

PINEHOUSE-DIPPER INTEGRATED FOREST LAND USE PLAN

BACKGROUND INFORMATION DOCUMENT



**Saskatchewan
Environment
and Resource
Management**

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1.0 INTRODUCTION

The Pinehouse-Dipper Planning Area is located on the northwestern side of the Northern Provincial Forest near the community of Beauval (Figure 1). The Planning Area contains the communities of Patuanak and Pinehouse, while Ile-a-la-Crosse and Beauval are located outside the southwestern boundaries. The communities of Buffalo Narrows, Dillon, and Turnor Lake are located outside of the planning area to the west, and Green Lake to the south, but all have interests within the landbase.

Recent announcements introduced the Northwest Communities Wood Products Ltd. (Northwest), which is a partnership among the northwest Métis communities of Green Lake, Beauval, Pinehouse, Patuanak and Ile-a-la-Crosse. Saskatchewan Environment and Resource Management (SERM) is prepared to negotiate a Forest Management Agreement (FMA) with Northwest, subject to the proponent meeting all licensing and planning requirements. The southern portion of the Planning Area has been identified as a probable location for a new *Forest Management Agreement* (FMA) area. The northern section of the unit contains an area which is currently considered primarily for planning purposes, but there has been some interest within the forest sector to consider some of it for forest development purposes.

Integrated forest land use planning requires that all resource uses be considered, and that all users are involved in planning, to reduce conflicts and optimize uses. Public involvement used in planning is critical in resolving land use conflicts and managing resource issues which exist across a land base. The new *Forest Resource Management Act and Regulations* require SERM to develop an Integrated Forest Land Use Plan for management units within the Provincial Forest. This plan must recognize all resource values found within the forest and work with all those who have an interest in the forest to make consensus-based recommendations about how the land should be managed. Since the company has expressed interest for an FMA, SERM has initiated an Integrated Forest Land Use Plan. Public input must be part of the planning process.

1.1 Planning Process

Step One - Plan Initiation

In April 1999, a decision was made to develop an Integrated Forest Land Use Plan for the planning area. A core planning team was formed, consisting of planners from both SERM's Forest Ecosystems Branch and Sustainable Lands Management Branch, along with a representative from the West Boreal Eco-Region based in Meadow Lake. Another group, the inter-agency planning team, is now being formed. This team will consist of representatives from the various resource management branches of SERM, and representatives from other government agencies, along with applicable Crown Corporations. A consultation process was initiated to inform northern communities and various land-users of this planning process and to discuss how they can participate.

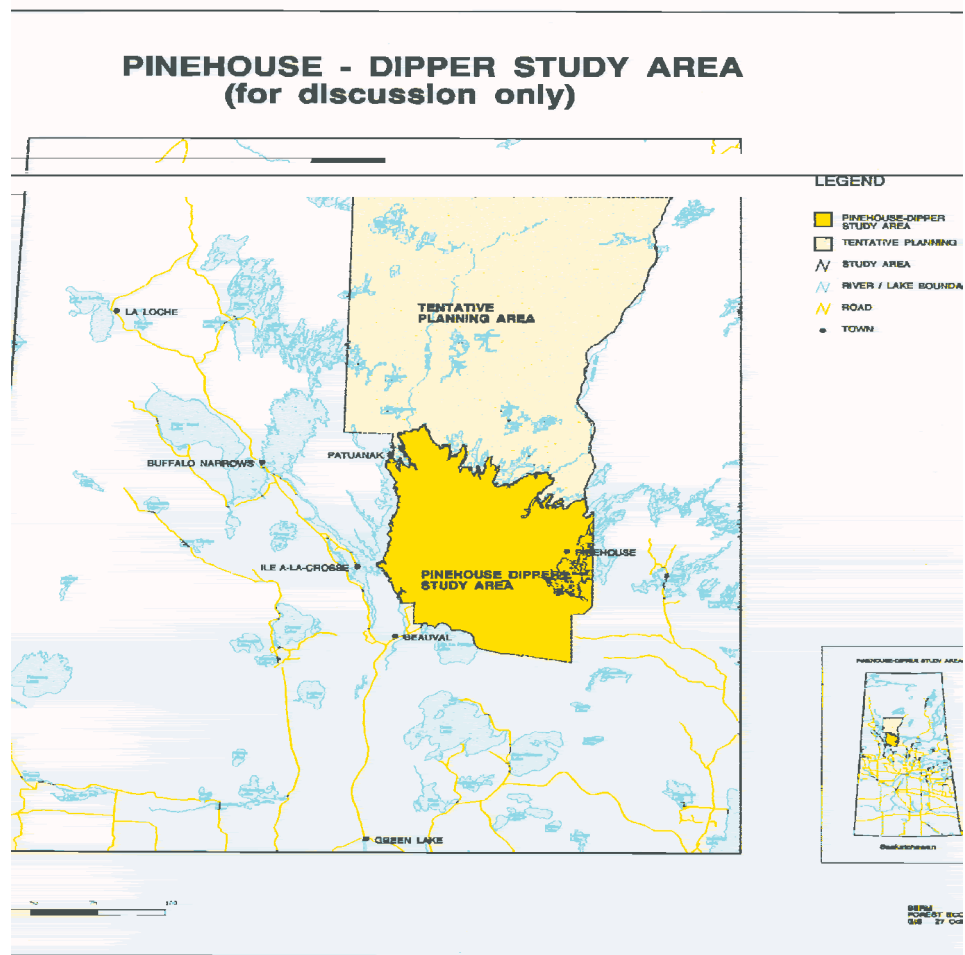


Figure 1. Proposed planning area for the Pinehouse-Dipper Integrated Forest Land Use Plan.

Step Two - Information and Issue Gathering

The core planning team gathered as much current information as possible about the land base and current use of the area resources, and assembled this in a Background Information Document¹ to be distributed to known stakeholders, community members and Aboriginal people of the area early in the planning process. A series of public meetings were held in the following communities during November 1999: Beauval; Ile-a-la-Crosse; Patuanak; and Pinehouse. The purpose of these meetings was to introduce the public to the planning process, help identify issues and provide for additional information collection. The meetings were also an opportunity for public input into the development of a public advisory committee, to be made up of representatives of various interests. This advisory committee will help the planning team develop the plan and will consist of representatives of all interested local communities, along with applicable stakeholder groups.

Step Three - Advisory Committee Meetings

Using a public advisory committee of local stakeholders and community members ensures that all interests will have strong input into the process and allows a broader and more balanced range of solutions. The advisory committee will work with the core planning team to develop strategies for resource management in the area. The process takes commitment by all parties as many meetings will be required to discuss and develop potential solutions on resource issues.

Step Four - Draft Plan Preparation

A draft plan will be prepared using gathered information and potential resource management and implementation strategies developed by the planning team and advisory committee. The plan will be an important document which will set goals and objectives for various resource values. It will also have strategies to both resolve issues and reach goals and objectives. During through the process, a second round of public meetings will be held, to update on progress and seek further input.

Step Five - Draft Plan Review

The draft plan will undergo a government and public review as well as an independent scientific review.

Step Six - Plan Revision and Approval

The draft plan will be revised, based on comments received during the review process. The plan will then be submitted to the Government for approval.

¹Also available on SERM s internet site - www.serm.gov.sk.ca

Step Seven - Plan Implementation

Implementation of the plan is the final step in the planning process. This will include a process for monitoring plan strategies. Information collection is an ongoing process and as new information becomes available, it will be incorporated into the plan. The plan will remain a flexible, working document, which will respond to the needs of adaptive management. An overview of the entire process is summarized in Figure 2.

1.2 Ecosystem Management

Ecosystem management, sustainable forestry, ecologically-based forestry: all are variants of the same theme, which is the modern approach to forestry which considers ecological and social values, along with economic ones. SERM will follow this approach for land use planning.

Ecosystem management requires an understanding of ecosystem function, dynamics and processes that extend across time and space. A forest ecosystem is more than trees; it is comprised of many different components which interrelate with each other and are ultimately interconnected to function as a whole. Ecosystem management must consider the whole ecosystem, including water, soil, trees, animals and human activity, when developing strategies to meet a variety of objectives.

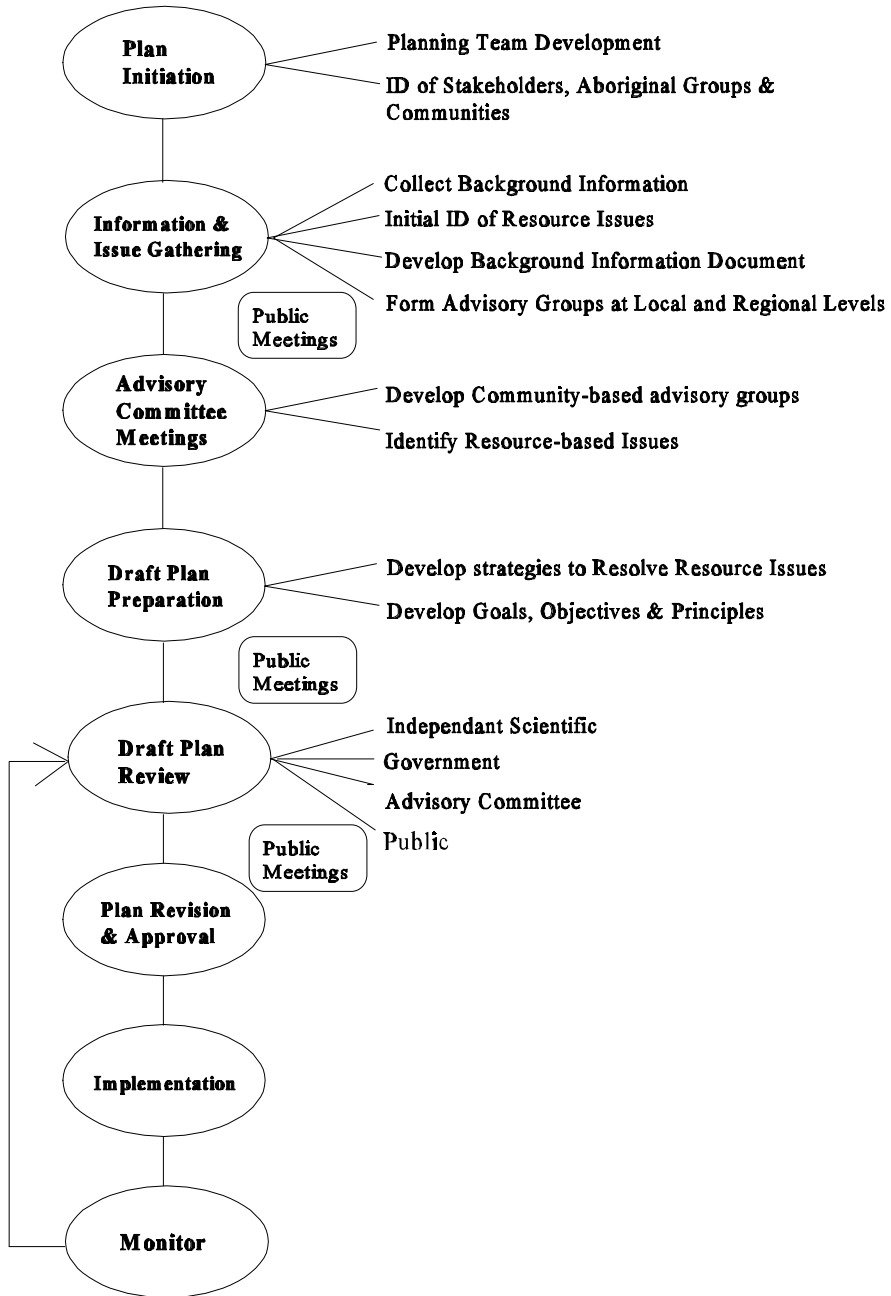
Integrated forest land use planning works with people who are involved with and have a stake in the forest. The traditional and local knowledge of these people is invaluable to the planning process. There is a tremendous amount of knowledge about various forest ecosystems that science still needs to document and understand to help manage our ecosystems sustainably. Research and monitoring programs currently underway will help us learn more about these ecosystems and provide forest managers with a greater understanding of the forest as a whole.

1.3 Public Involvement

One of SERM's key mandates is the "Promotion of public, stakeholder and Aboriginal peoples' involvement in environmental and resource management through developing and enhancing public involvement programs and partnerships²."

²SERM Aboriginal Affairs Policy Framework - A Tool for Decision Making

Figure 2. Overview of Planning Process



An important component of the planning process is the opportunity for local stakeholders, Aboriginal people and the general public to be both informed and involved. Understanding all the issues and the resource uses that occur in the forest is fundamental for meaningful public involvement. The formation of a public advisory committee, consisting of key stakeholders, Aboriginal people and community representatives, working with the planning team to develop strategies in dealing with resource conflicts and management, is an integral part of the process.

Three sets of public meetings are planned for the term of the plan. Initial meetings will introduce the planning process and solicit interest and input and identify important issues. A second round of meetings is planned midway through the process to update the public on progress and seek further direction. When complete, a draft plan will then undergo a final public and scientific review and will be presented in a final round of public meetings. Ongoing meetings will be held with the regional advisory group, who will assist in keeping their constituents informed.

2.0 HISTORY/BACKGROUND

Five northwestern Métis communities have recently formed Northwest Communities Wood Products Inc. to acquire a long-term wood supply. In March 1999, SERM, Saskatchewan Economic and Co-operative Development and the Office of Northern Affairs signed a letter of intent with the Northwest Communities Wood Products Inc. informing them that the Province is prepared to negotiate a Forest Management Agreement (FMA) for a portion of the former Besnard supply area, subject to the company meeting all licensing and planning requirements.

Local communities, Aboriginal people and various stakeholder groups have long expressed an interest to become further involved in forest and resource management activities. Many residents feel a sense of ownership in the land base and are interested in working on a long-term integrated forest land use plan for the area.

The communities of Beauval, Ile-a-la-Crosse, Pinehouse and Patuanak primarily consist of Aboriginal people which, along with members of the English River First Nation, constitute the majority of the people living directly within the planning unit (total of 1,621). Several of these communities have co-management boards, mainly initiated through Mistik Management Ltd., to deal with forest management issues.

Several large fires over the past twenty years have increased the proportion of immature forest types across the planning unit, especially north of the Churchill River. The four northern communities around the planning unit have had very little experience in forest management activities. Forest harvesting has been primarily small-scale fire salvage logging in the planning unit. Primary activities across the land base have been hunting, fishing (commercial, sport and subsistence), wild rice production, gathering of traditional foods and medicines, and trapping.

Outfitting has been quite active north of the Churchill River; some fishing and hunting resorts are also located in the southern section of the planning unit.

3.0 COMMUNITY PROFILES

3.1 Beauval

The community of Beauval is located approximately 150 kilometers northeast of Meadow Lake along highways 55, 155 and 165 (Figure 1). Compared to other communities in the northwest region of Saskatchewan, Beauval is a relatively young community, established in the early 1900s. Largely driven by the fur trade, the first settlers arrived in the area around 1907 to a place they called “Mesakamyak”(to land onto), south of the current location of Beauval. In 1919, the community formally adopted the name, Beauval (beautiful valley). Before this, the community was called the La Plonge Village. By 1921, 66 people resided in the Beauval area. The current population of Beauval is 785³.

Current local employment opportunities are often seasonal, with commercial fishing, trapping, fire-fighting, mining and guiding/outfitting as the major land-based activities. Many locals are still heavily engaged in traditional land uses within the area, which often include activities such as fishing, hunting, and gathering. The Statistics Canada Census performed in 1996 shows employment by industry to be the following: 26.9% of employed people in the primary sector (resource based industries); 3.8% of employed people in the secondary sector (manufacturing and construction); and 67.3% of employed people in the tertiary sector (service industries). According to the census, the local unemployment rate was 15.1%.

3.2 Ile-a-la-Crosse

The community of Ile-a-la-Crosse is located approximately 56 kilometers (35 miles) south of Buffalo Narrows on highway 155 and about 80 kilometers (50 miles) north of Beauval, traveling by road.

Ile a la Crosse was founded as a result of the fur trade. In 1776, the North West Company established a trading fort at Sakitawak (what Ile-a-la-Crosse is named by the Cree people from the area). Over time the community has grown to its current population of 1,403⁴. In the 1996 Statistics Canada Census identified the employment by sector to be the following: 15.9% of employed people in the primary sector (resource based industries); 6.1% of employed people in

³ Statistics Canada, Statistics for Beauval (Northern Village), Saskatchewan. Census 1996, <http://ww2.statcan.ca>

⁴ Statistics Canada, Statistics for Ile-a-la-Crosse (Northern Village), Saskatchewan. Census 1996,

the secondary sector (manufacturing and construction); and 78% of employed people in the tertiary sector (service industries). The local unemployment rate was 19.1%.

3.3 Patuanak

The hamlet of Patuanak is located 90 kilometers north of Highway 165, near Beauval. The hamlet is located beside the Wapachewunak Reserve (No. 192D) of the English River First Nation, and both communities are located on a peninsula of land between Lac Ile-a-la-Crosse to the west and Shagwenaw Lake to the east. It currently hosts a population of 96⁵, which primarily consists of Métis people, most of Dene ancestry. The hamlet's population has decreased significantly in the past ten years with the passing of Bill C-31. The reserve is located less than a kilometer north of the hamlet and borders the Churchill River, which links both of these northern lakes.

Permanent settlement on the peninsula was started by the fur trade industry and the church. Prior to this time (before the signing of Treaty 10 in 1906), Dene people lived traditionally off the land in their territory and settlements which were primarily along various lakes on the Churchill and north (Primeau, Knee, Dipper, Snake and Cree).

The name Patuanak is used frequently to describe the settlement of both the reserve and hamlet inter-changeably. However, statistics and reports often document them separately, as the hamlet is under provincial jurisdiction and the reserve under federal. For the purposes of this plan, each community will be described separately to avoid confusion during the planning process. Patuanak became a hamlet in 1984, after the passing of the *Northern Municipal Act*. Between 1972 and 1984, it was a Local Advisory Committee.

The 1996 Statistics Canada Census identified the employment by sector to be the following: 30% of employed people in the primary sector (resource based industries); and 25% of employed people in the tertiary sector (service industries). Statistics on the remaining 45% were unavailable, as were unemployment statistics. Current local employment opportunities are often seasonal, with commercial fishing, trapping, fire-fighting, mining and guiding/outfitting as the major land-based activities. Many people from the community are currently employed in various sectors in the south. Locals are still heavily engaged in traditional land uses within the area, including activities such as fishing, hunting, and gathering.

3.4 English River First Nation

The Pinehouse-Dipper planning unit is largely within the traditional territory of the English River First Nation (ERFN). The main population centers are located in both Beauval and Patuanak.

⁵ Statistics Canada, *Statistics for Patuanak (Northern Hamlet), Saskatchewan. Census 1996*,

ERFN signed Treaty 10 in 1906 and is a member of the Meadow Lake Tribal Council. The population of Band members living on various reserves is 610⁶. The Band has a registered membership of 1129. A total of 11,885 hectares (ha) of reserve land lies within the planning unit (seven parcels). The Band is also engaged with the *Treaty Land Entitlement (TLE)* process and is working to acquire 23,000 ha of land over the next five years.

SERM signed a participation agreement with the ERFN in 1997 to cooperate in the development of co-management activities throughout a large part of the Band's traditional territory. This agreement has led to the establishment of the Mudjatik Co-Management Board, which includes representatives from ERFN, SERM, surrounding communities and various stakeholders.

3.5 Pinehouse

The community of Pinehouse is located approximately 102 kilometers northeast of Beauval, on the shores of Pinehouse Lake, one of the many lakes along the Churchill River system. The community is primarily Cree-speaking Métis, with a population of 922⁷.

The records of the Roman Catholic Mission contain the earliest recorded history of the Pinehouse Lake region⁸. Pinehouse Lake, originally known as Snake Lake, was originally inhabited by the Dene, who were first visited by a missionary in 1899. Unfortunately, half of the inhabitants were killed by a smallpox epidemic between 1900-1901, and the survivors left for either Patuanak or Stanley Mission. People started moving back into the area from La Ronge and Ile-a-la-Crosse after this time, to fish and trap. These people are the ancestors of the current residents of Pinehouse. It was not until 1978 that an all-weather road was built into the community, which has opened up the landbase to a variety of resource users.

Current local employment opportunities are often seasonal, with commercial fishing, trapping, fire-fighting, mining and guiding/outfitting as the major land-based activities. Locals are still heavily engaged in traditional land uses within the area, including fishing, hunting, and gathering.

⁶Source - Indian & Northern Affairs, 1999

⁷Statistics Canada, Statistics for Pinehouse, Saskatchewan. Census 1996.

⁸Pinehouse Planning Study, 1981

4.0 ECOLOGICAL DESCRIPTION OF THE PLANNING AREA

4.1 Ecoregions

Saskatchewan is comprised of four ecozones and eleven ecoregions. Ecozones, at the top of the ecological hierarchy, consist of the major physiographic features of the country (e.g. Coast Mountains, Great Plains, Canadian Shield). The two ecozones found within the planning area are the Boreal Shield and the Boreal Plain. Each ecoregion consists of a variety of ecodistricts, which are also referred to as landscape areas provincially.

Ecoregions are natural subdivisions of the ecozone, and are characterized by distinctive climatic zones or regional landforms. Landscape areas, or ecodistricts, are subdivisions of ecoregions, characterized by distinctive groupings of landform, relief, geology, soils, vegetation, water bodies and land uses. The following section describes the three ecoregions found within the planning area and their associated landscape areas.

4.1.1 Mid-Boreal Uplands

The Mid-Boreal Upland Ecoregion is comprised of a series of rolling uplands surrounded by gently undulating plains, occupying 16% of the province and 28% of the planning area. Most of the region is layered by glacial drift which often covers underlying bedrock by over 100 meters. The uplands are dominated by hummocky morainal landscapes.

Three landscape areas are found within the planning area: Ile-a-la-Crosse Plain; La Plonge Plain and the La Ronge Lowland (Figure 3). Within the planning unit, most of this ecoregion exhibits a distinctive ridge and swale pattern, reflecting the nature of the underlying bedrock and the direction of glacial ice movement. The surficial deposits consist of sandy glacial till primarily derived from the Cretaceous sandstone bedrock. Within the depressional areas or swales, glacial till sediments are overlain by organic deposits from the muskeg.

The subarctic climate is cooler and drier than ecoregions to the south, but warmer and wetter than the boreal shield in the north. The mean annual daily temperature is 0.3°C. The mean July temperature is 16.3°C and the mean January temperature is -18.9°C. The mean annual precipitation is 452 mm, with 291 mm of rainfall occurring from May to September. The summers are short and cool, having a frost-free period of 91 days.

4.1.1.1 Forest Ecosystems

The boreal upland ecoregion is dominated by eight major vegetation groups: aspen forest; jack pine forest; white spruce forest; mixedwood forest; black spruce-jack pine forest; black spruce forest; peatlands; and boreal wetlands. Fire is the prominent disturbance regime within the

ecoregion and most forest ecosystems within are well adapted to rapid successional change following a fire.

Aspen dominate on medium to fine-textured soils. On well-drained sites, a dense hazelnut shrub layer is usually present, under which grows twinflower, bunchberry, bishop's cap, wild sarsaparilla, cream-coloured vetchling, two-leaved Solomon's seal, and starflower. Green alder and some willow shrubs often occupy open areas in the forest.

The common sandy soils make a suitable medium for jack pine, often associated with an understory of lichen or feather moss. Local Dene people have termed these common ecosystems as taitil (meaning sandy blanket), as the sites are usually park-like in nature and provide relatively easy walking. Many pine sites also have varying understory species of green alder, Canada blueberry, bearberry, and bog cranberry.

White spruce stands are common on well-drained, hummocky glacial till uplands. A variety of understory plants are common, such as twinflower, bog cranberry, Labrador tea, high-bush cranberry, prickly rose, horsetail, stiff club-moss, bunchberry, northern bedstraw, and palm-leaved coltsfoot. Mixedwood forests occur under well and imperfectly drained conditions where spruce is mixed with trembling aspen and balsam poplar.

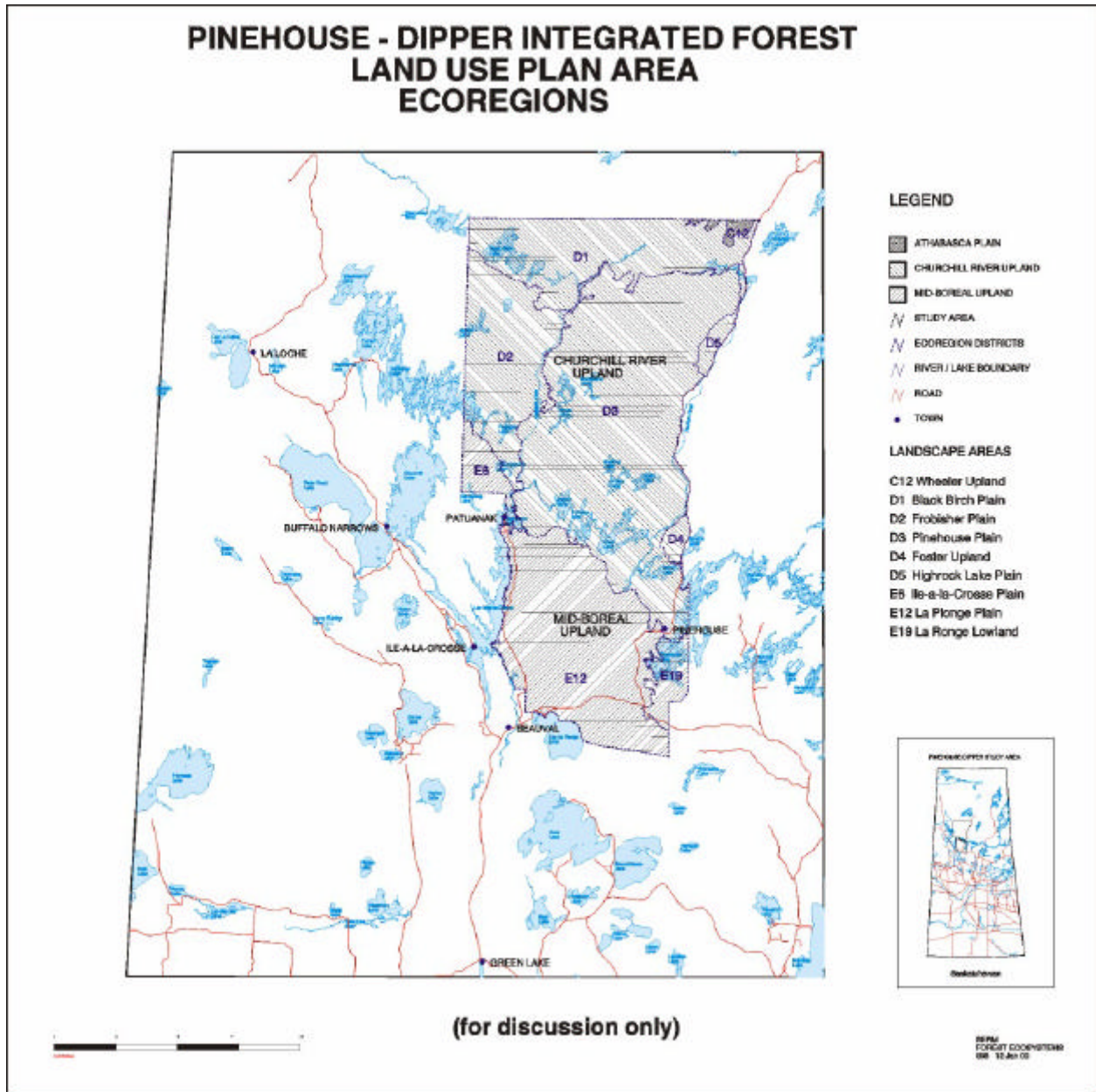
Black spruce occurs extensively in wetter, more poorly drained forest areas, but can also grow on moderately well-drained sites. On these moderately well-drained sites, it often grows at a very high stand density, causing trees to be tall and thin without much taper. Complete feather moss ground cover and an absence of shrubs is characteristic, due to low light levels. Black spruce-jack pine forests, often mixed with trembling aspen are common in northern sections of the ecoregion, where they often occur on imperfectly drained morainal uplands.

Peat is commonly characterized by sphagnum mosses on the wettest sites, where tamarack is often an associate of black spruce and the stand is more open. Common shrubs include dwarf birch, Labrador tea, leather-leaf, and pale laurel. Peatlands often include open and treed fens and treed bogs.

4.1.1.2 Fish and Wildlife

The communities of Patuanak, Beauval, and Ile-a-la-Crosse are located within this ecoregion. Wildlife abounds through much of the area, with moose and black bear fairly common in the north, and woodland caribou having a moderate presence in various areas. Small populations of white-tailed deer are found in the southern portion of the planning unit. Many other species of mammals are found in the area, including muskrat, beaver, gray wolf, otter, snowshoe hare, and the least chipmunk.

Figure 3. Ecoregions and their landscape areas for the Pinehouse-Dipper Integrated Forest Land Use Plan.



The primary landscape area of this ecoregion found within the planning area, is the La Plonge Plain. The diversity of wildlife in the Boreal Plain increases when moving south. Since the La Plonge Plain is on the north end of the ecoregion and because of the lack of diversity in vegetation, the wildlife diversity is not as high as in other landscape areas of the Boreal Plain. This landscape area supports about 40 species of mammals, including shrews, bats, snowshoe hare, bear, rodents, carnivores and three members of the deer family. The number of bird species is not known, but considering the low diversity of habitat types it is probably much less than the 300 species found in the mixedwood forest of the southern edge of the Boreal Plain.

Compared to southern portions of the Boreal Plain, the Mid-boreal Upland moose populations are not high. Moose are found in the mixedwood, hardwood, and tall shrub areas where there is plentiful browse. Moose populations are usually not high in jack pine areas because of the lack of browse. Like most areas, stands that have burnt and are producing large quantities of browse often have the highest concentration of moose.

Woodland caribou are found in muskeg areas throughout the La Plonge Plain, but population numbers are not known. Because woodland caribou are listed as vulnerable in Saskatchewan, they must be considered during planning. It is important to determine their status in this area.

White-tailed deer populations are higher now throughout the La Plonge Plain than in the past number of years but densities are very low when compared to the more productive habitat to the south. Deer populations have responded to the very mild winters but populations will drop when winters with long periods of deep snow return.

The bear population is believed to be stable with the major use being a small amount of outfitting. There is no data available concerning the health of the fur population but when fur records are considered, it appears that the fur resource is not heavily used.

Very little work has been done on the capability of the area to support waterfowl. The field work that has been carried out indicates that most of the available habitat provides good sites for a large variety of nesting waterfowl. Bird diversity is lower in the northern portion of the ecoregion, but increases as you move southward. Common birds include ruffed grouse, spruce grouse, black-capped chickadee, white-throated sparrow, great gray owl, broad-winged hawk, common goldeneye, sandhill crane and rose-breasted grosbeak. A moderately diverse population of amphibians and reptiles occurs in this area, including red-sided garter snake, Canadian toad, and the wood frog.

An abundance of fish species can be found throughout the planning area, including: walleye; northern pike; sauger; yellow perch; lake whitefish; lake trout; white sucker; longnose sucker; shorthead redhorse; cisco (tulibee); and burbot. Numerous species of minnows are also found in these systems. Humans are not the only beneficiaries of a healthy fish population; high populations of bald eagles are maintained along the Churchill system due to healthy fish populations, along with osprey, mink, otter, bear and many other bird species.

4.1.2 Churchill River Uplands

The Churchill River Upland ecoregion is located along the southern edge of the Precambrian Shield in the north-central portion of the province. It is a beautiful area with hundreds of small, clear lakes with broken shorelines connected by rapid streams often abundant with fish. As the largest ecoregion in the province, it comprises 17% of the total landbase and accounts for 71.5% of the planning unit. The shield in the planning unit features some extensive areas of rock which form vast, smooth uplands and lowlands. Lakes, fens, and bogs fill the valleys and depressions between the ridges, hills and knolls.

Local relief is usually less than 30 m, but can elevate to a height of 90 m in some areas. Most of the bedrock is covered in a discernible layer of overburden, comprised of glacial till. The primary watershed within the planning unit is the Churchill, which drains into Hudson Bay. Five landscape areas are found within the planning unit: Black Birch Plain; Frobisher Plain; Foster Upland; Highrock Lake Plain; and Pinehouse Plain (see Figure 3).

This ecoregion has a subarctic climate with cool, short summers and long, cold winters. The mean annual temperature is -2.3°C . The mean July temperature is 16°C and the mean January temperature is -24°C . The mean annual precipitation is 528 mm.

4.1.2.1 Forest Ecosystems

The Churchill River Upland ecoregion is dominated by six major vegetation groups: black spruce forest; jack pine forest; white spruce forest; mixedwood forest; peatlands (treed and open bogs, and fens); and boreal wetlands. The major disturbance regime in this ecoregion has been fire, which has created a mosaic of forest types in varying successional stages, and is important in renewing landscape patterns over time.

The main forest cover associated with this ecoregion is black spruce, with considerable stands of jack pine found on dry sand plains. Black spruce stands occur in varying ecosystems across the landscape areas within the ecoregion, and vary from dominating boggy areas and fens in all landscape areas, to primarily occupying glacial till upland soils on both the Frobisher and Pinehouse Plains. The initial three landscape areas are the most predominant within the planning area (Black Birch Plain, Frobisher Plain and Foster Upland).

Ground cover with this ecosystem can range from a dense carpet of feather mosses in stands with dense, closed canopies, to those with extensive Labrador tea, bog cranberry, sphagnum moss and other herbs on the wetter sites.

Jack pine is common on sand plains and glacial till ridges which are common across all landscape areas. A similar ecosystem to that described in the Boreal Plains ecoregion exists on these sites - a reasonably open stand of pine with a dense carpet of lichens, mixed with mosses, low shrubs, and herbs.

Ecosystems of white spruce, mixedwood, aspen, and balsam poplar are found where drainage and soil conditions are favourable, which is common on alluvial areas near the Churchill River and south-facing lake shores. Peatlands vary from treed bogs (featuring stunted black spruce) to open bogs. Tamarack will usually be mixed in the wetter sites and understory shrubs such as beaked willow, dwarf birch and Labrador tea will be quite common.

4.1.2.2 Fish and Wildlife

Pinehouse is the only community physically located within this ecoregion at the southern tip. Wildlife population and richness is higher in this ecoregion than any other on the shield. The Churchill River system contains the second highest nesting population of bald eagles in North America, only surpassed by Alaska.

There are approximately 41 different species of mammals in the ecoregion, including moose, bear, woodland caribou, and many species of fur bearers, giving the ecoregion a medium richness. Moose populations are extremely variable throughout the Churchill uplands. These are quite similar to those found in the portion of the Boreal Plain Ecoregion within the planning unit, with a higher concentration of woodland caribou located north of the Churchill River. Using information from the 1975 Churchill River study, moose populations are expected to be about 0.4 moose per km² (1.07 per mile²) in recently burned areas that before fire were dominated by aspen or a mixedwood of aspen and spruce. Other important areas for moose are willow flats and mixedwood and hardwood areas. Areas of conifer cover and open bogs are of lesser value to moose. The study indicated that during times of deep snow, moose moved out of burned over areas into conifer and mixedwood areas where snow is not as deep.

Woodland caribou numbers are not high throughout the portion of this ecoregion found in the planning area, but are of great concern since they are listed as vulnerable in Saskatchewan. Important habitat includes semi-open bogs, where forage is abundant and there is good escape cover from wolves. Woodland caribou populations and most caribou habitat in Saskatchewan and throughout Canada are decreasing; possible causes include industrial development and the increased access and activity it brings. Although caribou numbers are not high in the area, this might be one of the few areas where populations are stable because of the lack of development. Barren-ground caribou occasionally winter between Cree and Wollaston Lake, which is just north of the study area.

There is not a lot of information concerning the health of the fur bearers in this ecoregion, however, information available for similar habitat indicates populations are likely high. Of great importance is that the rivers, streams and other water bodies provide very productive habitat for a large number and variety of aquatic fur bearers. There is good bear habitat throughout the area, but little is known about populations. Harvest has always been very light and therefore populations can be expected to follow natural population cycles.

Bird diversity is medium when compared to other ecoregions in the province, with 204 species being reported. Numerous waterfowl species breed in many water bodies, including red-breasted merganser, common goldeneye, common loon, mallard and bufflehead. A large number of bald eagles and ospreys nest along waterways where fish are the main food supply. Although detailed studies have not been carried out, colonies of herring gulls and common terns are found along some parts of the rivers and on lakes in the area.

Thirty species of fish are reported to occur in the ecoregion, which is again rated at medium richness. The common species include those listed for the Boreal Plain Ecoregion. Amphibians and reptiles are represented by five species: Canadian toad; wood frog; boreal chorus frog; northern leopard frog; and the red-sided garter snake.

4.1.3 Athabasca Plain

A very small proportion (<0.5%) of this ecoregion is in the extreme northeastern part of the planning area and lies within the Wheeler Upland landscape area. The Athabasca Plain ecoregion is much different than the Churchill River Uplands with thick and continuous glacial deposits on flat-lying bedrock. It is one of the larger ecoregions provincially, representing 11% of the landbase.

The Wheeler Upland landscape area extends from the Cree Lake area up to Wollaston Lake. Most of the area consists of a drumlinoid moraine that is extensively covered with undulating glaciofluvial outwash deposits. Many prominent eskers cover the landscape, and drainage patterns are generally poor. Jack pine and black spruce forests dominate the uplands and are frequently moderated by large fires, which are the predominant disturbance regimes. Lichen, Canada blueberry and green alder are the predominant understory species.

4.2 Disturbance Regimes

Fire is a natural part of boreal forest ecosystems and a major agent of change influencing forest composition and structure. Natural fire occurrence in the boreal forest is characterized by very large, high intensity, stand-replacing crown fires that occur on an average cycle of every 50 -100 years. Even with these reoccurring disturbances, the boreal forest is resilient and recovers through natural successional processes that help maintain its diversity and health.

Since the 1940s, the provincial government has emphasized early fire suppression attempts to protect people and natural resources. This had a major impact on natural fire occurrence by reducing the area burned. In some regions, forest harvesting affects more area than fires. Saskatchewan is moving from traditional fire exclusion practices to accepting fire as a natural component of the forest. Fire will continue to have a significant impact on forest resources and people using them.

Fire management must be integrated into forest and land management initiatives. Since fire affects forest uses more than any other forest disturbance regime, it is important to understand how various fire management strategies can influence land use planning outcomes.

Other common disturbances in northern forests include windthrow, blowdown, and insect and disease infestations. Windthrow occurs when intense windstorms or twisters/tornados cause strong gusts of wind which often snap trees in half, or somewhere along the stem. Intensities can range from individual trees to small patches, or in extreme conditions, to very large areas. Examples of this can be found from the September 1999 storm around the Village of Green Lake. Blowdown occurs when entire trees are blown over and the root systems are uplifted. Again, damage can be localized to either individual trees to small patches, or in extreme conditions, to very large areas. Blowdown is common on rocky, shallow-soiled sites.

Insects can cause massive impacts when severe to extreme infestations occur. To date, no significant infestations have been reported in the study area, but the threat of infestation by spruce budworm is probable. Many forests in northern Saskatchewan have been infested recently with this insect which attacks both white and black spruce, along with balsam fir. Infestations have occurred as far north as the Emmeline Lake area. Although not as common, the jack pine budworm is also present provincially and can cause substantial damage to stands of jack pine.

Aspen forests in northern Saskatchewan are also highly susceptible to infestations from both the Aspen Tortrix and the Forest Tent Caterpillar. The tent caterpillar in particular can denude forests across vast landscapes. Many other forest insects cause damage, which is usually localized and does not create large impacts across the forest.

Dwarf mistletoe is an extremely common parasite found throughout much of northern Saskatchewan and has a significant presence in the planning area. This disease causes the largest annual volume loss of merchantable pine in the prairie provinces. It is easily identified by large witches' brooms and the stunted appearance of the trees. Jack pine growing on poor sites is the most susceptible to this disease. Many other forest diseases occur in the planning area, but none have caused major tree losses in the past.

5.0 LAND AND RESOURCE USES

5.1 Forestry

Past forestry operations within the planning unit have been quite limited, mostly to fire salvage. Prince Albert Pulpwood Company (PAPCO), the predecessor to Weyerhaeuser, did some logging within the Besnard supply area before 1986, but very little of it in the western portion which now makes up the planning area. Recent forest harvesting has been limited to annual permits, issued through SERM; during a five year period between 1994/95 - 1998/99, a total of 556,310 m³ was

harvested (averaging 111,262 m³/year), of which 76% was fire salvaged and the remaining 24% green wood.

5.1.1 Non-Timber Forest Products

Commercial interest is increasing in non-timber forest products, which includes all goods derived from forests, other than timber and fuelwood. This includes products such as mushrooms, moss, blueberries, medicinal plants and decorative floral products. Many of these products have been used widely by Aboriginal people for a long time. Recent reports indicate that wild mushroom sales in the northwest (primarily morels) were valued at \$1 million during 1999, of which most revenues went to buyers from British Columbia.

5.2 Wildlife

Wildlife has always been an important resource to Aboriginal people living in the planning area. The diversity of wildlife in the area provides an income to trappers, guide outfitters and tourism outfitters.

5.2.1 Hunting

Hunting occurs on a regular basis throughout much of the year in the planning area, primarily for subsistence purposes by locals. Big game species such as moose, woodland caribou⁹, white-tailed deer and black bear (to a lesser extent) are hunted to provide families with necessary foods from the land. Small game species are also hunted extensively for food and include species such as: ruffed, spruce and sharp-tailed grouse; willow ptarmigan; many species of waterfowl; and snowshoe hare (which are commonly snared for food).

Many northern trappers supplement their family's diets with meat from furbearers harvested, which when smoked, often makes delicacies such as muskrat or beaver. The tradition of hunting is often passed down in a family and children often learn to shoot small game before the age of ten. Valuable studies which examine contributions of hunting, fishing, trapping, and gathering to local community economies (e.g. the work of Terry Tobias in Pinehouse, 1987) have been conducted in recent years and often reveal the benefits of a subsistence lifestyle to the local economy (which was up to one-third of the village income in Pinehouse).

Accessible portions of the planning area (primarily by Highway 165 and the Key Lake road) provide hunting areas for non-Aboriginal hunters, who often go north to hunt moose and black bear. A limited number of non-resident hunters can acquire moose and black bear tags through outfitters. White-tailed deer tags may also be acquired, but rarely due to the scarcity of deer throughout the north. Wildlife managers have severely limited the amount of moose tags being

⁹Hunting for woodland caribou can only be undertaken by Aboriginal people, who are either Treaty Indians or Northern Métis people living a traditional lifestyle.

issued in the past few years due to conservation issues. An accurate inventory of moose is unavailable annually, so managers have to estimate populations and then account for annual mortality. Aboriginal harvests have first priority (which is now higher with year-round hunting rights for northern Métis people living a traditional lifestyle), then Saskatchewan residents. Any surplus figures is then allocated to non-resident hunters. Small game and waterfowl are hunted by non-Aboriginal hunters who have traveled north.

5.2.2 Trapping

As previously noted, trapping is a traditional way of life for many northerners in the study area. During the days of the fur trade, it was the basis of settlement for the Métis communities within the planning area. Trapping has always been important to many residents of the area. In recent years the fur resource has been under-utilized due to low world prices. Trappers must often supplement their income by other means such as commercial fishing, growing wild rice, or becoming involved in forestry or mining operations.

Furbearers commonly sought in the planning area include beaver, coyote, fisher, fox, lynx, marten, mink, muskrat, otter, squirrel, weasel, wolf and wolverine. The majority of trapping occurs during freeze-up between November and April. Figure 4 reveals trends in wild fur harvests and their value during a six year period between 1993/94 - 1998/99. Figures were calculated using statistics collected from fur conservation areas in the planning area, whose boundaries extend beyond the planning area boundaries (N11- Pinehouse, N12 - Beauval, N14 - Ile-a-la-Crosse, and N16 - Patuanak). Fur harvests averaged \$80,754.42 over the past six years, representing an average of 4.2% of the provincial total over this period.

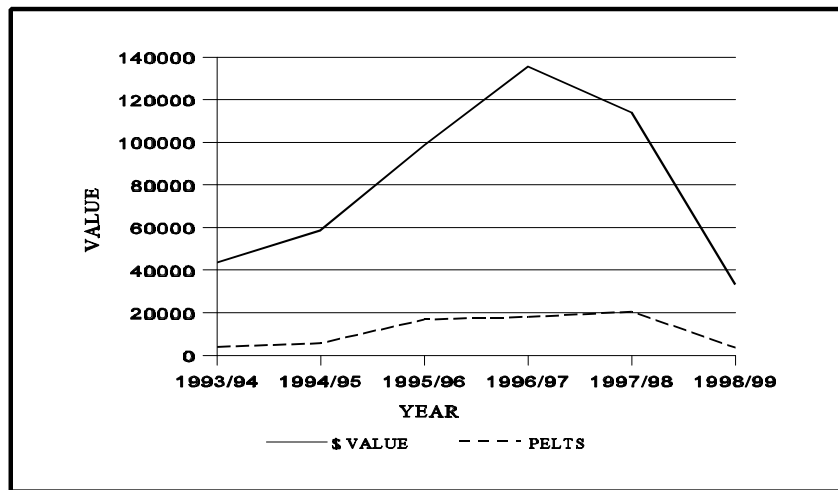


Figure 4. Trends in Total Wild Fur Values in the Pinehouse-Dipper Planning Area from 1993/94 - 1998/99.

5.2.3 Critical Wildlife Habitat

Critical wildlife habitat is site-specific habitat which is often essential to the survival of a species. Examples include moose calving sites, heron rookeries, mineral licks, and raptor nesting sites.

The current location and status of critical wildlife habitats across the planning area is unknown and needs to be properly documented and recorded to assist in wildlife habitat management. The forest as a whole must be managed across the landscape to maintain habitat features used by all species.

5.3 Fisheries

The pristine lakes, rivers and streams in the planning area lend themselves to a quality fishery. The primary watershed is the Churchill, which has excellent water quality and usually quantity. In 1999 low water levels along the Churchill River were low due to drought the previous year.

Fisheries activities consist primarily of subsistence fishing and commercial operations, centered around local communities. Subsistence fishing primarily occurs with gillnets to obtain fish for food purposes. Rights to obtain fish for food are given higher priority than sport fishing by non-natives, commercial fishing and outfitting. Sport fishing is found in some of the easily accessed lakes, such as La Plonge, Ile-a-la-Crosse, Pinehouse, and Gordon.

5.3.1 Commercial Fishing

Commercial fishing in the planning area occurs primarily on the large lakes found in the planning area. The lakes in the Churchill River system such as Lac Ile-a-La Crosse, Dipper Lake, Knee Lake, Primeau Lake and Pinehouse Lake support walleye, northern pike and whitefish fisheries. The fishery in Lac La Plonge, located along the southern boundary of the planning area, focuses on whitefish and lake trout. There are also several small lakes within the planning area that support small scale commercial fisheries.

The revenue generated from commercial fishing is an important source of income for residents in the various communities. Many communities have established fisheries co-operatives which not only help in processing and selling fish, but are working with SERM staff to help conserve this important resource.

5.3.2 Sport Fishing

Sport fishing occurs in lakes and rivers along the Churchill River system and Lac La Plonge. The most sought after species are walleye, northern pike and lake trout.

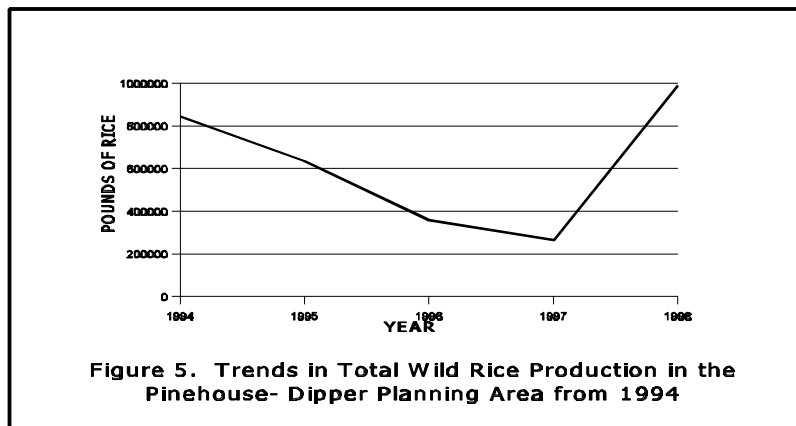
5.3.3 Critical Fish Habitat

A great deal of important fish habitat exists throughout the Churchill system and little work has been undertaken to evaluate critical habitat areas, such as spawning and rearing areas for commercially valuable species. SERM would like to continue working with northern communities to document these areas to ensure their protection.

5.4 Wild Rice Production

An active wild rice harvesting industry exists within the Pinehouse - Dipper study area. Ninety-five active wild rice dispositions cover a total area of over 5000 hectares. Wild rice dispositions are allocated in the form of an annual permit or 10 year term licence. Permit rates are \$0.25 per hectare while licence rates are \$2.50 per hectare (which have different rate structures due to their term). Annual revenues from wild rice permits or licences within the study area are approximately \$11,000. Four wild rice cabin dispositions are located within the study area, generating annual provincial revenues of approximately \$700.00

The wild rice industry is a multi-million dollar industry, with 1998-99 producing extremely high returns due to low water levels. Wild rice harvests are depicted for the a five year period in and around the planning area in Figure 5. Conversely, high water levels between 1996-7 substantially reduced total harvests across most of the province.



5.5 Recreation

The study area has excellent outdoor recreational values for activities such as canoeing, camping, angling, hunting, hiking and bird watching. However, very few services supporting these pursuits are available. These activities are usually carried out in remote locations where no services exist, or at Lac La Plonge. There is one cottage subdivision and campground located on the north-west end of Lac la Plonge, a campground on South Bay of Lac Ile-a-la-Crosse, and a small campground on Gordon Lake (north of Pinehouse). The camp grounds within the study area are minimum service camp grounds.

There are 16 remote recreational cabin leases within the study area, generating annual lease revenues of approximately \$4000.00. The general area located south of 56 degrees latitude within the study area, referred to as “Zone A”, has been frozen to remote recreational leasing opportunities since 1976. However, remote recreational leasing opportunities exist north of this line known as “Zone B”. There is some on-going demand for remote recreational leasing opportunities within Zone A, primarily by local people. Areas of interest for remote recreational cottages within Zone A include locations along the Churchill River system, and along Lac la Plonge, Lac Ile a la Crosse, Pinehouse Lake, Sandy Lake and Gordon Lake. The community of Beauval has expressed interest in developing access for a public beach development on the north end of Lac la Plonge known as Sandy Beach.

5.6 Traditional Land Use

The planning area is largely populated by Aboriginal people who traditionally have very close ties to the land. In the case of First Nations people, the land has provided all they need to survive for thousands of years.

The fur trade, although no longer a viable way to make a living, remains a part of Aboriginal life. This is due mainly to the close tie to the land that it provides, as well its value as a teaching tool to pass on traditions and nurture and respect for the land. Hunting and gathering also provides ways to pass on traditional values and helps to offset the high cost of living in the north.

Commercial fishing, although not as profitable as it once was, continues to be a good source of income for people in the planning area. Domestic fishing provides another staple of life in the north and it also is passed on to younger generations. At one time this was the primary source of food in the north.

Some traditional use studies are being carried out by the English River First Nation and various Métis communities to examine important areas on the landscape which provide valuable resources to aboriginal communities. Studies have also been conducted in areas such as the Key Lake road, to examine archeological resources and how resource management activities would impact them. Studies of this nature are valuable not only for land use planning, but also for resource development and environmental impact assessments. The planning process will work closely with all communities to both gather known information and identify gaps regarding both archeological resources and traditional use studies.

Although forestry was not practised in ways comparable to today, use of trees was essential to the life of Aboriginal people in the northern forest. Used for everything from shelter and heat, to medicinal use of the bark, trees were an important resource to northern Aboriginal people.

Gathering is an inclusive term for a wide variety of activities in the forest which have traditionally supported life and provided a way of passing on traditional as well as cultural knowledge. Gathering provides people with berries and traditional herbs and medicines, such as rat root, used

to cure illness as well as relieve pain. Resources gathered include berries, roots, herbs, bark and other necessities that served a wide variety of purposes from food to medicine to sacred and ceremonial uses. Gathering of many products provided by the northern forest still continues in the north today.

Fifty-nine traditional resource use (TRU) cabin dispositions exist within the study area, generating annual lease revenues of approximately \$885.00. Traditional resource use cabin dispositions are issued to both licensed Northern Fur Conservation Area (NFCA) trappers or commercial fishermen with northern residency status. Most of these TRU cabin dispositions were issued for trapping purposes. However, trapping as a way of life has declined due to the recent decline in fur prices. As a result of this and improved transportation methods with All Terrain Vehicle (ATV) and snowmobile, there is an increasing trend toward recreational use of TRU cabins.

5.7 Tourism

Tourism has been defined as “travel of more than 80 km for the purposes of business or pleasure”. Tourism operators in northern Saskatchewan offer a wide array of products; the industry is represented by a diverse mixture of stakeholders. Ecotourism is a more recent branch of tourism which can range from outdoor adventures to an Aboriginal learning experience. Tourism also includes the service sector, which can include industry offering accommodations or conference facilities.

Tourism Saskatchewan, whose mandate is to promote and develop tourism in the province, fund the Northern Saskatchewan Tourism Region, with three regional offices - one of which is in Beauval. Their primary objective is to develop and market visitor attractions within the region. The predominant tourism organization in northern Saskatchewan is the Saskatchewan Outfitters Association. Its membership is outfitters who cater to hunters and fishermen.

Within the planning area, several events are held annually, which help generate tourist visits. Patuanak hosts several annual poker-rallies for skidoo enthusiasts, with about 500 participants attending such an event on December 26, 1999. Beauval hosts both an annual Beautiful Valley Jamboree in July, and an Annual Winter Festival in February. Ile-a-la-Crosse also hosts both an annual summer festival and the Sakitawak Recreation Winter Festival.

Currently, only two commercial resorts exist within the planning area - Darsana Lodge and Angler's Trail Resort, both at Lac La Plonge near Beauval. Many other opportunities await the tourism sector.

5.8 Outfitting

The outfitting industry has undergone significant expansion over the last few decades. From the 1950s through the 1970s, the Saskatchewan outfitting industry was based primarily on fishing. During the 1970s, big game and game bird outfitting businesses began to emerge.

In 1987, there were 170 licensed outfitters in all of Saskatchewan, with only 20 focusing on big-game hunting. In 1988, wildlife legislation was changed to make it mandatory for non-resident big-game hunters to be guided. This change caused a huge increase in the number of licensed big game outfitting services. Currently, Saskatchewan licenses about 550 outfitting services, with most providing services to non-resident big-game hunters.

A total of 15 commercial outfitting leases exist within the study area, generating annual lease revenues of approximately \$10,000.00. These commercial operations focus on provision of services for angling and big game outfitting. These camps are situated in remote locations and accessed by float plane. Outfitting is a significant industry which provides local employment opportunities to residents, and purchases goods and services for the business.

Black bear is the most common species sought after by outfitted big game hunters, with at least 16 outfitters operating in the planning area. The habitat is less conducive to white-tail deer so there are only 4 outfitters operating for this species, all of these in the south of the planning area. Outfitting for moose is extremely restricted as there are only several guided moose licences available for all of Wildlife Management Zone 73, which extends from Highway 914 to the Alberta border (e.g. only 15 licences were available during 1999). Outfitting businesses that cater to anglers are established on some of the larger lakes in the planning area and the Churchill River. Most of these businesses require fixed facilities and therefore hold Crown land commercial leases or have purchased Crown land.

The future of outfitting in the planning area looks very promising. In the coming years, there will likely be a gradual shift from consumptive angling and hunting outfitting to non-consumptive ecotourism and nature appreciation.

5.9 Mineral Exploration and Mining

Clastic and carbonate sedimentary rocks of the Western Canada Sedimentary Basin underlie the southern portion of the plan area. These rocks range from Cambrian to Cretaceous in age. These in turn rest on Precambrian igneous, sedimentary, and intrusive rocks of the Canadian Shield that are exposed over the northern two-thirds of the plan area. A veneer of relatively young glacial material covers much of the bedrock in the region.

The mineral industry can be divided into two main components, exploration and production (mining). Initial mineral exploration covers large tracts of land, and is generally non-invasive, involving minimal surface disturbance. Successive exploration programs become more focused on target identification. Mineral exploration is a high risk activity, and because of the risk, is generally difficult to finance.

Mining is a site specific activity, with a high impact on a small area (from ten to a few hundred hectares). Production is relatively easy to finance because of the relative certainty from a positive economic feasibility study and a defined mineral resource. No mining activities are present

directly within the planning area, but some exploration has taken place. However, the Key Lake road extends north from Pinehouse to the Key Lake mine which is north of the planning area.

All mine developments are subject to stringent Environmental Impact Assessment (EIA) processes, which are regulated by SERM and Saskatchewan Northern Affairs (SNA), before any approval is given for development. The EIA includes requirements for rehabilitating the site following production, supported by a performance bond.

Saskatchewan Energy and Mines (SEM) is responsible for the administration of all Crown-owned mineral and petroleum commodities, including quarried commodities, in the Province, with the exception of aggregates (sand, gravel, and structural clay) and horticultural peat which are administered by SERM.

SERM administers the Crown surface rights for the Province in the planning area. They also issue permits for mineral exploration work projects and, together with SNA, surface leases for mining operations. SERM's role includes monitoring the environmental regulation of mining operations and the rehabilitation of sites.

SEM controls the disposition of the Crown mineral rights through the Crown Minerals Act and related regulations. There are two main types of mineral dispositions, a mineral claim and a mineral lease. A mineral claim allows the claim holder the exclusive right to explore for minerals within the claim area. The claim is held on a year to year basis by expending the required amount on exploration and by filing the work for assessment credit. The claim holder has a guaranteed right to convert the claim to a lease assuming that all of the requirements are met. A mineral lease allows the holder the exclusive right to develop and produce from the lease area subject to lease fees and royalty payments. A mineral lease has a renewable term of ten years. Mineral claim and lease holders have a guaranteed right of access to their dispositions, subject to meeting the requirements of the surface permits and leases issued by SERM.

5.10 Representative Areas

The Representative Areas Network (RAN) program is Saskatchewan's commitment to set aside representative natural areas throughout the province that preserve unique and special features for both humans and nature. A representative area is a sample or piece of a particular landscape identified because of its important land-forms, wetlands, soils, plants, animal resources or cultural values. Representative areas are intended to allow natural processes to occur. They can also serve as test sites that can be studied and monitored to measure how well we are managing natural resources and ecosystems elsewhere in the province.

Representative area discussions will form part of the land use planning process. Representative areas may support a number of activities which are in harmony with the objectives of the program. People's traditional use and enjoyment of the land (e.g. recreational hunting, trapping, fishing) will not change. The intention is to develop, with public input, a management plan or strategy for

each representative area. Through this process, particular needs, concerns or issues can be addressed on a site-by-site basis.

6.0 OTHER BENEFITS OF THE FOREST

The forest provides many values, other than economic, to society and the landscape as a whole. Some of these values are briefly summarized to provide an overview of various benefits to consider when conducting land use planning.

6.1 Ecological Processes

Forests support a broad array of ecological processes and there are many questions which both forest scientists and managers are working to address to improve forest management processes. Ecological processes comprise too many activities to compile in this document but some examples of common processes found within a forest ecosystem include: uptake of water and nutrients from the soil by trees and shrubs as part of the water, carbon, and nitrogen cycles; symbiotic relationships between organisms such as tree roots and beneficial mycorrhizae (a beneficial fungus hosted by tree roots which breaks down nutrient compounds previously unavailable); decomposition of plant material into humus; and forest fires - a natural event across boreal landscapes.

Understanding these processes and the impacts forest management has upon them is critical for successful management of forest ecosystems. In Saskatchewan, a limited amount of work has been conducted in this field, but resource managers can draw upon knowledge gained in boreal forest ecosystems within other jurisdictions.

6.2 Biodiversity

Biodiversity is the diversity of plants, animals and other living organisms in all their forms and levels of organization, and includes the diversity of genes, species and ecosystems, as well as the functional and evolutionary processes that link them. Extrapolating from federal studies, the direct contribution of biodiversity to the Saskatchewan economy has been estimated to be about 25% of gross domestic product. Maintaining biodiversity of forest ecosystems is a priority in both the planning unit and the province.

6.3 Watersheds

Watersheds provide a host of benefits to local communities and provide stability and important hydrological and nutrient cycling contributions to forest ecosystems. Conversely, forest ecosystems provide a wide range of benefits to watersheds, such as: maintenance of water quality and quantity; nutrient input and export; fish and wildlife habitat; prevention of soil erosion and

siltation; and regulation of temperatures. Healthy watersheds provide good water quality to communities, which is critical for healthy lifestyles.

6.4 Aesthetic Values

Aesthetic values relate to appreciation of the visual and spiritual aspects of the forest landscape. Examples of this would include forest cover along road corridors or along lakes, or simply the satisfaction achieved while spending time in the bush. Maintenance of aesthetic features within the forest is an integral part of contemporary forest management.

6.5 Cultural Values

Forests are an important part of how we perceive ourselves as a nation, a province, and a community. People who live in the forest tend to have a deep respect for its values in their lives. Native cultures in particular have deep cultural and spiritual associations with the natural environment.

6.6 Scientific Values

The forest is a living laboratory for scientists, and a great deal of research is currently underway across Canada to study forest ecosystems. Through examination of ecological processes in their natural state, forest scientists can better understand the complexities of these ecosystems and continually provide forest managers with better management techniques.

6.7 Human Health

The traditional use of herbs and natural compounds is recorded throughout history and has carried over to modern medicine with the discovery of various vaccines and medical treatments. Maintenance of forest ecosystems ensures a healthy pool of naturally occurring compounds and extracts which can both continue treating and provide new cures for modern diseases.

The boreal forest as a whole acts as a huge carbon sink for the vast levels of carbon dioxide in the atmosphere. Vigorously growing forest ecosystems will continue to absorb excess amounts of carbon dioxide in the atmosphere. Forest ecosystems also produce vast amounts of oxygen for the atmosphere during the growing season. Aesthetic and cultural values are also contributing factors to human health.

6.8 Future Values

Apart from the many benefits that can be derived from the forest today, proper management of forest resources for communities ensures that a similar variety of benefits will be available in the future either from the direct use of forest products or from their genetic resources.

7.0 CONCERNS

When planning for sustainable, multiple use of the land and resources, often several constraints and concerns must be resolved. Some potential concerns for the Pinehouse-Dipper Planning Area are listed below. These concerns have been raised during public consultation meetings held throughout this and other planning areas. This list of concerns is not intended to be comprehensive, but simply to serve as an example of concerns that may be dealt with through the land use planning process. These concerns are provided for discussion purposes.

7.1 Forest Management and Planning

- Need an accurate, up to date forest inventory.
- Forestry practices should implement the principles of sustainable and integrated resource management in order to ensure long-term site productivity and sustainable use of the forest and its resources.
- Be involved in developing interjurisdictional initiatives to enhance environmental and resource conservation efforts.
- Strengthen co-operative management relationships and build new partnerships, involving the public, forest users and Aboriginal people in the resource management process.
- Improve forest utilization standards.
- Manage and protect natural resources from the impacts of development.
- Decisions regarding planning must be based on scientific and research findings of local ecosystems, and forest resource users' needs and values.
- Ensure planning of all activities and developments occur in an orderly manner and are flexible to allow for changing circumstances and demands.

7.2 Forest Protection

- Increase fire protection north of the Churchill River.
- Protect native tree species from insects and disease infestations.
- Prevent encroachment of non-native vegetation to local forest ecosystems.
- Develop better linkage of forest protection to integrated forest land use planning.

7.3 Timber Harvesting

- Calculations should provide for sustainable harvest levels.
- Excessive clearing in areas might cause wind damage to mature tree stands.

7.4 Forest Renewal

- Regenerate the area (past and present) through appropriate forest renewal practices to ensure maintenance of wood supply and species balance.

7.5 Public Participation

- Increase opportunities for formal public involvement/consultation (involving local people) in planning processes and resource management.

7.6 Education

- Increase training and education opportunities in forestry for Aboriginal people, as well as the public, in order to promote stewardship of the forest.

7.7 Environmental Impact

- Reduce the pollution created as a result of development, maintain biological diversity, and minimize and mitigate impacts on the natural environment.
- Forestry practices must decrease environmental degradation in harvesting and fire salvage operations.

7.8 Fish and Wildlife

- Outfitting allocations/wildlife allocations (particularly moose) are insufficient.
- Could game farms be started in the area and what are the impacts?
- Protect wildlife habitat from fragmentation caused by development.
- Protect important fisheries habitat (e.g. spawning areas).
- Planning should avoid reducing areas suitable for observing wildlife.
- Survey populations to better understand their dynamics and habitat use.

7.9 Protected Areas

- Protect areas which are special to local people.
- Conserve representative areas of the landscape in its natural state and protect areas with unique qualities.
- Protect critical wildlife habitat and riparian areas.

7.10 Economic Benefits

- Planning should develop new opportunities for economic development with the enhancement of economic benefits to aboriginal people, local residents and communities.

7.11 Traditional Land Use / Culturally Significant Areas

- Protect culturally significant areas and resources from impacts by developments.
- Planning and development must recognize and respect aboriginal people's traditional use of the land.
- Ensure aboriginal people continue to have access to important fishing, hunting and gathering areas and their resources.

7.12 Recreation

- Recreation trails should not be developed in sensitive areas.
- Planning should allow for development of new and the improvement of existing recreational activities.

7.13 Tourism

- Planning should allow for development of new tourism opportunities.
- Opportunity for heritage tourism should be provided, but in a manner which provides protection to the heritage resources.

7.14 Mining and Quarrying

- There is no means of canceling current claims, without a voluntary surrender of the claim.
- Need to set rules for sand and gravel extraction to minimize the impact to other users.

7.15 Non-Timber Resources

- Need to determine the impacts of wild rice production on aquatic ecosystems.
- Enforce payment of wild rice fees.
- Buffers around rare plant species need to be created to conserve and protect non-timber resources from the impacts of development.
- Non-timber resources should be identified and mapped to determine sustainable harvest levels, before they are developed for industry.

7.16 Water

- Development must take into account protection of water resources and ensure adequate supplies for future use.
- Development along the shoreline or creeks adversely affecting water quality and in areas prone to flooding, high water tables or swamp must be avoided.

7.17 Roads and Linear Development

- Poor road construction and location may lead to problems such as ecosystem loss, soil erosion and excessive hunting pressure on big game.
- Locations of road developments need to take into consideration fish and wildlife habitats and rare species.
- Road closures impact local residents who may like ensured road access.
- Increased access has increased pressure on fish and wildlife populations.

7.18 Aesthetics

- Planning and development should take place in a manner which complements the environment and existing developments.
- Clearing forest close to roads or lakeshores can reduce the visual attractiveness of an area.
- Development in an area of prominent physical features prone to disturbance, such as headlands, islands, hillsides, or peninsulas, should be avoided.

8.0 OPPORTUNITIES

Northern Saskatchewan hosts a wide array of resource values and benefits which have graced the landscape and provided aboriginal peoples a livelihood for thousands of years. Past industrial development has not always been looked on favourably by northerners, who have not traditionally benefitted from many of these activities, other than some labour and monetary benefits. The Province has recognized this situation and is working to improve socio-economic conditions for the north, through initiatives such as New North, new forestry economic development projects and activities from the Office of Northern Affairs.

Sustainable development of resources and the environment is an important concept which resource managers, aboriginal groups, stakeholders and communities would like to see embraced and practised. Integrated forest land use planning provides a forum for initiating discussions and designing management practices which will empower all groups to work together towards this goal. The following section outlines how various land uses found within the planning area present opportunities, either in the form of development or measures necessary to maintain or improve resource management situations.

8.1 Forestry

New perspectives on managing forests, coupled with recent forest economic developments provide opportunities for proponents undertaking forest management activities in the future. SERM has adopted an ecosystem management approach to managing provincial forests and has proclaimed the new *Forest Resources Management Act*. The requirement of developing Integrated Forest Resource Land Use Plans, which require public participation, creates a fundamental shift in forest resource management. The following sections highlight some of the important facets of forestry within the planning area.

8.1.1 New Tenures

Recent changes to the former Besnard reserve block, formerly managed by Weyerhaeuser Canada Ltd., has been the block apportioned to Northwest Communities Wood Products Ltd. to the west and Kitsaki Development Corporation/Zelensky Brothers to the east. A timber supply boundary has been drawn near the village of Pinehouse. SERM has offered the proponents new Forest Management Agreements (FMAs) in these areas (see Figure 1), subject to the proponent meeting certain conditions, of which acquiring a business partner and preparation of a business plan are of critical importance.

An FMA requires the development of a 20 year forest management plan, along with an Environmental Impact Assessment (EIA), which can take up to five years to prepare. In the interim, a Term Supply Licence (TSL) has been proposed as a short-term solution. A TSL is a form of tenure which has a term ranging from 3 -10 years which will enable proponents to commence operations once an operating plan for the term of the licence has been approved.

Timber supply analysis is a process in which productive forest land across a management unit is analyzed for its long-run sustained yield¹⁰. In the Northwest Communities proposed FMA area, although comprised of 580,680 ha, only 277,476 ha are considered productive forest land (48%). 52% of the land has been netted out due to water bodies, wetlands, and unproductive sites, along with exclusions such as municipal land or Indian reserve. The forest inventory was compiled in 1982 and has not been reassessed since this time. Fire maps delineated fires as recent as 1995 in the area(which were accounted for in calculations), which would set affected areas back to the 0-20 year age class.

SERM's forest cover types were used in the analysis which include 13 species associations, 5 height classes and 4 crown closure classes. An age class distribution of productive forest land is shown in Figure 6 which reveals a huge proportion of land in the 60-70 year age class (48%).

¹⁰Long run sustained yield is a common method of forest management that calls for an approximate balance between net growth and amount harvested.

SERM uses a forest model known as the Harvest Volume Schedule (HVS), which calculates the annual allowable cut (AAC).

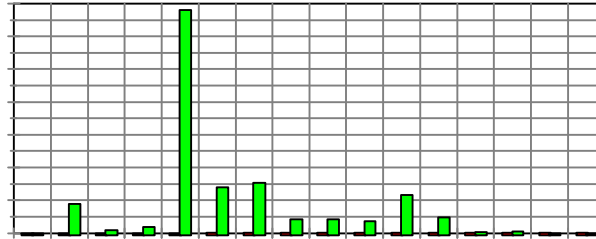


Figure 6. Forest age class distribution in the proposed FMA area of the Pinehouse - Dipper Planning area (all species).

The AAC was then reduced by 15% to account for factors such as: riparian buffer zones; blowdown; areas affected by fire since 1995; and reductions due to insect and disease damage. Overall, an AAC of 198,000 m³ has been determined for Northwest Communities Wood Products Ltd., with a lesser volume for third party operators.

Operability limits like road access, steep slopes, sensitive soil, adjacency, and partial cut areas should be considered when calculating the actual volumes available.

8.1.2 Forest Health

Action taken for forest health management will be based on evaluations of damage, potential damage, causal agent, feasibility and cost of treatment, and other factors. Integrated resource management will be the most important consideration when deciding what action to take. Forest health management techniques and strategies must have as little negative social or environmental impact as possible, and be effective and beneficial. The following factors must be considered in the decision:

- health and well-being of staff and the public;
- long-term forest management;
- comprehensive silviculture, harvesting, and other operations;
- prevention and suppression methods specific to each causal agent; and
- ecosystem function and value of the harmful agent.

Fire management assists land and resource management objectives by the following methods:

- Suppression of wildfire - by concentrating protection effort on values at risk through land use plans. A multitude of forest uses and values are potentially at risk from fire. However during multiple fire events, SERM's fire suppression capabilities may be unable to protect them all simultaneously. When this occurs protection efforts should be concentrated on those forest values and uses identified by the stakeholders and communities who can be most affected by fire management decisions.
- Limited fire suppression. This practice restricts levels of fire suppression even when resources are available. Key benefits include significant cost savings and use as a forest management tool (e.g. where insect and disease infested forests can be sanitized by fire, fire is left to burn).
- Prescribed Fire - Prescribed fire is a safe and efficient method used for forest renewal, fire hazard reduction, improvement of wildlife habitat, sanitization of insect and disease infestations, and maintenance of forest ecosystems. A "prescription" identifies the safe burning conditions required to achieve the desired results for a given location.
- Identify community fire protection initiatives. The wildland urban interface is the area or zone where structures and other human developments meet or intermingle with forest vegetation and fuels susceptible to wildland fires. Greater ability to protect communities from wildfire can be realized directly from coordinated fire prevention efforts.

8.1.3 Non-Timber Forest Products

Little progress has occurred in development and establishment of non-timber forest products (NTFP) businesses in northwestern Saskatchewan. Business and market assistance infrastructures need to be developed in the province.

NTFPs have been classified into eight general categories¹¹ (see Table 1) and the industry associated with them have been unregulated and always dynamic. Several key factors account for the dynamics within the industry, namely: production of NTFPs can be highly variable; other products may be substituted; and market demands change rapidly.

¹¹ From BC Ministry of Forests *Botanical Forest Products*

Table 1. Classification of Non-Timber Forest Products

NTFP Category	Examples
1. Wild Edible Mushrooms	Morels, pine mushrooms
2. Florals and Greenery	Red Osier Dogwood, cedar boughs
3. Medicinals and Pharmaceuticals	Yew bark, devil's club
4. Wild Berries and Fruit	Blueberries, hazelnuts
5. Herbs and Vegetables	Fiddleheads, cattails
6. Landscaping Products	Bark, seed and transplants
7. Craft Products	Bark, conifer cones, twigs
8. Miscellaneous NTFPs	Honey, smoke wood

Aboriginal people have used many of these products from the forest and have knowledge of many varied uses. Many opportunities await development of this industry by northerners. Kitsaki Development Corporation in La Ronge has made successful inroads in business development within this field. Both SERM and Saskatchewan Agriculture and Food will be involved in the development of this valuable industry within the north.

8.2 Mining

A large evaluated deposit of high-purity limestone, Pipestone Limestone, occurs to the west of Pinehouse Lake. A large number of areas in the southern part of the region have been evaluated as having high or excellent potential for fuel peat. The Duddridge Lake deposit in the southeastern portion of the area has defined reserves of uranium and copper. The northern portion of the area contains a number of gold deposits, the most notable occurring at Ithingo Lake. A number of iron deposits are also found in the north, in particular at Dot and Ithingo lakes.

The younger sedimentary rocks of the Western Canada Basin also have the additional potential to host oil and natural gas, silica sand, kaolin, coal, diamond, and lead-zinc deposits. The older rocks of the Canadian Shield also have significant potential to host zinc, lead, copper, nickel, uranium, rare earth, and asbestos deposits.

8.3 Tourism

A recent Northern Tourism Industry Typology¹² has been produced and segments tourism products into four general groups: attractions; events; wildlife and vegetation resources; and services (see Figure 7). Many local communities see merit in development of tourism opportunities, but few strategies have been developed. Potential value could be realized if all communities worked on a regional concept for tourism development, especially given the history of the area.

Successful expansion of this fast-growing industry will only occur if it originates from the local communities. Impacts of other resource practices on tourism potential will have to be evaluated during the course of this land use plan. Planning has been identified as a critical area for the tourism industry to implement.

8.4 Fisheries

A great deal of effort is required to retain the status of the fisheries throughout the planning area. Further knowledge must be documented to help preserve critical habitat areas, especially for spawning and rearing purposes. The importance of managing a sustainable fishery must be embraced by local communities to ensure adequate supplies for future generations. Mistakes have been made in the past, such as the use of small-mesh nets, which can adversely affect the fishery. Protection of riparian areas is also critical and must be practised when managing for other resources, such as forestry and mining.

8.5 Wildlife

Opportunities occur for managing wildlife along with other resources, especially forestry. Given proper management practices, ungulates such as moose and deer can benefit from forest harvesting practices, provided that adequate escape, riparian and thermal cover are left for habitat. Vast tracts of mature conifers often provide poor habitat for moose, but when disturbed by either fire or logging, large amounts of browse are often made available, increasing the carrying capacity of the land.

Conversely, species such as woodland caribou and marten prefer vast tracts of mature conifers and resource developments such as forestry must be carefully planned to avoid disrupting important habitats. Management for biodiversity of species and long-term site productivity are also important objectives of contemporary forest management. Wildlife and forest managers must work at the landscape level to determine important biophysical features and habitat components to manage over the long-term, and little is known about habitat requirements for many species of birds, small mammals and insects. Understanding all the relationships among species and their

¹²Northern Tourism Industry Assessment - Final Report, 1999

habitats also remains a challenge, but research continues to bring in new management perspectives.

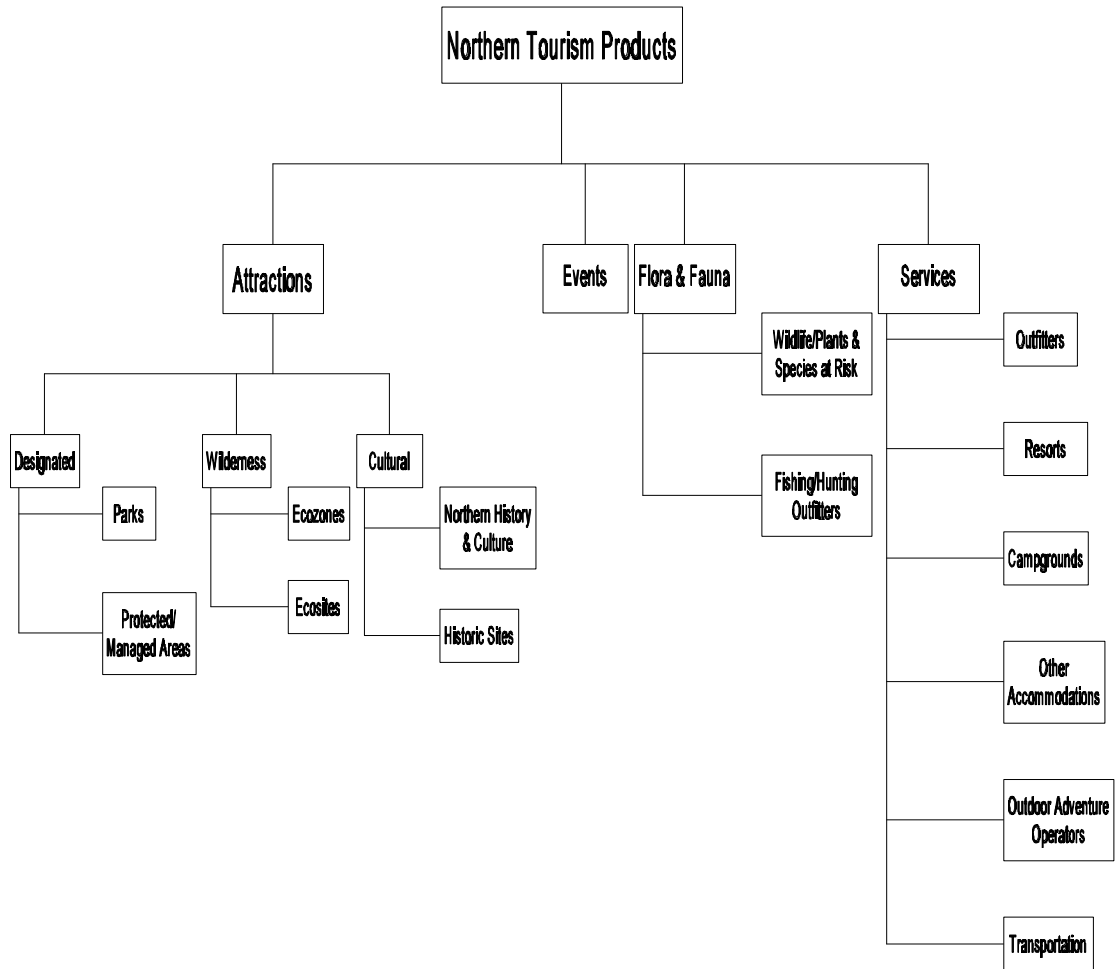


Figure 7. Northern Tourism Product Typology (Source: Northern Saskatchewan Tourism Task Team Industry Assessment - Final Report, 1999)

Wildlife population management with limited staff resources is difficult, but development of co-management relationships with aboriginal groups has strengthened the approach to resource management. Land use planning will provide a useful forum for exchanges of knowledge.

9.0 SUMMARY

Integrated forest land use planning is an invaluable process to examine all resource uses and practices across an area and determine reasonable management objectives and recommendations to best manage the landscape into the future. Involvement of Aboriginal groups, local communities and stakeholders in the Pinehouse-Dipper planning area is key to developing a meaningful plan.

Compilation of this background information document is only a start of an involved process which examines all resource uses and the value of the land to local communities. Community economic development is an important objective of all communities within the planning area, along with preservation of cultural values and traditional land uses. Once complete, the plan will become a living document which must adjust to changes in the environment, resource uses and social considerations.