management more difficult.</p> <p>Prefer that new dispositions are in compliance with RM development guidelines, minimize impacts on fish and wildlife, and avoid forest fragmentation (i.e. access problems).</p> <p>Prefer historic cabins no longer under a legal authority be allowed to decay naturally.</p>	<p>subject to current standards that protect the environment.</p> <p>The Ministry’s Lands Branch will ensure new dispositions do not compromise ecosystem integrity.</p> <p>Most cabins without current land dispositions have been abandoned and left to decay.</p>		<p>Fort-a-la-Corne IFLUP March, 2008</p>
<p>Dwarf Mistletoe</p>	<p>Inventory/Wood supply: The inventory of dwarf mistletoe is unknown, and there are forest stands not economically viable for timber harvesting due to the presence of dwarf mistletoe. Concern that dwarf mistletoe damage is not accurately reflected in volume reductions in wood supply calculations.</p> <p>Harvesting/Renewal: Concern that there has not been a concerted effort to deal with dwarf mistletoe which has lead to inconsistent policies, poor harvesting</p>	<p>The FMP Volume I will accurately document the extent of known insect and disease infestations.</p> <p>Forest estate modeling which will take place in the FMP Volume II will be based on new stand-level data and where this information is known, it will attempt to reflect decreased growth rates caused by dwarf mistletoe.</p> <p>The FMP Volume I will accurately document past harvesting and renewal success. The FMP Volume II will include strategies to address harvesting and renewal.</p>	<p>All</p>	<p>Fort-a-la-Corne IFLUP March 2008/ Nisbet IFLUP - Draft 4, March 2008</p> <p>FALC Background Document – Oct., 1999</p> <p>FALC Background Document – Oct., 1999</p>

Public Issues and Concerns Summary Related to Forest Management within the Island Forests

Subject Area	Issue/Concern	Ministry Response	Forest Area	Document Source
	<p>and renewal practices.</p> <p>Past reforestation efforts have not considered the presence of dwarf mistletoe in adjacent stands or residual patches.</p> <p>Unburned residual patches in fires (i.e. north cabin) are infected with mistletoe and are affecting the new growth.</p>	<p>Forest operations now follow the provincial dwarf mistletoe standard which includes falling all inflected trees within a harvest block and establishing a 20-meter plantation buffer to prevent spread into the freshly renewed forest.</p> <p>Many, but not all, of the residual islands in the Crutwell burn have been removed by harvesting. Very few residual islands in the Cabin fire have been harvested or will be harvested due to the detrimental effects it would have on regeneration.</p>		<p>Nisbet Background Document, Dec., 2000</p> <p>Nisbet IFLUP - Draft 4 March, 2008</p>
Exotic	Map all sites known to contain introduced exotic tree species and monitor them over time to determine if there are any impacts on the local forest ecosystem.	A report entitled “Evaluation of Conifer Tree Species Alternatives for Island Forest Renewal” (Bendzsak, 2006) examined several exotic trees species planted 30-50 years ago. Although these conifers are not naturally reproducing, the sites have been mapped and could be monitored over time through implementation of the FMP.	Nisbet	Nisbet IFLUP Draft 4 March, 2008
Fire and Fire Breaks	Wildfire suppression has been aggressive for many decades leading to an unnatural forest: a more mature forest and the build-up of fuels.	The Ministry now only actions fire suppression in areas where certain values have been identified (including forest with high timber value). The wood supply	All	Nisbet Background Document, Dec., 2000

Public Issues and Concerns Summary Related to Forest Management within the Island Forests

Subject Area	Issue/Concern	Ministry Response	Forest Area	Document Source
	<p>Forest fires in the Island Forests can spread, threatening homes, buildings and whole communities. Fire-smart and fire-break programs should be included in forest management planning.</p> <p>There are opportunities for control burns to manage further fire risk.</p>	<p>analysis will also consider the effects of fire when developing a new HVS.</p> <p>The FMP process will examine the age class distribution and develop strategies as per the Natural Forest Patterns standard. The FMP will include also include strategies to address fire and fire risk including fire breaks.</p> <p>Control burns are highly unlikely due to liability concerns.</p>		<p>Fort-a-la-Corne IFLUP March, 2008</p> <p>Fort-a-la-Corne IFLUP March, 2008</p>
Firewood	With home heating costs rising, it is expected there will be a steady or increasing demand on this forest for fuelwood.	The wood supply analysis may include a biomass analysis for fuel wood and the FMP could designate fuelwood zones for harvest of firewood.	Nisbet	Nisbet IFLUP Draft 4 March, 2008
Firewood	Designate areas for “own use” white birch and white spruce harvesting.	The FMP process may identify the HVS available for birch and spruce. Unlikely that areas will be designated for “own use” firewood harvesting	Nisbet	Nisbet IFLUP Draft 4 March, 2008
Garbage	<p>People depositing piles of dead and trimmed landscape trees in the forest. Also, garbage, domestic waste, vehicle parts and tires are deposited along trails throughout the forest.</p> <p>Garbage carried by the wind into the forest from the landfill is a continuing problem.</p>	<p>Conservation officers enforce illegal dumping activities, but it is difficult to identify the individuals responsible.</p> <p>Prince Albert landfill has changed its practices by covering recent landfill leading to less garbage taken by wind into the forest.</p>	Nisbet	Nisbet Background Document, Dec., 2000

Public Issues and Concerns Summary Related to Forest Management within the Island Forests

Subject Area	Issue/Concern	Ministry Response	Forest Area	Document Source
Grazing	Impacts of the amount of grazing permitted as well as impacts associated with grazing including the introduction of weeds, fence maintenance and impacts to water and renewal.	The Ministry has established a program of grazing assessment, and range management plans with its grazing licensees.	Nisbet	Nisbet Background Document, Dec., 2000
Harvesting	Plans for harvest and the direction provided in the IFLUP.	The FMP will take direction from the IFLUP (i.e. zoning) when determining the new HVS and in the development of the tactical plan.	FALC	2004 Operating Plan
Inventory	The forest inventory is old and regeneration status is not known	The 2007 SFVI and revised stand volume estimates will be used in the FMP process. Aerial regeneration surveys for most of the Island Forests were conducted in 2005, along with ground surveys done in 2009, which will provide an accurate assessment of regeneration.	All	FALC Background Document – Oct., 1999
Inventory	Volume estimates and applicability of old growth and yield information.	Temporary sample plots (TSPs) have recently been established and the data collected will be used in the FMP process.	All	FALC Background Document – Oct., 1999/ Nisbet IFLUP Draft 4 March, 2008
Mining	Access to land may be in conflict with other users.	The mining exploration and development permitting process is currently under review by government with legislation changes expected in 2011. The FALC IFLUP will make recommendations to minimize land use conflicts.	FALC	FALC Background Document – Oct., 1999
Natural Forest Patterns	Forest harvesting has historically been done in small, dispersed blocks. This method of harvesting has made	The FMP and tactical planning process will implement the Natural Forest Pattern (NFP) draft standard which provides guidance for		Nisbet IFLUP Draft 4 March, 2008

Public Issues and Concerns Summary Related to Forest Management within the Island Forests

Subject Area	Issue/Concern	Ministry Response	Forest Area	Document Source
	<p>renewal difficult and expensive. Small patch cuts do not emulate large fire disturbances associated with the boreal forest</p> <p>Not only has the natural range of much of the wildlife been severely restricted by human activities outside the forest, ongoing pressures for more economic and recreation activities within the forest continue to affect the range, habitat and diversity of species which make up the forest ecosystem.</p>	<p>harvest patterns to better emulate wildfire patterns which are common in the boreal forest.</p> <p>The IFLUP and FMP process will attempt to balance these values and will follow the NFP standards which are designed to address habitat and species needs.</p>		<p>Nisbet Background Document, Dec. 2000</p>
<p>Not Sufficiently Regenerated (NSR) Lands</p>	<p>The status of NSR is unknown, for example burned-over areas that are understocked and old harvest blocks are NSR.</p>	<p>The 2005 aerial regeneration surveys include burned areas. Results will be used in both the FMP process.</p>	<p>All</p>	<p>Nisbet Background Document, Dec. 2000</p>
<p>Pesticides</p>	<p>Use of pesticides, herbicides, insecticides and fungicides on farm and residential lands that border the forest may introduce toxins.</p>	<p>Pesticides approved for farms and residential use have been extensively tested and proven to have negligible impact by federal agencies.</p>	<p>Nisbet</p>	<p>Nisbet Background Document, Dec., 2000</p>
<p>Planning</p>	<p>There is a long history of government managing issue by issue, leading to fragmented development of policy and uneven levels of practice. It is believed that this approach to management has result in a deterioration of the forest resource.</p>	<p>The FMP Volume III and the tactical plan will lead to a coordinated effort and will provide further direction when developing a five-year operating plan.</p>	<p>All</p>	<p>FALC Background Document – Oct., 1999</p>

Public Issues and Concerns Summary Related to Forest Management within the Island Forests				
Subject Area	Issue/Concern	Ministry Response	Forest Area	Document Source
Planning	Development for human use, such as roads, utility corridors, recreation and economic activities has had an effect on the extent and distribution of the plants and animals of the forest.	The IFLUP and FMP process will balance these values.	All	FALC Background Document – Oct., 1999
Planning	Use ecosystem-based management approaches.	The Ministry follows ecosystem-based management approaches, including the NFP standards.	FALC	Fort-a-la-Corne IFLUP March, 2008
Planning	Promote and respect the needs and interests of local communities, stakeholders, First Nations, Métis and people of Saskatchewan.	Stakeholder and Aboriginal Consultation are critical components of all levels of planning.	FALC	Fort-a-la-Corne IFLUP March, 2008
Planning	Recommend that pre-harvest silvicultural prescriptions (PHSPs) be done before harvest blocks are proposed in an operating plan.	Operating plans promote the application of silvicultural ground rules. Pre-harvest silvicultural prescriptions are done once an operating plan is approved.	All	2004 Operating Plan
Planning	Recommend comparing both pre- and post-harvest volumes by operator.	The FMP – Volume II will provide mechanisms for these to be tracked.	All	2004 Operating Plan
Planning	Recommend conducting a dwarf mistletoe inventory and developing a comprehensive approach to managing this parasite.	There has been a dwarf mistletoe inventory conducted for the Island Forests. The FMP – Volume III will provide a strategy on how to reduce this parasite throughout the Island Forests.	All	2004 Operating Plan
Planning	Consider species substitution to reduce mistletoe spread.	Renewal plans do consider species substitution where site conditions permit.	All	2004 Operating Plan
Representative Area Network (RANs)	Management plans for lands proposed for inclusion in the RAN.	Management plans for RANs will be addressed through another process once they have been designated.	Nisbet	Nisbet IFLUP Draft 4 March, 2008
Recreation	Conflicting uses and conflicting trail	The IFLUPs will balance these values. These	All	Fort-a-la-Corne IFLUP

Public Issues and Concerns Summary Related to Forest Management within the Island Forests

Subject Area	Issue/Concern	Ministry Response	Forest Area	Document Source
	development by different groups/clubs Numerous ski and snowmobile trails exist throughout the forest.	conflicts have decreased in recent years. Operating plans consider these areas when known.		March, 2008
Roads	Many roads are in poor shape and are not maintained.	These roads are only user-maintained, so the public is encouraged to drive with caution.	FALC	FALC Background Document Oct., 1999
Roads	Access and impacts on wildlife. Road closure program has raised many concerns	Road closure process began in 1984. Road closures now coincide with all levels of planning and are a regular part of forest operations.	FALC	FALC background Document Oct., 1999
Roads	Many stream crossings are in poor shape leading to erosion and blockages to fish. No inventory of problems exists or plans to repair. Perceived safety problems exist with bridges and culverts. RMs are concerned about forest use impacts on their roads.	Some bridges have been removed recently (Inland road) or have been replaced (Division Road) in the FALC. Some site-specific work has also been conducted to mitigate any impacts to watersheds and to improve safety. Independent operators are required to notify affected RMs prior to hauling.	FALC	FALC Background Document Oct., 1999
Sand and Gravel	Depletion of sand and gravel aggregate may occur as urban demands increase.	Lands Branch will allow extraction of sand and gravel where appropriate from the provincial forest.	Nisbet	Nisbet Background Document, Dec. 2000
Silviculture	Watershed protection must be maintained by restocking NSR areas.	The Ministry has acknowledged that this is a concern and that 1,000 ha have been planted at Moose Lake (in the FALC).	FALC	IFLUP meeting Oct 28, 1999, Nipawin

Public Issues and Concerns Summary Related to Forest Management within the Island Forests				
Subject Area	Issue/Concern	Ministry Response	Forest Area	Document Source
		The IFLUPs have recommended that NSR areas be reforested through the provincial renewal program.		
Silviculture	Harvesting is outpacing renewal efforts.	A trust fund has been established for the Island Forests to address renewal requirements. The fund is administered by SRC which is responsible for the management of the forest.	FALC	FALC Background Document Oct., 1999
Silviculture	Site preparation was too aggressive on sandy soils with thin duff layers.	Although this happened in the past, it is no longer the current practice.	Nisbet	Nisbet IFLUP, Draft 4 March, 2008
Silviculture	Lack of silviculture keys that are ecologically appropriate to assist in the documentation of appropriate site treatments and renewal options	Silvicultural Ground Rules (SGRs) will be developed in the FMP Volume II which will provide a variety of silvicultural treatments for each site type.	Nisbet	Nisbet IFLUP, Draft 4 March, 2008
Socio-Economic Non Timber Forest Products (NTFPs)	Why don't we expand on the area (size) of special forest products (i.e. mushrooms, birch bark, etc)	There is potential here, but it has yet to be developed by entrepreneurs.	FALC	IFLUP meeting Oct 28, 1999, Nipawin
Socio-Economic (NTFPs)	A good inventory of non-timber forest products is not available. This makes sustainable management for these products difficult.	NTFP industry remains small in Saskatchewan, with mushroom picking being the largest activity. At this level of activity there are no long-term sustainability issues for NTFPs.	FALC	Fort-a-la-Corne IFLUP March, 2008
Socio-Economic	The management of this forest is critical to the many livelihoods of persons who live near the forest.	The FMP will include estimate of the Island Forests contributions to the local economy.	FALC	IFLUP meeting Oct 28, 1999, Nipawin
Species at	Rare plants and special habitats	Rare plants are those classed as S1, S2 or S3		2005 Operating Plan

Public Issues and Concerns Summary Related to Forest Management within the Island Forests

Subject Area	Issue/Concern	Ministry Response	Forest Area	Document Source
Risk	Patches of rough fescue prairie, which are small remnants of prairie ecosystems, may be at risk.	<p>in the provincial ranking system. There are some in the Island Forests, but no known locations of any species listed under SARA or the Wildlife Act.</p> <p>The FMP process will review current knowledge on Species at Risk including rare, threatened and endangered plants and animals and develop appropriate strategies.</p> <p>The Nisbet Forest IFLUP has a policy to protect rough fescue prairie ecosystems from conversion to other ecosystems.</p>		Nisbet IFLUP, Draft 4 March, 2008
Water	Harvesting may cause erosion and siltation to groundwater, or adversely affect fish habitat.	All harvesting will follow the riparian zone standards (buffers) and the FMP process will consider watersheds and water quality issues. Riparian zones will be modeled and excluded from the operable land base.	FALC	Fort-a-la-Corne IFLUP March, 2008
Wildlife	<p>Timber harvesting can reduce habitat cover.</p> <p>Roads provide access which can result in impacts on wildlife populations.</p>	<p>The FMP and tactical planning will adopt the Natural Forest Pattern standard which will manage habitat at both a landscape and stand level, along with associated road development.</p> <p>The Ministry will continue to close and reclaim new roads.</p>	FALC	Fort-a-la-Corne IFLUP March, 2008
Wildlife	Conflicts with traplines is an on-going problem as locations of lines are not always known	The Island Forests operating plan holds open house every year before plan submission. Trapline holders are encourage to attend or speak directly to the SE Area Forester	FALC	Fort-à-la-Corne IFLUP document March 2008

Public Issues and Concerns Summary Related to Forest Management within the Island Forests				
Subject Area	Issue/Concern	Ministry Response	Forest Area	Document Source
Wildlife	There are no wildlife management plans	Current information on wildlife will be incorporated in the FMP process	Nisbet	Nisbet IFLUP, Draft 4 March, 2008
Wildlife	Wildlife ranches in the area are of growing concern due to the potential of introduction and spread of disease into the natural populations.	There are no game farms in the Island Forests. Management of game farms is the jurisdiction of the Ministry of Agriculture.	Nisbet	Nisbet Background Document, Dec. 2000
Wildlife/ Grazing	Grazing and haying activities limit wildlife habitat by competing for the same food source as some forest species, while depleting habitat for others.	Habitat mapping will be part of the FMP process. The Ministry has established a program of grazing assessment, and range management plans with its grazing licensees.	Nisbet	Nisbet Background Document, Dec. 2000
Wood Supply	The demand for green (non-salvage, living) “own use” white spruce, and white birch exceeds the set annual limits.	Development of the FMP Volume II and new HVS calculation will determine the sustainable harvest level.	Nisbet	Nisbet Background Document, Dec. 2000
Wood Supply	The currently approved volumes and the HVS do not consider other forest values such as leased sites, recreation or grazing permit areas. If the planning process identifies areas where harvesting is to be excluded, the HVS must be adjusted accordingly.	Development of the FMP Volume II and new HVS calculation will consider these values and how they affect wood supply	Nisbet	Nisbet Background Document, Dec. 2000

Appendix C. List of Maps.

Map 3-1 – Location of Island Forests

Map 3-2 – Ecoregions and Ecodistricts of the Island Forests

Map 3-3 – Major Soil Types of the Island Forests

Map 3-4 – Local Surface Form of the Island Forests

Map 3-5 – Watersheds of the Island Forests

Map 3-6 – Known Archaeological, Cultural and Heritage Sites in the Fort a la Corne.

Map 3-7 a Fort a la Corne and Torch Provincial Forests. History of Harvest and Road Development.

Map 3-7 b Canwood and Nisbet Provincial Forests. History of Harvest and Road Development.

Map 4-1 a - Provincial Forest Type (Canwood and Nisbet Provincial Forests).

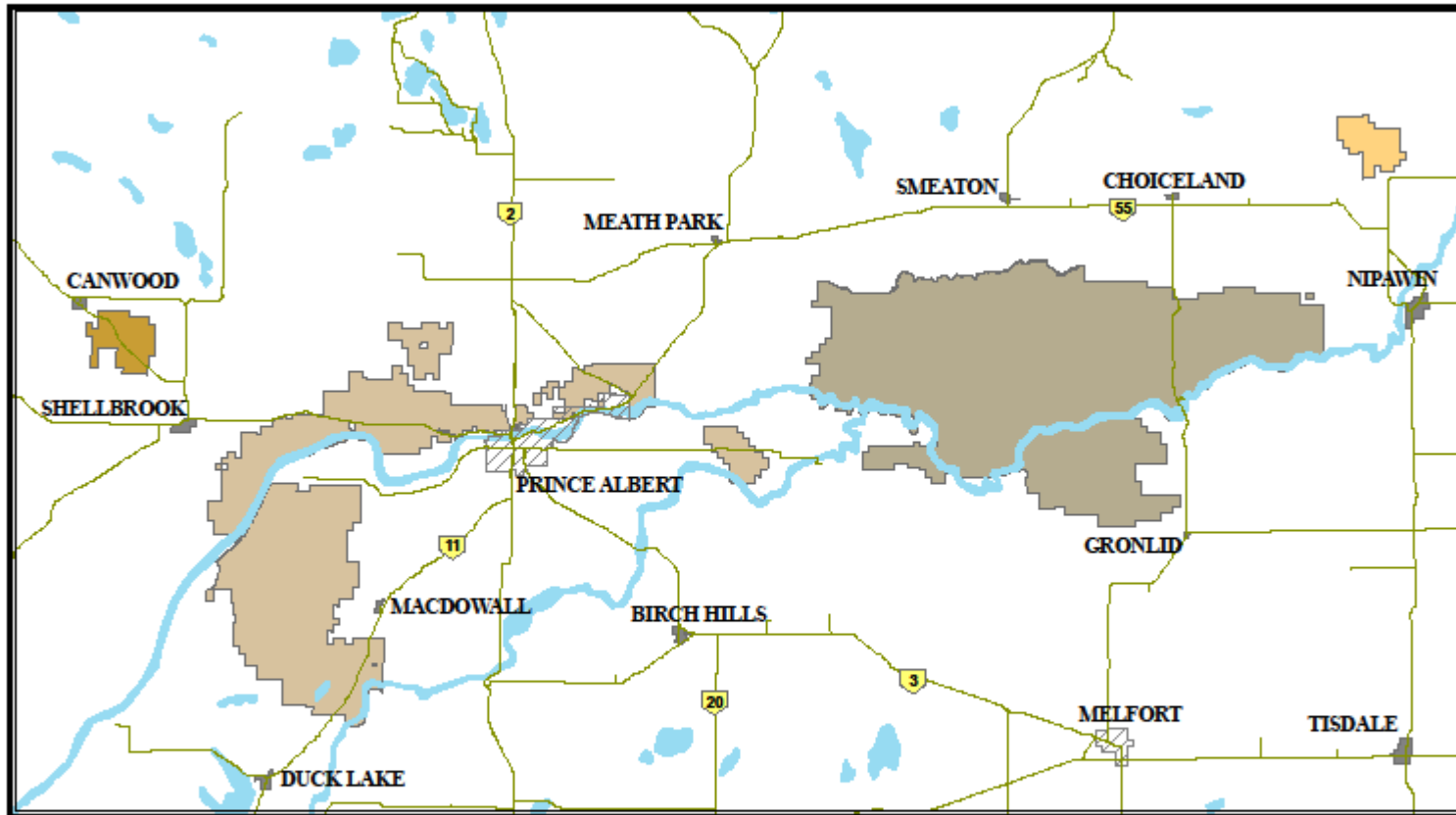
Maps 4-1 b Provincial Forest Types Maps (Fort a la Corne and Torch Provincial Forests).

Map 4-2 a – Seral Stages (Canwood and Nisbet Provincial Forests).

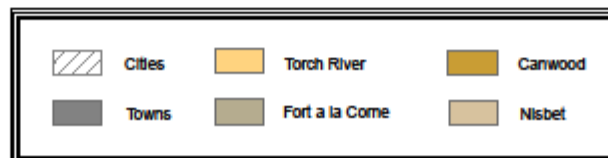
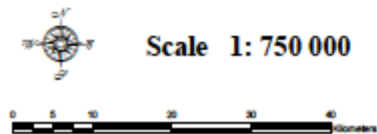
Map 4-2 b – Seral Stages (Fort a la Corne and Torch Provincial Forests).

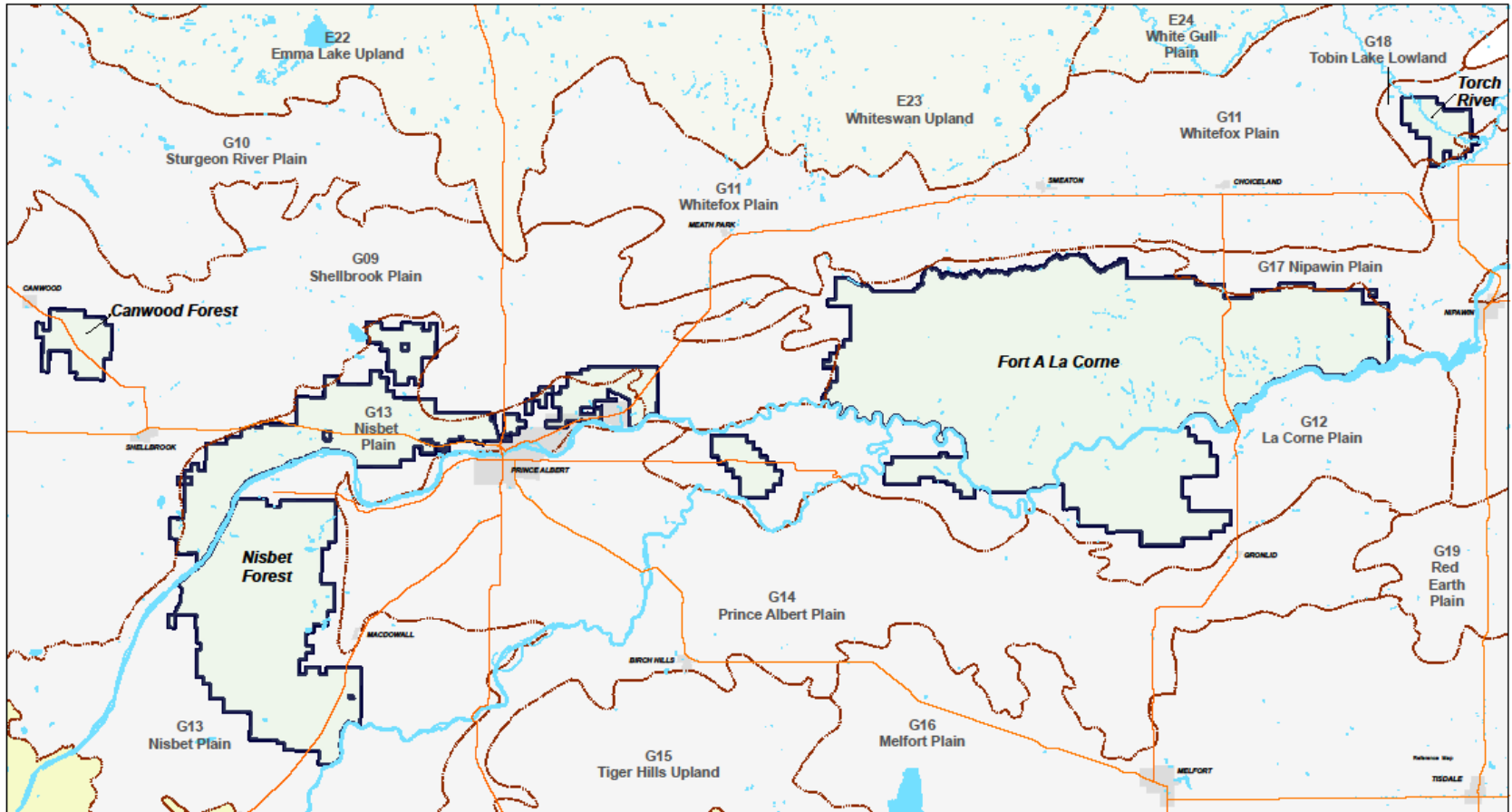
Map 4-3 History of NSR in the Island Forests.

Island Forests

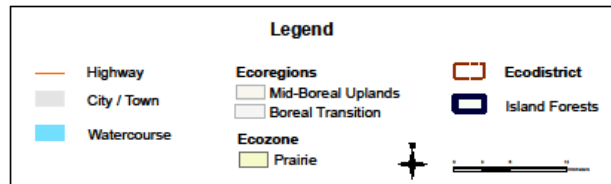


Map 3 - 1
Location of the Island Forests

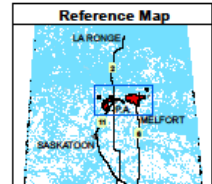


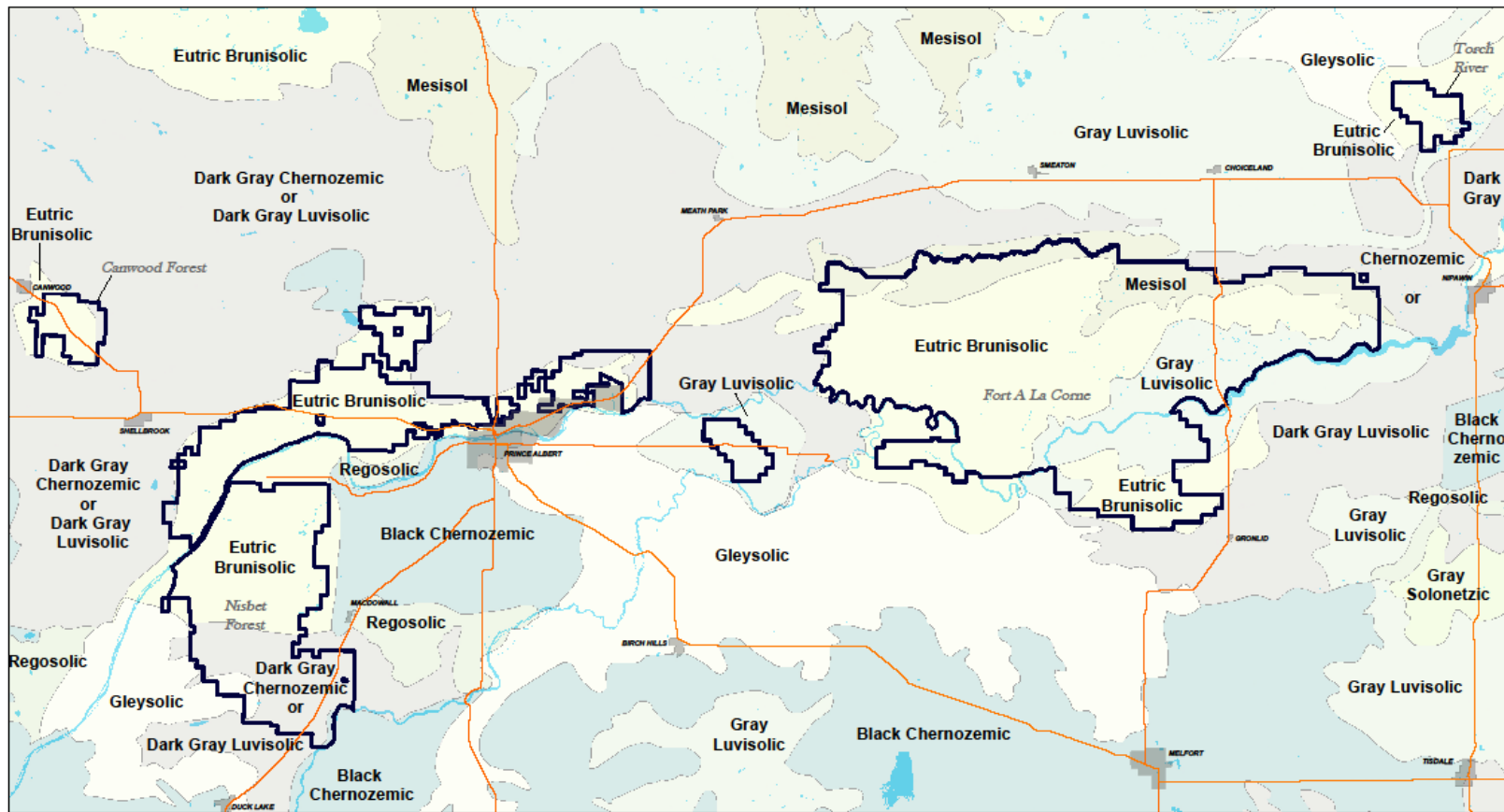


Map 3 - 2
Ecoregions and Ecodistricts
of the Island Forests

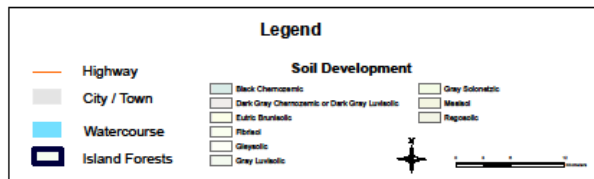


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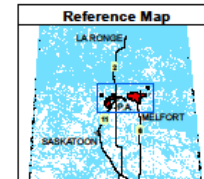


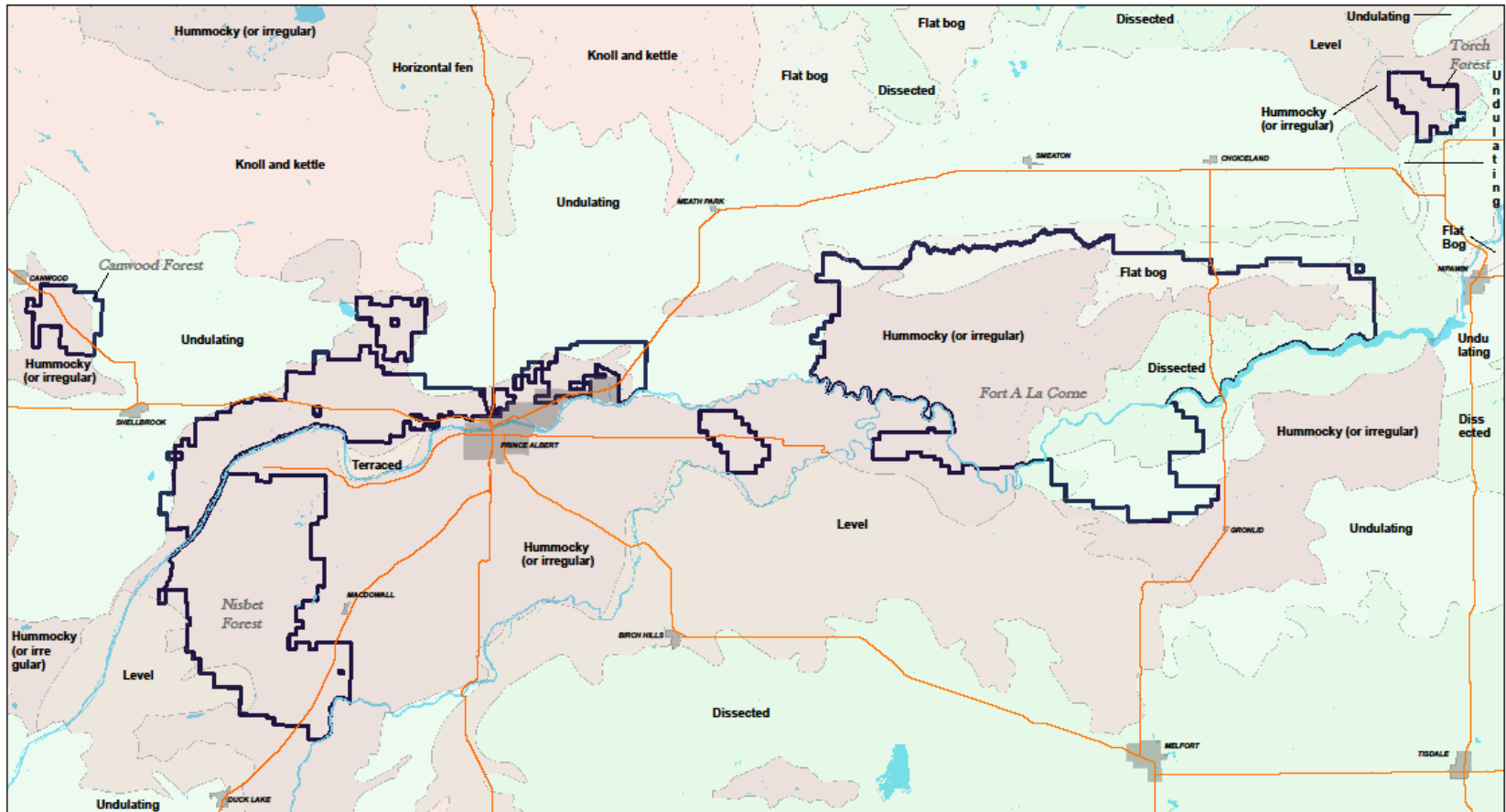


Map 3 - 3
Major Soil Types
of the Island Forests



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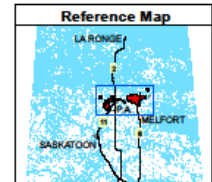


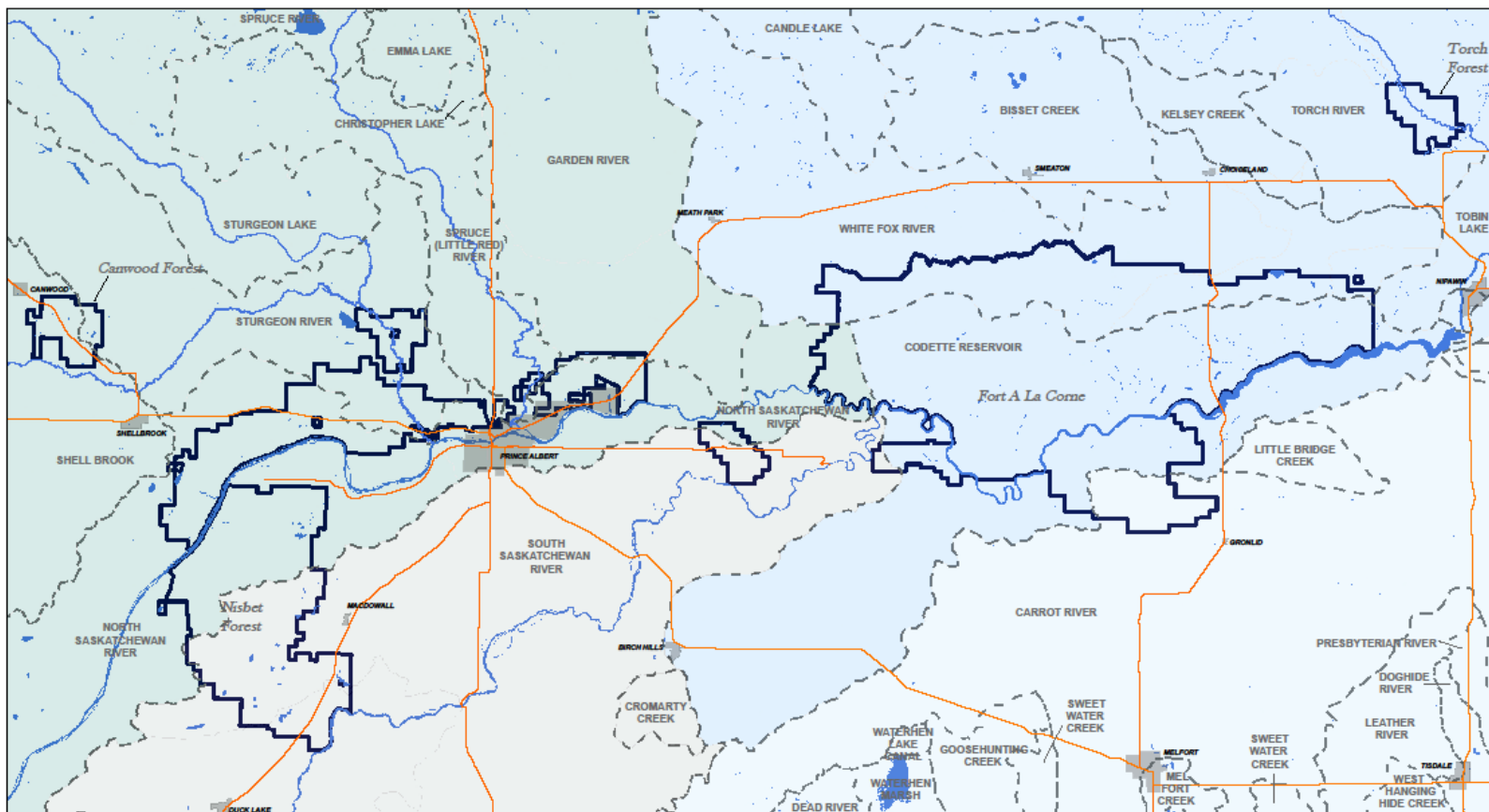


**Map 3 - 4
Local Surface Form
of the Island Forests**



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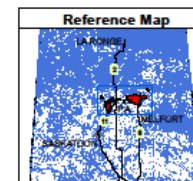




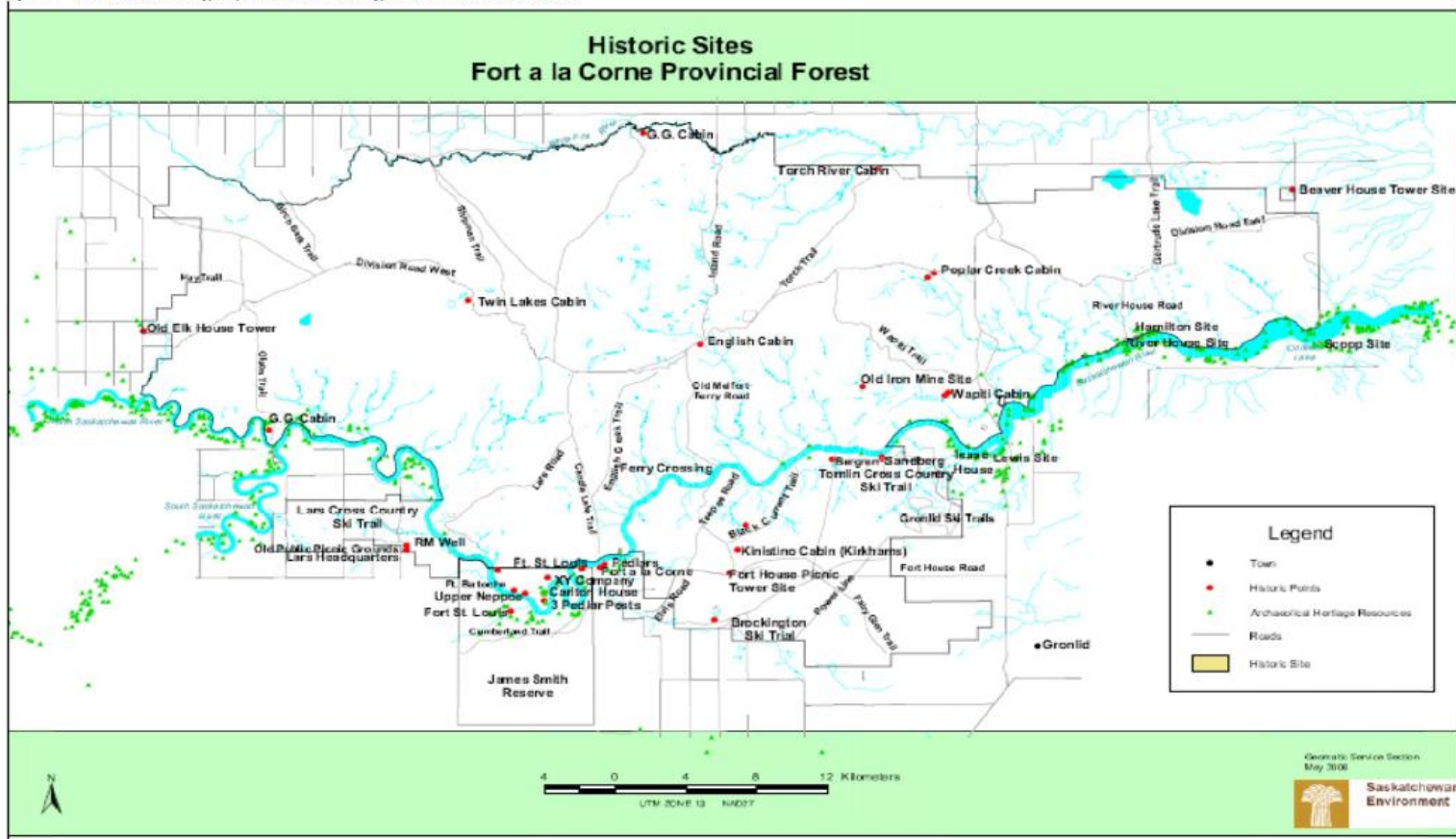
**Map 3 - 5
Watersheds of
the Island Forests**

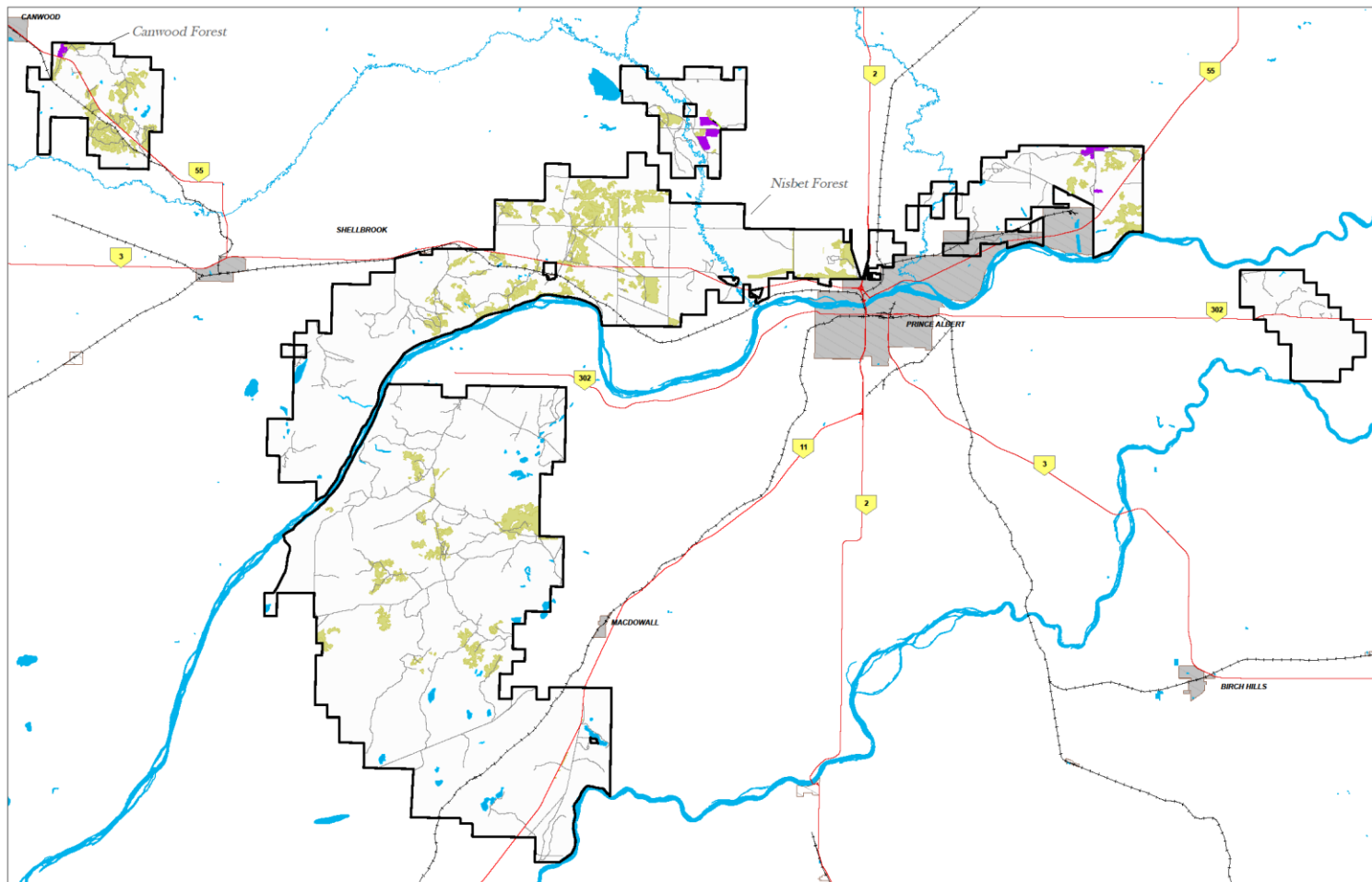


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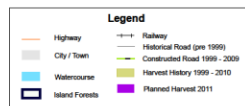


Map 3-6 – Known Archaeological, Cultural and Heritage Sites in the Fort a la Corne.



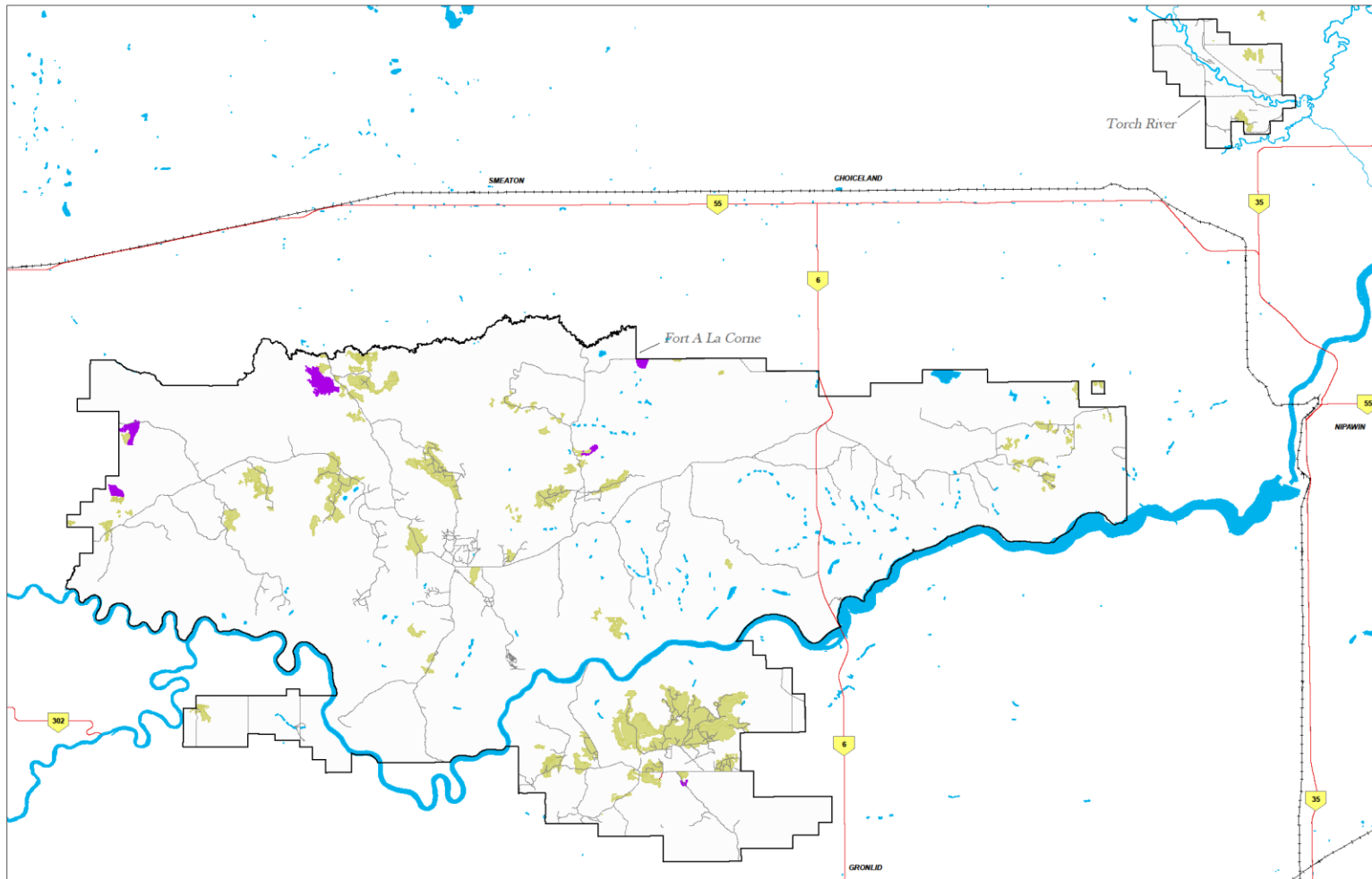


Map 3 - 7a
Canwood and Nisbet Provincial Forest
History of Harvest and Road Development



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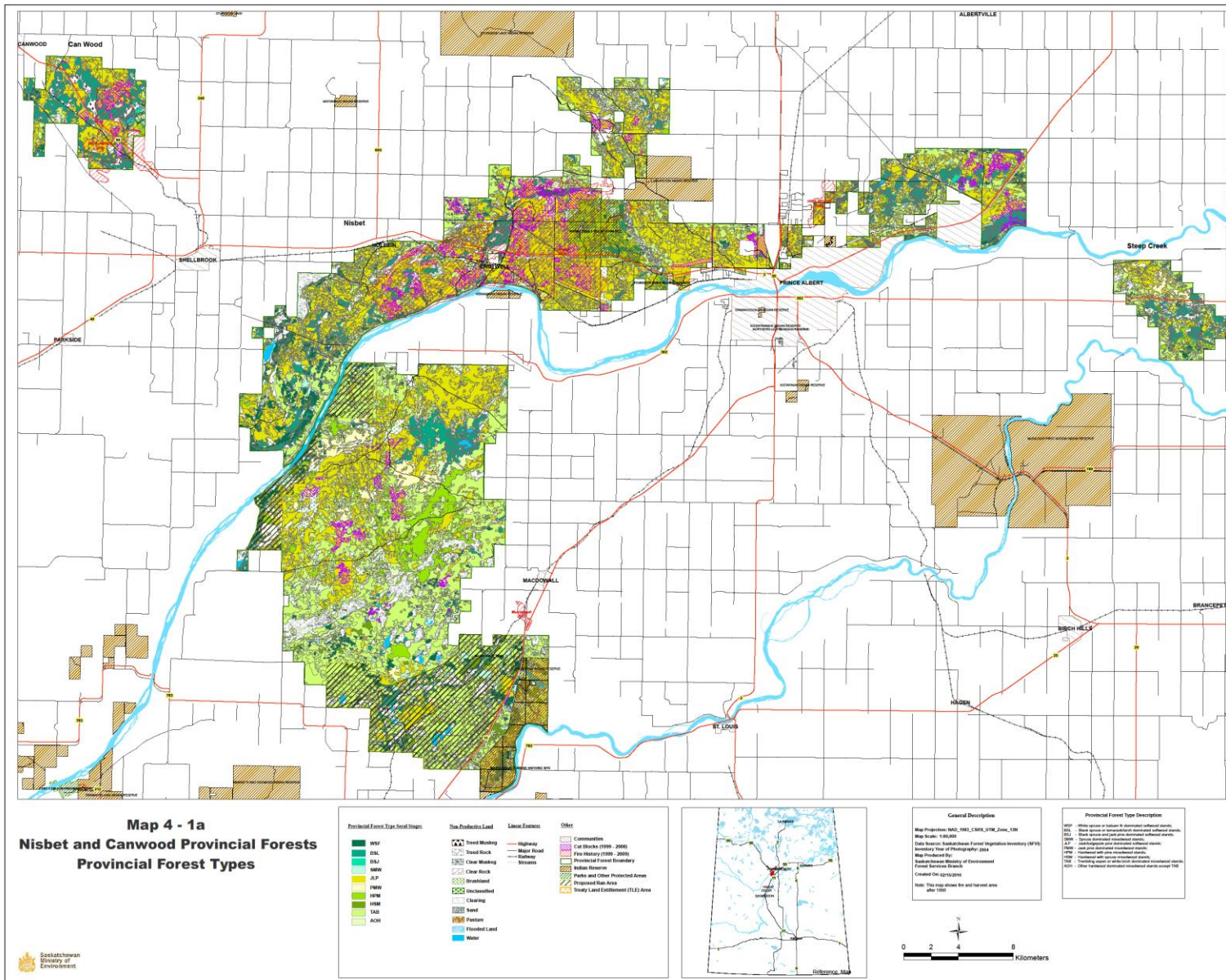
Map 3 - 7b
Fort A La Corne and Torch River Provincial Forest
History of Harvest and Road Development

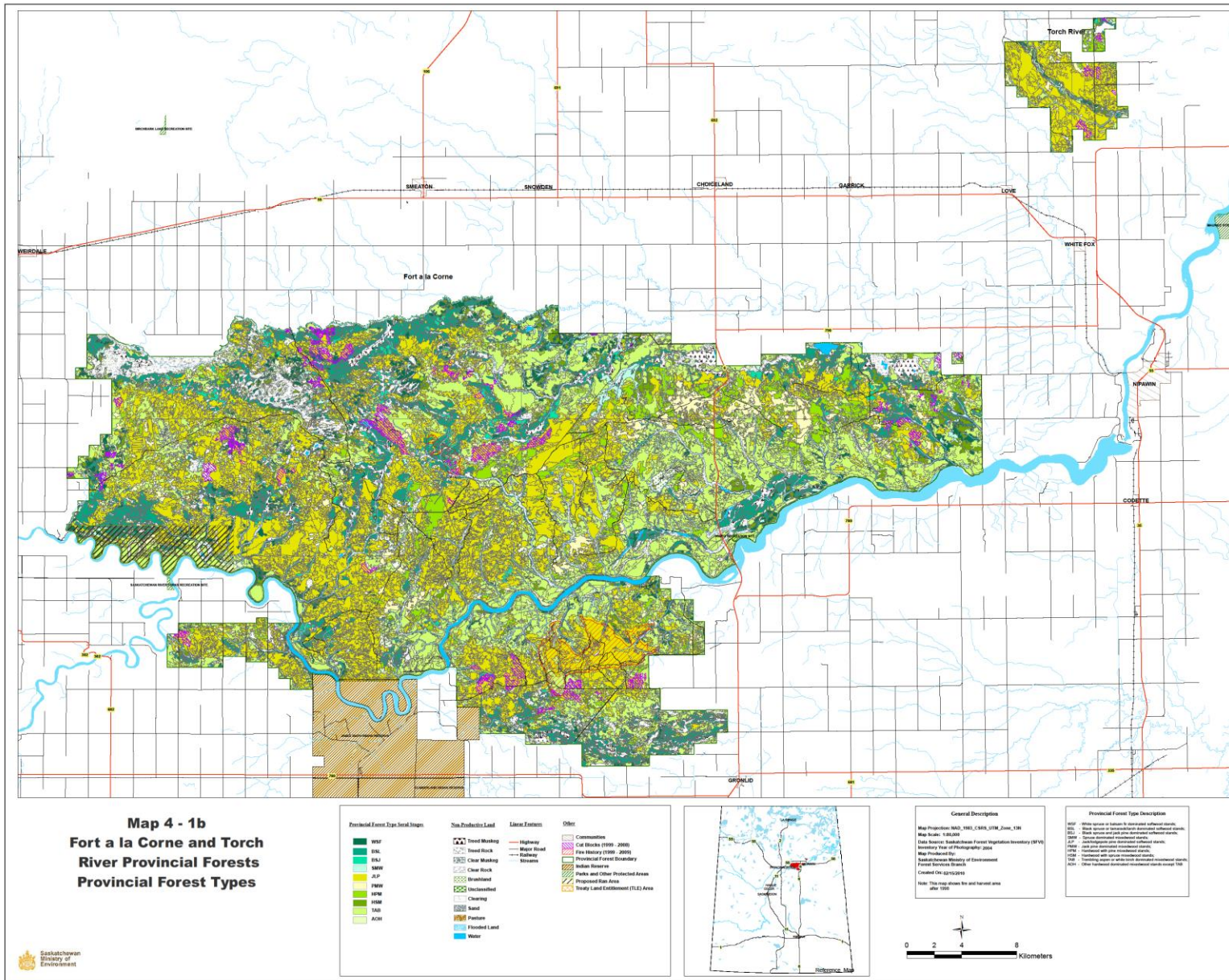
Legend	
— Highway	—+— Railway
— City / Town	— Historical Road (pre 1959)
— Watercourse	— Constructed Road 1999 - 2009
— Island Forests	— Harvest History 1999 - 2010
	— Planned Harvest 2011

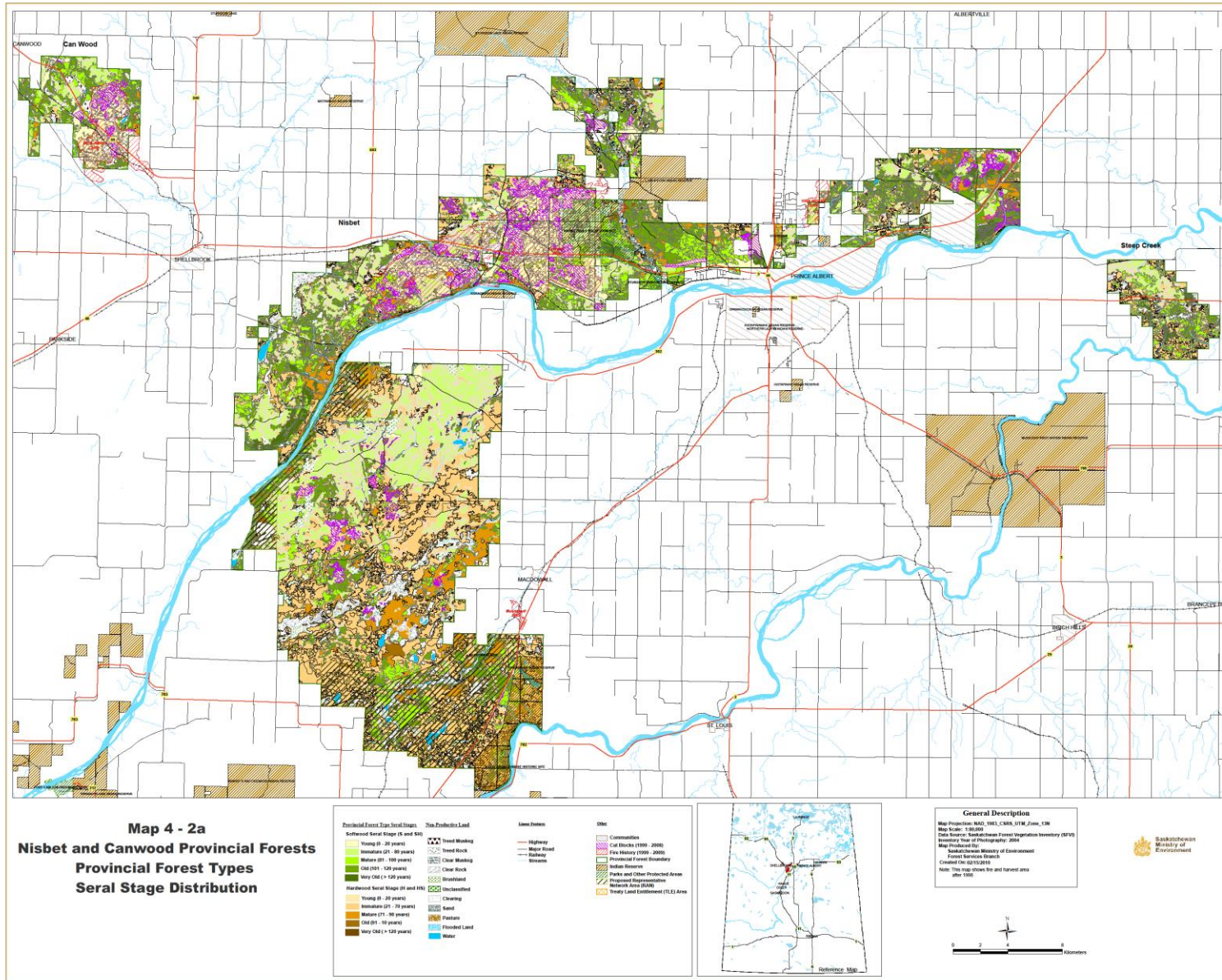


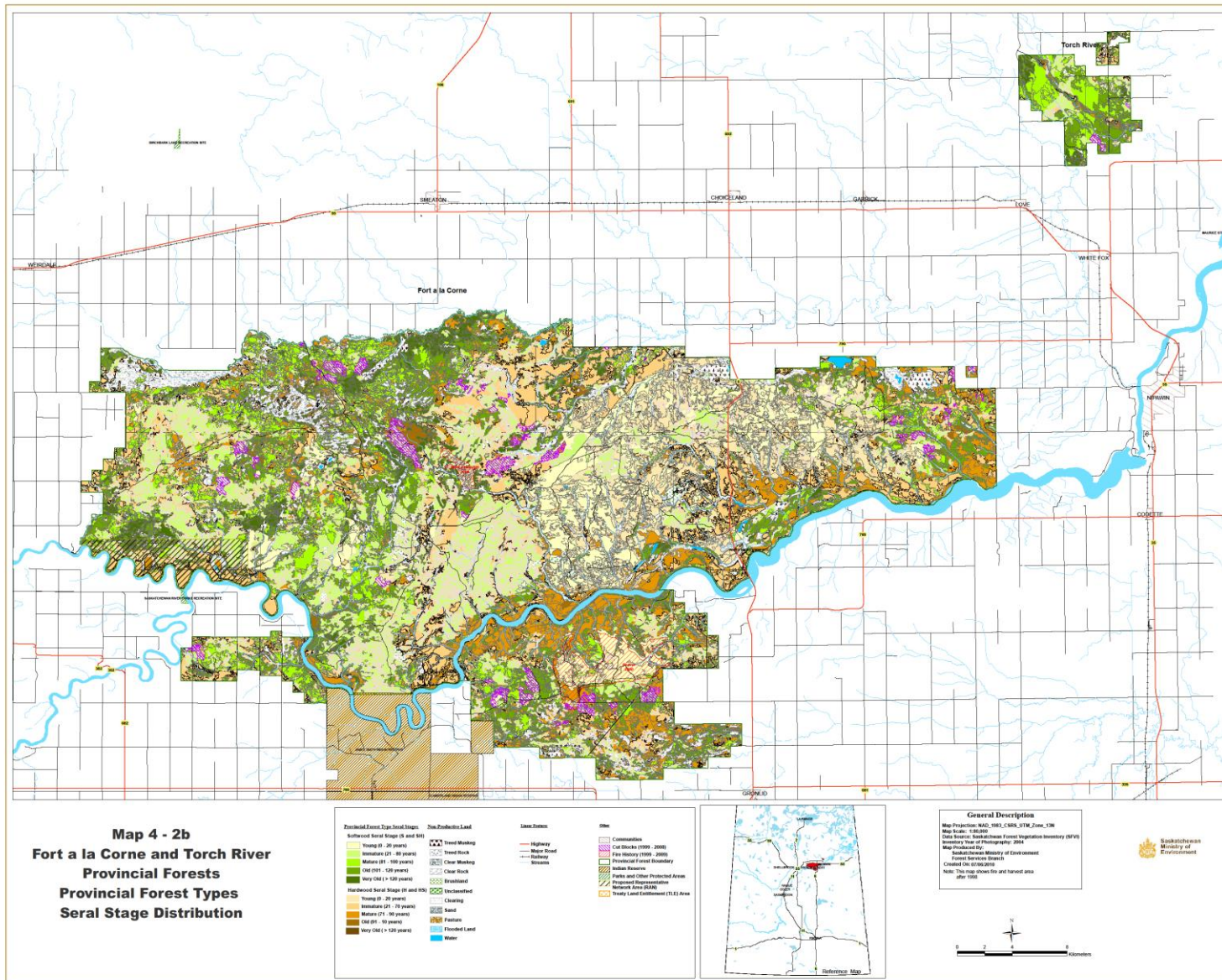
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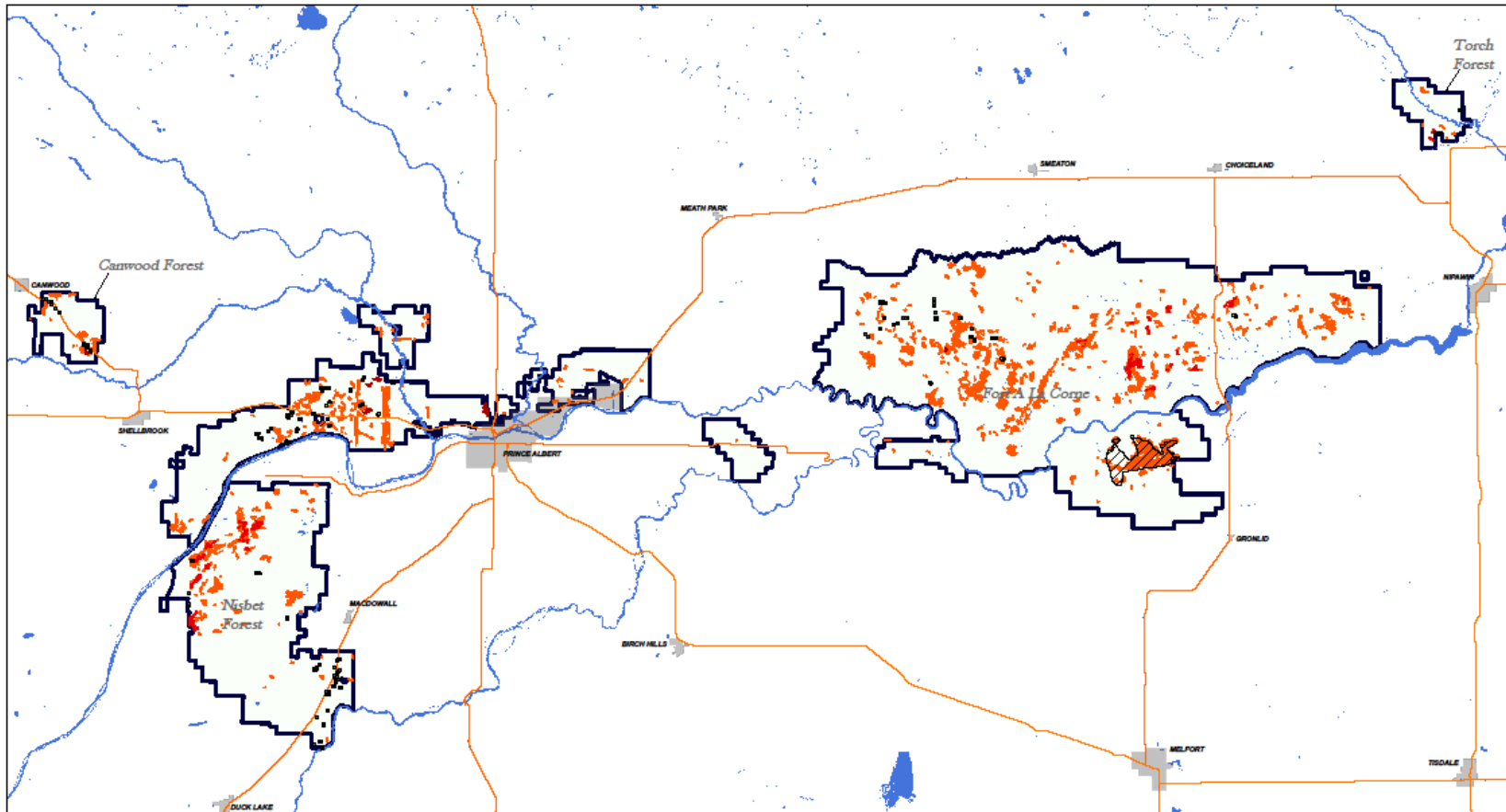




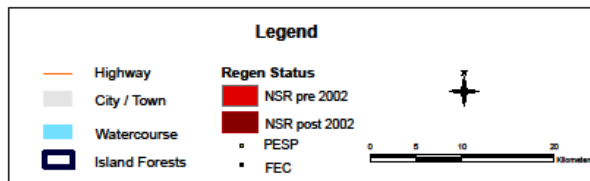








Map 4 - 3
History of NSR
in the Island Forests



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