

2011

# Action Plans for Boreal Woodland Caribou Ranges in Manitoba

(*Rangifer tarandus caribou*)



**Message to the Public**

These draft action plans for two high risk woodland caribou ranges in eastern Manitoba are being released for public comment on Manitoba Conservation's website. The public is encouraged to read the two action plans contained within this document and provide comments back to Manitoba Conservation. This draft document will be available for public comment for 90 days. Comments may be submitted to [Dennis.Brannen@gov.mb.ca](mailto:Dennis.Brannen@gov.mb.ca) At the close of the 90 day period comments received will be reviewed. A final document will be prepared and released at a future date.

DRAFT

**Common Name:** Boreal Woodland Caribou

**Scientific Name:** *Rangifer tarandus caribou*

**Current Status:** Threatened – COSEWIC (2002), SARA (2003), MESA (2006)

### Executive Summary

The development of action plans for the identified high risk boreal woodland caribou ranges in Manitoba meets the commitment laid out in Manitoba's Conservation and Recovery Strategy for Boreal Woodland Caribou in 2006. These Action Plans will be living documents that will incorporate the ideas of the precautionary principle and adaptive management affording the requirement to re-evaluate the current plans on a continual basis.

Developed action plans will help provide policy direction and a framework within which future actions and initiatives implemented by government will be favorable to the continued persistence of boreal woodland caribou across the landscape. These plans establish a base-line of information for high-risk populations with respect to their status, distribution and use of important areas. The actions presented in this plan support the recovery actions set out on the 2006 Recovery Strategy and create an ecological framework for the long-term management of boreal woodland caribou.

Two of the three ranges that Manitoba has categorized as high risk are presented in this document; the Owl-Flintstone range and the Atikaki-Berens range. A summary of the knowledge, obtained through research and monitoring efforts, and management initiatives for each of the ranges provides an opportunity to see the current status of the populations and how woodland caribou concerns are incorporated into the review of proposed industrial and recreational activities.

The actions presented in these plans will be necessary to ensure the continued persistence of woodland caribou across the boreal landscape. The recommended actions target six specific areas important to caribou conservation; Population Monitoring and Management, Habitat Planning and Management, Disturbance Management, Other Wildlife Species Interactions, Stewardship and Outreach and Legislation/Policy.

The timeframe, set out in these plans for implementing the recommended actions will help guide recovery efforts. Manitoba will ensure that decisions made will balance the demand for resource use and woodland caribou conservation. Manitoba will continue to work with Ontario and Saskatchewan to ensure that the management of shared caribou ranges is coordinated.

## Action Plan Development

The provincial Recovery Strategy for Boreal Woodland Caribou formed the beginning point for woodland caribou recovery planning in Manitoba. The development of action plans for individual caribou ranges forms the second step in the recovery planning process for boreal woodland caribou. Woodland caribou are listed both nationally, under the federal *Species at Risk Act*, and provincially, *Endangered Species Act*, as a threatened species. Under Manitoba's Conservation and Recovery Strategy for Boreal Woodland Caribou, Manitoba made a commitment to develop action plans for high-risk ranges. This document represents the fulfillment of that commitment. Action Plans for the remaining ranges will be written as risk assessments are completed and will be developed on a prioritized basis.

Action plans for high-risk ranges will be living documents that will incorporate the ideas of adaptive management, ecosystem-based management and the precautionary principle as guiding principles in the development of policy and management initiatives to ensure the long-term persistence of woodland caribou on the landscape. The incorporation of adaptive management principles provides an opportunity for the continual evaluation of management initiatives, allows for the input of new knowledge obtained through research and supports the development of new strategies or actions. This continual cycle allows best management practices to be implemented on a on-going basis.

Incorporating adaptive management into the recovery planning framework institutes a requirement to continually re-evaluate plans that are in place. To meet this requirement, Manitoba commits to re-evaluating and updating range action plans on a continual basis.

A commitment to prepare a range action plan for the high-risk Naosap range was made by Conservation in the 2006 woodland caribou recovery strategy. An initial draft was prepared but with the wildfire that occurred during the summer of 2010, additional information and a new assessment of habitat will need to occur before an action plan can be completed. Once additional information is obtained, an action plan for the Naosap range will be completed.

## Associated Recovery Strategy

Manitoba Conservation 2006. Manitoba's Conservation and Recovery Strategy for Boreal Woodland Caribou . 20pp<sup>1</sup>.

<sup>1</sup> The year cited on Manitoba's Conservation and Recovery Strategy for boreal woodland caribou was a misprint. The year 2005 should have read 2006.

## Table of Contents

<b>Introduction</b> .....	<b>1</b>
<b>Threats/Limiting Factors</b> .....	<b>2</b>
<b>Protection Legislation</b> .....	<b>3</b>
<b>Process for Reviewing Industrial Proposals</b> .....	<b>4</b>
<b>Inter-jurisdictional Co-operation</b> .....	<b>8</b>
<b>Information Gaps</b> .....	<b>8</b>
<b>Implementation</b> .....	<b>9</b>
<b>Recovery Habitat</b> .....	<b>10</b>
<b>The Owl-Flintstone Range</b> .....	<b>11</b>
<i>Background</i> .....	11
<i>Population Status</i> .....	11
<i>Current Range Occurrence</i> .....	12
<i>Habitat Use</i> .....	13
<i>Current Habitat Management</i> .....	13
<i>Human Caused Disturbances</i> .....	15
<b>Research/Monitoring - Completed, On-going, or Required</b> .....	<b>22</b>
<b>Recommended Actions to Conserve the Owl-Flintstone Range</b> .....	<b>24</b>
<i>A. Population Monitoring and Management</i> .....	24
<i>B. Habitat Planning and Management</i> .....	25
<i>C. Disturbance Management</i> .....	26
<i>D. Other Wildlife Species Interactions</i> .....	27
<i>E. Stewardship and Outreach</i> .....	28
<i>F. Legislation/Policy</i> .....	28
<b>The Atikaki - Berens Range</b> .....	<b>31</b>
<i>Background</i> .....	31
<i>Population Status</i> .....	32
<i>Current Range Occurrence</i> .....	32
<i>Habitat Use</i> .....	33
<i>Current Habitat Management</i> .....	34
<i>Human Caused Disturbances</i> .....	35
<i>First Nations Land Use Planning – East Side Lake Winnipeg</i> .....	36
<b>Research/Monitoring - Completed, On-going, or Required</b> .....	<b>42</b>
<b>Recommended Actions to Conserve the Atikaki - Berens Range</b> .....	<b>44</b>
<i>A. Population Monitoring and Management</i> .....	44
<i>B. Habitat Planning and Management</i> .....	45
<i>C. Disturbance Management</i> .....	46
<i>D. Other Wildlife Species Interactions</i> .....	47
<i>E. Stewardship and Outreach</i> .....	48
<i>F. Legislation/Policy</i> .....	48
<b>Glossary</b> .....	<b>51</b>
<b>Acronyms</b> .....	<b>52</b>
<b>References</b> .....	<b>53</b>

**List of Figures**

*The Owl-Flintstone Range*

Figure 1. Current range of the Owl-Flintstone caribou population (2000-2010) .....16

Figure 2. Historical range of the Owl-Flintstone caribou population  
(data prior to 2000) .....17

Figure 3. Summer and winter areas of the Owl-Flintstone caribou population  
(1995-2010).....18

Figure 4. Anthropogenic disturbance footprint that currently exists within the Owl-  
Flintstone range.Data is current to February 2010 .....19

Figure 5. Core area deferral agreement reached between CPAWS and Tembec  
in 2007 for the Owl-Flintstone caribou range .....20

Figure 6. Winter management zones for the Owl-Flintstone caribou range as set  
out in the Owl Lake Strategy (1995) .....21

*The Atikaki-Berens Range*

Figure 1. Currently known range areas for the sub-ranges of the Atikaki-Berens  
range (2000-2010) .....37

Figure 2. Historically known area of the Atikaki-Berens woodland caribou range  
(pre 2000) .....38

Figure 3. Currently known summer areas for the sub-ranges of the Atikaki-Berens  
woodland caribou population (2000-2010) .....39

Figure 4. Currently known winter areas for the sub-ranges of the Atikaki-Berens  
woodland caribou range (2000 – 2010) .....40

Figure 5. Anthropogenic disturbance footprint that currently exists within the  
Atikaki-Berens range.Data is current to February 2010 .....41

**List of Tables**

*The Owl-Flintstone Range*

Table 1. Research and Monitoring that has been completed, is on-going or that is required for the Owl-Flintstone range .....23

Table 2. Implementation schedule for actions identified in the action plan for the Owl-Flintstone range over the next 5 years.....29

*The Atikaki-Berens Range*

Table 1. Research and Monitoring that has been completed, is on-going or that is required for the Atikaki-Berens range .....43

Table 2. Implementation schedule for actions identified in the action plan for the Atikaki-Berens range over the next 5 years.....49

DRAFT

## **Introduction**

Woodland caribou are elusive and relatively sedentary animals that are highly symbolic of the northern Canadian wilderness. To many, woodland caribou are a symbol of the wild things and places we value and want to protect. They are an indicator of ecosystem health and their continued presence on the boreal landscape is a measure of our success in managing human impacts on the boreal landscape.

Range action plans represent the next step in the recovery planning effort for high-risk ranges in Manitoba. The purpose of the plans are to provide policy direction and to outline actions and initiatives that government intends to take to ensure the continued persistence of woodland caribou populations on the boreal landscape. These plans establish an information baseline for high risk caribou populations regarding their status, distribution and important habitat in Manitoba through a review of what we have learned from studying these populations to date. The actions and initiatives outlined in these plans support the woodland caribou recovery goals that were established in the 2006 Conservation and Recovery Strategy;

- Self-sustaining boreal woodland caribou populations on all existing ranges in Manitoba
- Management of caribou habitat on all ranges to support and sustain populations inhabiting those ranges

The actions outlined in this document are based on the best knowledge available and are meant to support the recovery objectives set out in the 2006 Strategy and to create an ecological framework for the long-term management of woodland caribou. Incorporating this knowledge into an adaptive management framework will ensure that as new knowledge becomes available, it will be used to develop new management and conservation initiatives that will support the recovery of boreal woodland caribou in Manitoba. By improving our knowledge of woodland caribou and their ecological requirements through continued research and monitoring, the potential exists to ensure the long-term persistence of woodland caribou in the boreal landscape. In 2007, Manitoba Conservation hired two regional caribou biologist to provide increased capacity to undertake research, monitoring and management activities of woodland caribou.



## Threats/Limiting Factors

The threats that have been identified for high-risk ranges are inter-related, vary in scale and are similar to threats that have been identified for other boreal caribou ranges across Canada. The differences lie in the mechanisms that are driving these threats. With ranges that are large and relatively undisturbed, such as the case with the Atikaki – Berens range, threats to the range vary in degree in a north-south gradient. Threats resulting from human activities are fewer across the northern landscape while the southern and western edges of the range are much more impacted by human disturbance. Therefore, immediate threats to caribou are of greater importance in those parts of the range. On smaller ranges, such as the Owl-Flintstone range, threats tend to be more concentrated and have more immediate impacts to the population. The threats identified for the high-risk ranges are primarily of anthropogenic origins. The identified threats include:

- Habitat loss, alteration, fragmentation through landscape changes resulting from industrial activities;
- Landscape changes as a result of natural disturbances including wildfire;
- Landscape changes resulting from existing and development of new linear features;
- Disturbance by other human activities (e.g. recreational activities);
- Predation;
- Increases in densities of other ungulate species;
- Parasites and Disease;
- Climate Change;
- First Nation Harvest;
- Illegal Hunting.

Predation is thought to be the main limiting factor for woodland caribou populations. Although black bears, wolverines and lynx are predators of caribou, wolves are the primary predator. Landscape changes that support higher densities of moose and white-tailed deer contribute to increased predation on woodland caribou by supporting higher densities of wolves. Industrial activities, such as forest harvesting, promotes the creation of new foraging habitat and edge habitat for moose and white-tailed deer. With higher densities of wolves, caribou must have available to them habitats that allow them to separate themselves from the other ungulate species. Woodland caribou achieve this by utilizing lichen-rich habitats, maintaining low densities and cows spacing themselves apart during the calving season. These life-history traits, emphasizes the need to manage woodland caribou at the landscape scale.

## Protection Legislation

The federal *Species at Risk Act* (SARA) affords protection to boreal woodland caribou on federal lands across Canada by virtue of being listed on Schedule 1 (a threatened species). Both the individual animal and their habitat is provided protection under SARA.

Provincial legislation affords protection under *The Endangered Species Act*. The purpose of the Act is to ensure protection and to enhance survival of endangered and threatened species in the province. Under the Act, no person shall kill, injure, possess, disturb or interfere with an endangered or threatened species and shall not destroy, disturb or interfere with the habitat of an endangered or threatened species. In 2006, the Threatened, Endangered and Extirpated Species Regulation (25/98) of this Act was amended to include boreal populations of woodland caribou.

The Owl-Flintstone woodland caribou population also receives additional protection under the Woodland Caribou Protection Regulation (113/91) under *The Wildlife Act*, enacted in 1991 after consultations with local First Nation communities. The purpose of this regulation is to conserve and protect a distinct population of woodland caribou in Game Hunting Area 26 (GHA 26). Under the regulation, no person is allowed to hunt, trap or possess woodland caribou (*Rangifer tarandus caribou*) in GHA 26.

Under *The Provincial Parks Act*, any portions of caribou range that fall within provincial parks is afforded protection from development if those areas fall within wilderness designation areas of the park.

## Process for Reviewing Industrial Proposals

### *Forestry*

Companies who hold or are seeking a Forest Management Licence are required under *The Forest Act* to develop long-term forest management plans. The forest management plan is developed in accordance with guidelines provided by Manitoba Conservation that are consistent with Manitoba's commitment to sustainable development and an ecosystem approach to forest management.

Forest developments requiring harvesting of greater than 300 cubic meters per year are considered Class 2 Developments under *The Manitoba Environment Act* and require an Environment Licence. Guidelines for the preparation of an Environmental Impact Statement for long-term forest management plans are prepared by a technical advisory committee, advertised in local papers, placed on the public registry, and reviewed by the public and issued by the director of environmental approvals. *The Environment Act* provides authority for the minister to call public hearings to consider proposals filed under the act. Hearings are conducted by the Clean Environment Commission which ultimately provides advice and recommendations to the minister based on evidence received during the hearing process.

At the conclusion of the public review period and Clean Environment Commission Hearings, all public and technical advisory committee comments and Clean Environment Commission recommendations are considered and a licensing decision is made. If approved, the licence will be issued with limits, terms and conditions identified.

The Forest Management Licensee must also prepare Annual Operating Plans (AOP) within the framework of the long-term management plan. The Annual Operating Plans describe in detail the timber harvesting, access development, and forest renewal activities proposed for the coming year. They clearly identify where activities will take place and how they will be carried out. Annual Operating Plans are prepared in accordance with provincial acts and statutes governing development activities on Crown lands and various guidelines pertaining to forest management activities within the Province of Manitoba. Examples of such guidelines include but are not limited to the *Forest Management Guidelines for Wildlife in Manitoba*, *Manitoba Stream Crossing Guidelines for the Protection of Fish and Fish Habitat*, *Forestry Road development Guidelines*, *Forest Management Guidelines for Riparian Management Areas*, and *Forest management Guidelines for terrestrial Buffers*.

Regional Integrated Resource Management Teams (IRMT) are responsible for the review of proposed forestry operations within their respective regions. Regional Wildlife Managers provide information on sensitive areas, movement corridors, critical habitat and other pertinent management concerns related to woodland caribou and other species directly to the proponents. Mitigation of impacts on species such as woodland caribou is then incorporated into the AOP during its preparation. The regional review may involve consultation with various stakeholder groups. Once the IRMT has concluded its

discussions with the proponents and the necessary mitigation measures have been incorporated into the AOP, the resulting agreements are forwarded to the Directors of Forestry and Wildlife for final approval. The amendments are considered as an addendum to the submitted annual plan. Operations are then carried out in accordance with the approved AOP and specific conditions of approval either outlined in the plan or the response addendum.

Before any harvesting or related activity commences the operator must first obtain a General Operating Permit from the Timber Administration section of the Forestry Branch. The General Operating Permit grants authorization to carry out harvesting and related activities on provincial crown land. In addition to the General Operating Permit the operator must also obtain a Crown Land Work Permit.

Work Permits, a requirement of the *Fires Prevention Act and Crown Lands Act*, give notice to District resource staff that work activity is about to commence in a specific location. All field activities must be covered under the work permit. The work permit may be obtained from the District Natural Resource Officer. The work permit may also be used to convey site specific conditions of operation, field amendments to planned events or existing conditions of operation and to control the sequence or timing of field activities.

#### *Mining and Other Industrial Proposals*

Individuals or corporations with a prospecting licence in Manitoba, can legally conduct mineral exploration on Crown Lands and stake claims. However, there are several types of provincial Crown land encumbrances that restrict or prohibit mineral exploration and future mine development such as national parks, ecological reserves and wildlife management areas.

As with forest-harvest activities, a Crown Land work permit, issued by Manitoba Conservation, is required before any field work occurs. The work permit addresses the conditions that must be followed in working within an area and details the necessary fire-prevention measures required for operating in wooded areas. Work permit conditions are developed using information from regional managers, including information on sensitive areas, movement corridors, critical habitat and other pertinent management concerns related to woodland caribou and other species. Permit conditions mitigate the impacts of resource concerns raised during this review process.

Other types of permits apply in some circumstances. Parks and Natural Areas Branch is responsible for sites in provincial parks; Forestry Branch is responsible for provincial forests, and may require an additional general occupancy permit; and, mineral exploration is prohibited in Wildlife Management Areas except under authority of a permit issued by the Minister of Conservation or their designate. A wildlife management area use permit is issued by the Director of Wildlife and Ecosystem Protection Branch. These permits are considered on a case-by-case basis including whether species at risk may be impacted.

As the level of human activity on the landscape increases, so does the potential for disturbance. Conservation officers, work closely with the Environmental Stewardship Division to ensure work permit standards are met. As importantly, they are a valuable source of information on the regulatory requirements designed to balance the demands of exploration and the resulting impact on the land and wildlife in the surrounding area.

Prior to beginning an advanced exploration project, project plans and closure plans with a financial security deposit must be submitted to the Director of Mines and must be approved before any work can proceed. Plans are circulated to relevant government departments, including Conservation, for their review and clearance or for indication of additional required actions. Depending on the completeness of the information submitted and the extent of the activity proposed, proponents may receive approval to proceed, may be asked to submit a proposal for a staged Environment Act licence, or may be asked to provide a proposal and Environmental Impact Statement for a staged Environment Act licence.

The closure plan is an important part of an advanced exploration project. The plan's role is to protect the environment during excavation, and ensure site rehabilitation once the project is complete. It must include the measures that will be taken to restore the land to its near-original state and to establish a satisfactory degree of human safety. A financial commitment may also be required as part of the closure plan. Other departments including Conservation participate in the approval process of closure plans. Should a project not proceed into production, a site inspection will be conducted once the company indicates it has met all the conditions outlined in the closure plan. Based on the site inspection, further closure measures may be required. A final report and site visit are necessary prior to the return of any unused portion of the financial deposit.

As a project moves through advanced exploration to production, the scope of activities increases and so does the potential for significant environmental effects. A key regulatory factor during these stages is Manitoba's *Environment Act*. Many industrial projects, including the production phase of a mine site, require an Environmental Impact Statement (EIS) to qualify for, and receive an Environment Act licence. The time frame for this stage is generally dependent on the nature and location of the project, and whether or not there is a public hearing.

Environmental licensing for all types of developments specified by *The Environment Act* follows a four-step process. In the first step, the proponent must file a proposal that includes a description of the proposed development, operating methods, fuel storage capabilities, potential environmental impacts and management practices, and a description of the land base.

In Step 2, the proposal is screened and reviewed by the public, and a Technical Advisory Committee (TAC), to determine whether any of the following are required: more information; a comprehensive Environmental Impact Statement (EIS); or, in some cases a public hearing. The Technical Advisory Committee consists of representatives from provincial and federal government departments. The public review is conducted through

a media advertisement and the placement of the proposal material in public registry files located in government offices and public libraries across the province. At the end of this screening step the proposal will be forwarded to Step 3 and/or Step 4, or will progress directly to Step 5 - the licensing decision.

In Step 3, Manitoba Conservation can require additional information to review the proponent's project proposal. This information is also screened by the TAC and provided to the public for review and comment. If through the screening step it is determined that a comprehensive Environmental Impact Statement (EIS) is required, Conservation and the Technical Advisory Committee will provide the EIS guidelines specific to the project.

If significant concerns are identified during screening, the Minister of Conservation can request the Clean Environment Commission to hold Public Hearings (Step 4). The Commission's role is to conduct hearings and to provide advice and recommendations to the Minister based on evidence received during the hearing process. The final decision on the development proposal rests with Manitoba Conservation.

In Step 5 a Licensing Decision is made. The Minister will either issue an Environment Act license with limits, terms and conditions, or refuse to issue a license. All decisions under *The Environment Act* may be appealed within 30 days.

As part of the licensing process, the Technical Advisory Committee and Manitoba Conservation prepare specific guidelines for each proposed development. The EIS must include: an overview of the project's location, scope and duration, a site description including the surrounding area, plans and description of proposed on-site and off-site facilities, proposed on-site and off-site development and operational processes together with identification of inputs (water, fuel, chemicals etc.) and outputs (pollutants etc. from the processes, assessment of the effects on the "natural" environment including: health of workers and neighbours, use of surrounding resources, and the socioeconomic environment. Even more importantly, it must contain proposed mitigation measures to minimize adverse impacts, contingency plans to handle non-routine events that could affect the environment, proposed environmental monitoring facilities, and closure plans.

With any proposed development from mining to highways, the combination of work permits and the sequential stages of environmental licensing provide multiple opportunities to ensure that important life requisites of woodland caribou are considered in the planning process, and that potential negative impacts are prevented or mitigated.

## **Inter-jurisdictional Co-operation**

Manitoba recognizes that caribou ranges defined within its jurisdiction do not necessarily stop at the provincial boundary. There is continual evidence that caribou from ranges such as the Owl-Flintstone, Atikaki – Berens (Ontario) and The Bog (Saskatchewan) move into neighbouring jurisdictions during specific times of the year. Manitoba is committed to working with both Ontario and Saskatchewan to ensure that the management of shared caribou ranges is coordinated and leads to the continued persistence of woodland caribou that cross our shared jurisdictional boundaries.

## **Information Gaps**

The Owl-Flintstone range has been studied on a continual basis since 1995. Much has been learned about the habitat requirements, distribution and seasonal ranges for this population of caribou. More recently adult female survival and calving habitat modeling studies have been initiated to better understand survival rates of adult females and to provide opportunities to identify areas on the landscape that may be good calving and nursery habitat.

There has been limited research and monitoring on the Atikaki – Berens range. Most of the work on this range began in 2000 and focused on the two southern sub-populations (Atiko and Bloodvein). Since 2000, a total of 32 different animals have been followed in the Atiko range, 13 in the Bloodvein range, 9 in the Round range and 6 in the Berens range. For both the Round and Berens populations, available GPS location data is from 2000-2004. For all subpopulations within the Atikaki – Berens range, there is no data available on survival and recruitment rates.

Overall, there is limited information available with respect to population dynamics, genetics and predator/prey dynamics and habitat use and availability, especially for the northern populations of the Atikaki-Berens range. Actions identified in this plan are steps that are necessary to begin answering some these questions. Obtaining some of this data will require ongoing monitoring of the high risk caribou populations and other species through collaring programs. Other data will be collected through non-invasive techniques when possible. Gathering data to answer these biological and ecological questions will serve as a basis for making management decisions that will lead to the long term persistence of caribou across the landscape.

Within each of the sections for the individual ranges, Table 1 identifies studies that will be required to lessen the information gaps that currently exist.

## **Implementation**

Many of the actions that have been recommended in this action plan may be implemented with current resources. However, the data that will be required to support the decisions made and ensure the recommended actions are implemented, will require funding for boreal woodland caribou monitoring and research from the province beyond current levels.

Table 2 within each range section, links the actions of this plan with Manitoba's Conservation and Recovery Strategy for Boreal Woodland Caribou. The table shows how each action in the plan fits with the objectives and initiatives that were outlined in the woodland caribou recovery strategy. In addition, the table sets out a time frame by which Manitoba commits to implementing the recommended actions. Actions that are indicated to start but have no completion shown are ones that will either be ongoing actions beyond the 5 year period or will require additional time beyond the five year period. Not all recovery actions will be funded and implemented simultaneously. Implementation will initially focus on the highest priority actions and subsequently build upon these actions in later years.

Manitoba will ensure that decisions made will balance the demand for resource use, boreal forest maintenance and boreal woodland caribou conservation.

Following the five year time frame of this Action Plan, the Minister will prepare a report outlining the progress that has been made towards meeting the goals, evaluating the status and outcomes of each action and updating the action plan as needed.



## Recovery Habitat

The formal identification of critical habitat for species listed under SARA is a federal responsibility; however, provincial governments have a responsibility to inform the federal government on this designation. Under SARA, critical habitat is defined as “the habitat that is necessary for the survival or recovery of a listed wildlife species...” SARA requires that critical habitat be identified to the extent possible, based on the best available information and is consistent with the goals and objectives of the federal recovery strategy. It is also clear that in order to define critical habitat, both a geographical area and specific identifiable features within that area which are needed to sustain the life cycle of the species are required.

While Manitoba continues to participate on the federal woodland caribou recovery committee, we feel that it is important to move forward and define areas that are and will be important to the recovery of the species in Manitoba. To meet this goal, Manitoba will identify recovery habitat that will be important in ensuring the long-term persistence of woodland caribou on the landscape.

Recovery habitat will be defined as a geographic area that contains important habitat components that are required to maintain self-sustaining populations. Recovery habitat may also include currently unoccupied areas that may be required to ensure that populations can be maintained as self-sustaining into the future.

To fulfill Manitoba’s commitment to identify recovery habitat for high-risk woodland caribou ranges, the following actions will be implemented:

1. Complete data analysis that could lead to the identification and mapping of recovery habitat within one year for ranges where additional studies are not required (e.g. Owl-Flintstone Range).
2. Initiate habitat studies that will lead to the identification and mapping of recovery habitat for other high-risk ranges within five years. For some currently identified high-risk ranges, sufficient data is not currently available that could be used to identify recovery habitat (e.g. Atikiki-Berens range, Naosap range).

Manitoba is committed to undertaking the required steps that will lead to the identification of recovery habitat for all high-risk ranges. A schedule of studies required to adequately define recovery habitat for high-risk ranges will be developed within six months of the release of this document.

## **The Owl-Flintstone Range**

### ***Background***

Manitoba's 2006 Conservation and Recovery Strategy for Boreal Woodland Caribou assessed the Owl-Flintstone range as high risk (at risk of decline). The assessment was based on known threats to caribou sustainability and the degree of existing or imminent development within the range in addition to the relatively low population estimate. The population is at risk of decline due to the potential effects of both anthropogenic and natural disturbances and their susceptibility to increased predation and mortality resulting from industrial and recreational activities and natural processes (fire, predator-prey dynamics) occurring within their range.

In 1994, the Eastern Manitoba Woodland Caribou Advisory Committee (EMWCAC) was established as a sub-committee of the Manitoba Model Forest as a means to address conservation concerns for the Owl-Flintstone range. The committee brought together government, industry, First Nations and non-government organizations in an effort to build a multi-stakeholder group that would oversee woodland caribou conservation in eastern Manitoba and provide recommendations on management strategies to government. The committee's fundamental purpose is to conduct research and monitoring that leads to conservation strategies for woodland caribou that will ensure self-sustaining populations for the ranges on the eastside of Lake Winnipeg.

### ***Population Status***

Estimating woodland caribou population numbers is a difficult task. Minimum population estimates have been determined by counting animals associated with collared caribou during the winter months during aerial surveys of the Owl-Flintstone range. This method only provides a minimum count due to the likelihood that there will be groups that form that have no collared animals associated with the group. This is especially true when bull groups form. The ability to detect these bull groups is reduced due to the fact that the majority of the animals that are collared are females.

Monitoring of the Owl-Flintstone population, since the 1970's, suggests that the population has not experienced large changes over the past 30 years. Although the population has generally been maintained, there is concern regarding their long-term viability due to habitat change concerns. Recent survey efforts have resulted in a minimum estimated population of 62 animals. Due to the possibility of groups not being detected, it is believed that the population could number as high as 70 animals. Efforts will continue to gain better population estimates for the Owl-Flintstone population.

The stability of any wildlife population is determined by the mortality/survival rates of both the adult portion and the calf portion of the population. Currently, data on survival from collared adult females suggests that the survival rate for adults is greater than 80%. With respect to calf survival and recruitment, there is no direct data available to determine calf survival. However during the winter of 2008, a calf recruitment study was

initiated to assess the recruitment rate of the Owl-Flintstone population. Preliminary data from the study suggests that calf recruitment is low. Additional data and analysis will be required to assess the current status of the population.

### ***Current Range Occurrence***

The entire Owl-Flintstone range exists north of the Winnipeg River and south and west of Highway 304. The range extends across Nopiming Provincial Park and into a portion of north-western Ontario. Global Positioning System (GPS) location data collected from collared animals prior to 2004 showed movement of two animals into Ontario. Between 2004 and 2009, no GPS collared animals from the Owl-Flintstone population located were in Ontario. Data retrieved during the winter of 2010 from collared animals showed two new animals spending limited time east of the Manitoba border.

Knowledge relating to the current understanding of the distribution of the Owl-Flintstone population has been collected through the deployment of GPS and very high frequency (VHF) collars on individual animals within the Owl-Flintstone population. Animal location data has been collected on this range since 1995 and continues to the present day. Currently there are 24 animals collared in the Owl-Flintstone population. Figures 1 and 2 document the current area of occurrence and the known historical area of occurrence for the Owl-Flintstone population respectively. The size of the current use area is 1240.3 km<sup>2</sup> with the historical area of occurrence being 1622.2 km<sup>2</sup>. The current occupied area is defined by the 100% minimum convex polygon (MCP) using location data from 2000 to present. The historical area is defined by the 100% MCP using combined GPS and VHF location data available for the range (1986-2000).

Figure 3 documents the summer and winter seasonal use areas of the Owl-Flintstone population. Both seasonal use areas were defined using the 95% kernel density home range estimate and using GPS location data from 1995 to 2010. Summer months were defined as May 1 to August 31 and winter months were defined as November 1 to March 31.

### ***Habitat Use***

Since 1995, GPS collar data has been collected predominately from female animals in the Owl-Flintstone range. Subsequent habitat use and availability analysis was carried out as part of a collaborative research project between the Eastern Manitoba Woodland Caribou Advisory Committee and the Centre for Forest Interdisciplinary Research (CFIR) at the University of Winnipeg. The project culminated into a M.Sc. thesis written by Schindler (2006). As part of this research, a habitat suitability index model (HSI) was developed along with additional habitat selection analysis to help validate the HSI model.

The HSI model outlines the areas of high habitat value that currently exists within the range. Habitat selection analysis supported the assumptions of the HSI models that caribou were selecting forests containing a mixture of jack pine, treed muskeg and black spruce stands as dominant features (Schindler 2006). The analysis also showed that caribou in the Owl-Flintstone range were selecting mature to near mature coniferous dominated landscapes. In jack pine forests, caribou selected stands with a crown closure greater than 50%. Age of jack pine was also a significant factor. Jack pine stands greater than 60 years were used more frequently. The majority of the current habitat that is available to the Owl Lake herd within the winter range is a direct result of a large wildfire that burned in 1929. The analysis also showed that there was significant use of bogs and treed muskeg. Within the Owl-Flintstone range, there are areas of high HSI value that are not currently occupied in both summer and winter ranges.

The habitat analysis showed that there were little seasonal differences in habitat selection, preferring jack pine, black spruce and treed muskeg with a slight increase in the use of treed rock during the winter. The preference for jack pine forests is important in that at a landscape scale, these stands provide adequate forage and refuge.

### ***Current Habitat Management***

In 1995, the Eastern Manitoba Woodland Caribou Advisory Committee (EMWCAC) commissioned a report entitled “The Owl Lake Integrated Forestry/Woodland Caribou Management Strategy” (TAEM 1995). The primary objective of the Strategy was to maintain or increase the Owl-Flintstone population through integrated forestry/caribou management activities. To ensure long-term viability of the population, the strategy set out specific habitat objectives including maintaining sufficient habitat within summer and winter ranges, protecting critical reproductive habitats, and maintaining travel corridors between seasonal ranges. One of the key components of the strategy was the development of the “2/3 Rule.” Analysis of location data indicated that the Owl-Flintstone population was using approximately 1/3 of the available high quality habitat within the winter range. Therefore it was recommended that at least 2/3 (67%) of the overall winter range be maintained at the current level of high habitat units through time and in large contiguous blocks of 100km<sup>2</sup> in order to sustain the population. Ten years later, the EMWCAC reviewed the strategy and re-affirmed the principals that had been set out in the original document (Manitoba Model Forest 2005).

To meet the objectives set out in the Owl Lake Strategy, the Committee set out specific management prescriptions to be recommended to Manitoba Conservation. The Strategy identified a winter habitat management area which was broken into two zones (Figure 7). Within Zone 1A (which was the core use area), no forestry activity would be permitted (with the exception of possible experimental forestry studies) and all access would be restricted. In Zone 1B, 2/3 (67%) of the habitat would be maintained at the current level of high habitat units. If there was to be forestry operations in Zone 1B to help create future habitat, it would only occur after the results of any experimental harvest studies were obtained.

The Owl Lake Strategy was presented to MB Conservation as recommendations for the management of winter habitat for the Owl-Flintstone population. MB Conservation accepted the Strategy and implemented the recommendations through the Integrated Resource Management Team (IRMT). With the implementation of the Owl Lake Strategy, proposals or applications for industrial, commercial and recreational activities within the Owl-Flintstone range are reviewed by the IRMT. The IRMT asks the EMWCAC to review the proposals and requests recommendations for how to proceed. Under this process, caribou concerns and possible mitigation are implemented to ensure the persistence of the Owl-Flintstone range.

While historical and currently used summer caribou habitat that exists within Nopiming Provincial Park are essentially protected from industrial activities, important calving, summering and wintering areas are also found to the west of the park on a landscape that has ongoing industrial activities. As part of on-going management initiative with the Eastern Manitoba Woodland Caribou Advisory Committee, Tembec committed to defer harvest operations within the Owl-Flintstone range winter core zone for a period of 50 years (Figure 6). The winter core zone was defined by the 70% kernel using GPS locations obtained from collared animals. This important milestone allowed for the protection of current important caribou habitat while recognizing that these important areas move around the landscape as the forest changes with succession and as the animals change the areas they utilize over time.

In 2009, the Province of Manitoba legislated a ban on long-term forestry allocations within provincial parks, with the exception of Duck Mountain Provincial Park, after discussions with the forest industry. The majority of the summer range that occurs within Nopiming Provincial Park for the Owl-Flintstone range falls within the back country designated areas. The back country designation prohibits all industrial activity within these areas. As a result, areas of calving and summer range for the Owl-Flintstone population that occur within Nopiming Provincial Park effectively receive protection from industrial activities. There is recent data that suggest that there are some calving and summer locations outside of the designated back country area. It will be important to identify these areas and ensure they are protected from industrial activity.

### ***Human Caused Disturbances***

The Owl-Flintstone range is surrounded by all weather roads. Human settlements occur along the roads and rivers on three sides of the range and for many of the herds calving and nursery areas are within Nopiming Provincial Park where campgrounds, cottage subdivisions and a diversity of recreational activities exist.

A hydro transmission line and an all-weather resource road bisect the population's seasonal use areas and there is a long history of resource uses throughout the area, including trapping, hunting, mining and forest harvesting.

Movements beyond the existing range may be impeded or restricted by these developments as well as Lake Winnipeg and areas of unsuitable habitat. Combined, these disturbances create a situation where the Owl-Flintstone population is a relatively isolated group. Figure 5 documents the extent of anthropogenic disturbances that currently exists with the Owl-Flintstone range.

The map also indicates significant mineral exploration leases and mining claims that exist on the northern and southern edges of the range. While mineral exploration has less total disturbance on habitat and the animals themselves than forest harvesting, it may still cumulatively add to a loss of functional habitat or increased mortality through an extensive network of winter trail development required to access drill sites. Mitigation of these impacts through discussion with mining companies is just beginning and requires further address. Mining activity shown on the map does not necessarily represent active mining. Many of the areas shown outline leases that currently exist and where exploration and or mining has taken place or could in the future.

As part of their ongoing operations, Tembec had identified harvesting areas as part of their 2009/2010 Annual Operating Plan and had set out a number of operating areas as part of their 20 year Forest Management Plan that was submitted to Manitoba Conservation for review. With the closure of the mill in September of 2009, forestry activity on the forest management license area stopped and when any forestry activity might resume is unknown.

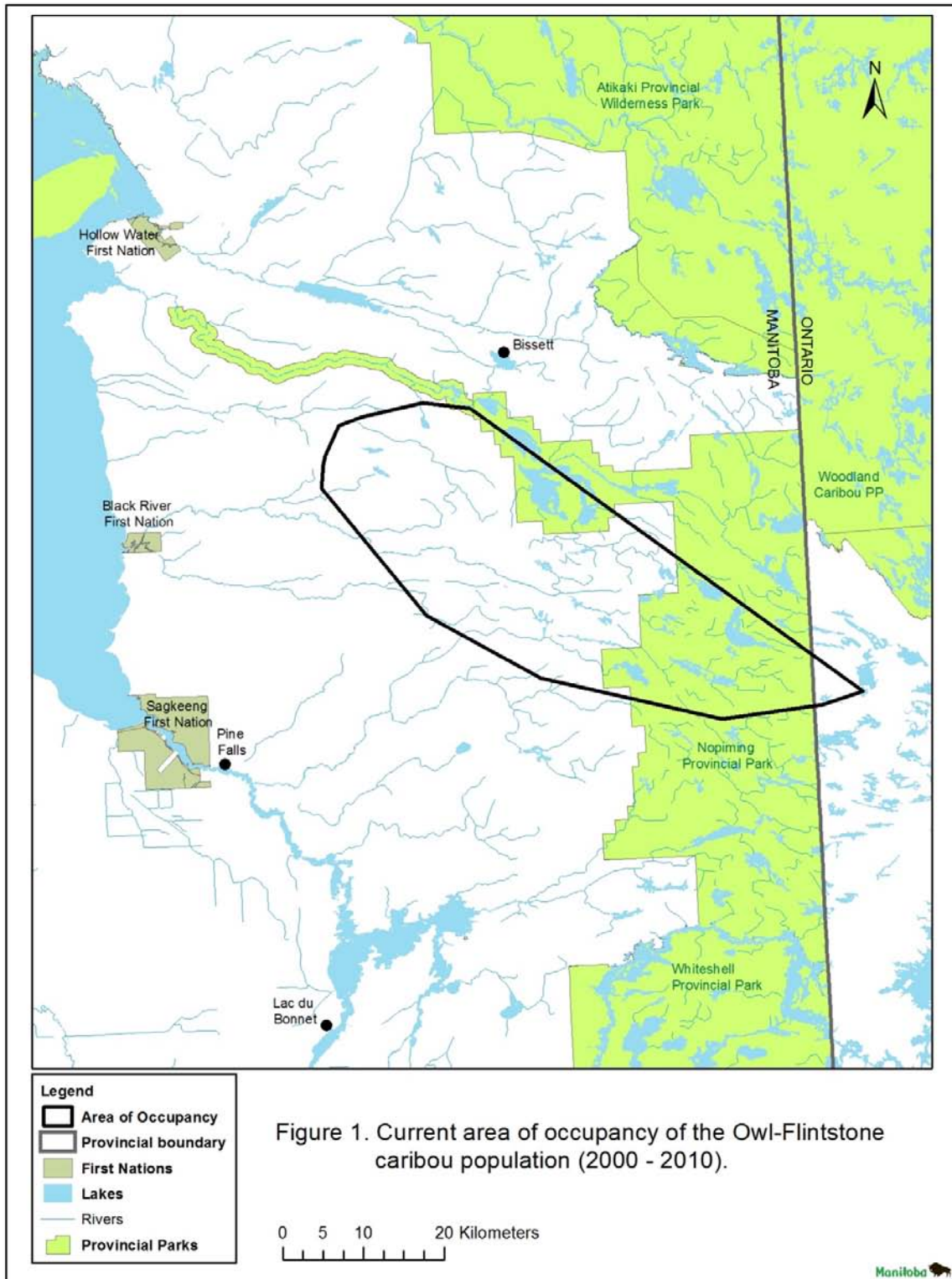
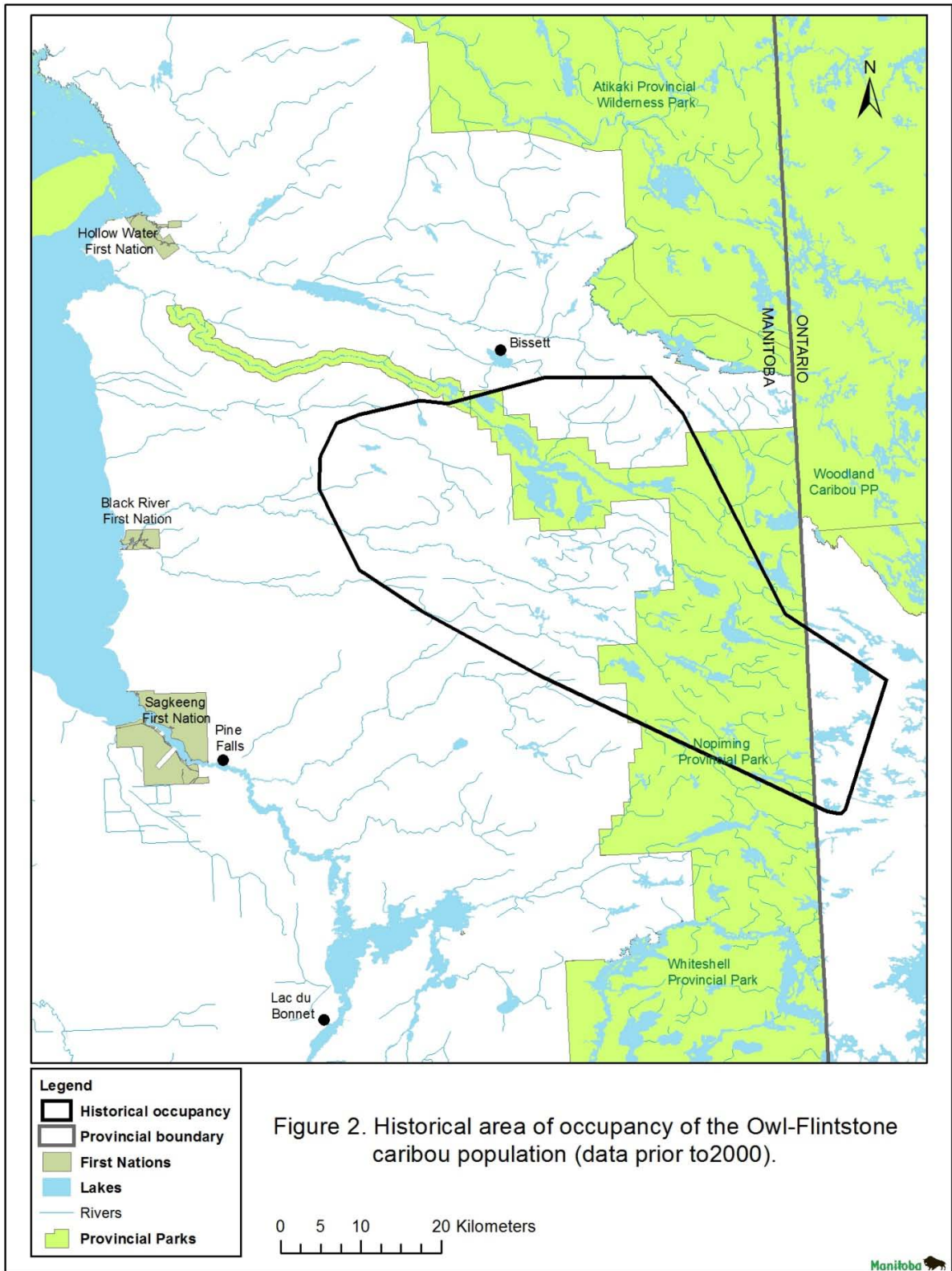


Figure 1. Current area of occupancy of the Owl-Flintstone caribou population (2000 - 2010).





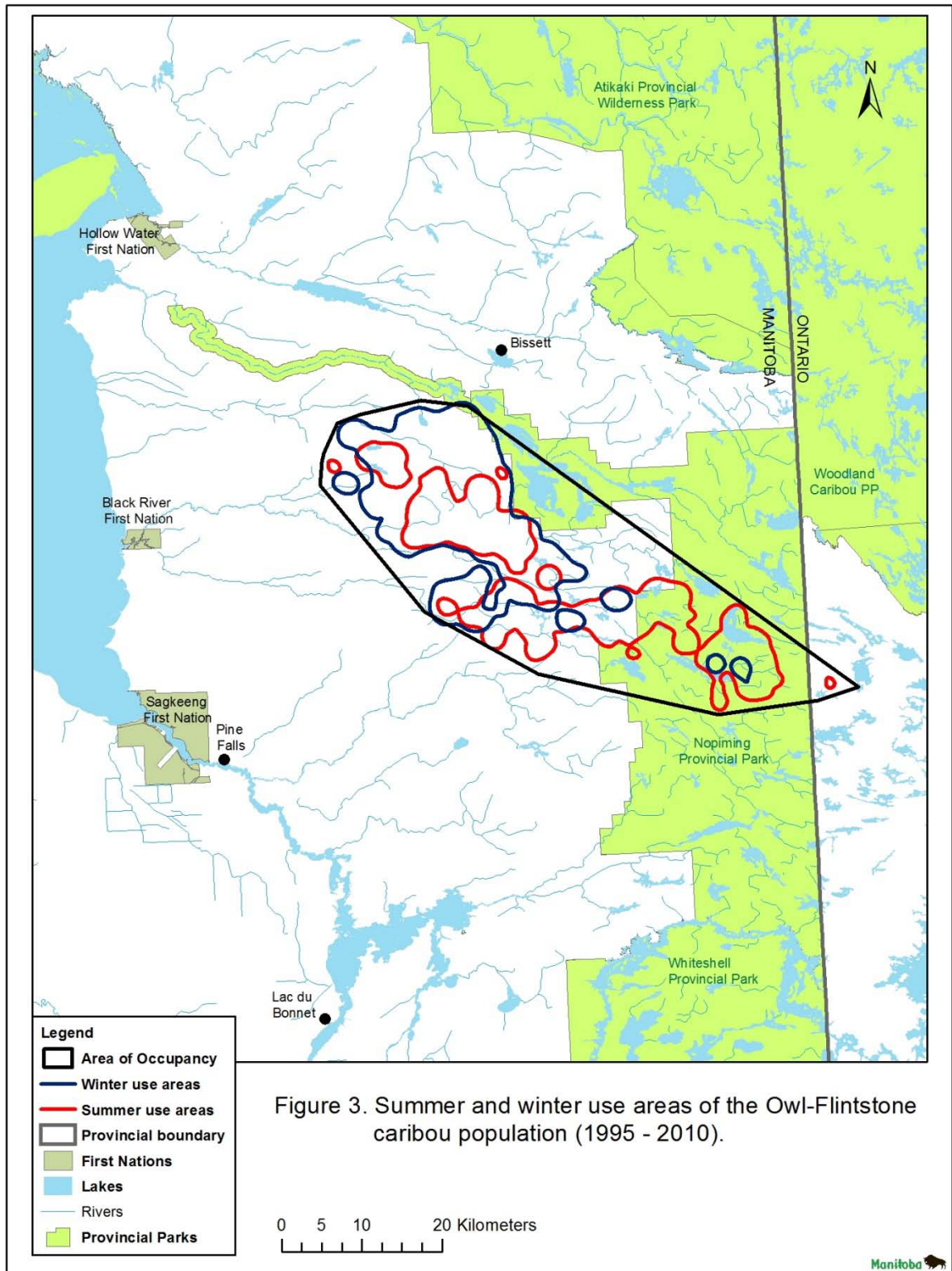


Figure 3. Summer and winter use areas of the Owl-Flintstone caribou population (1995 - 2010).

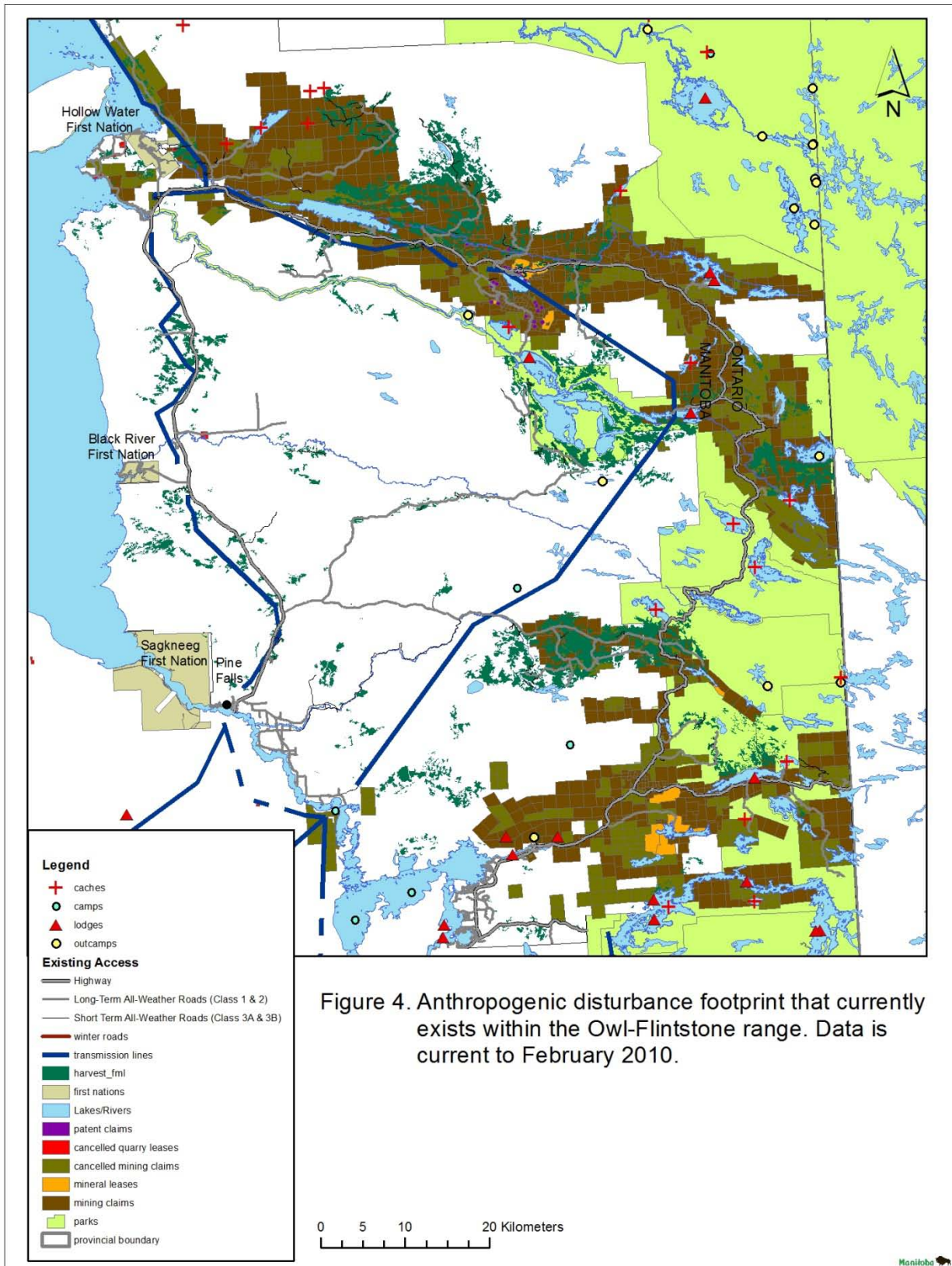
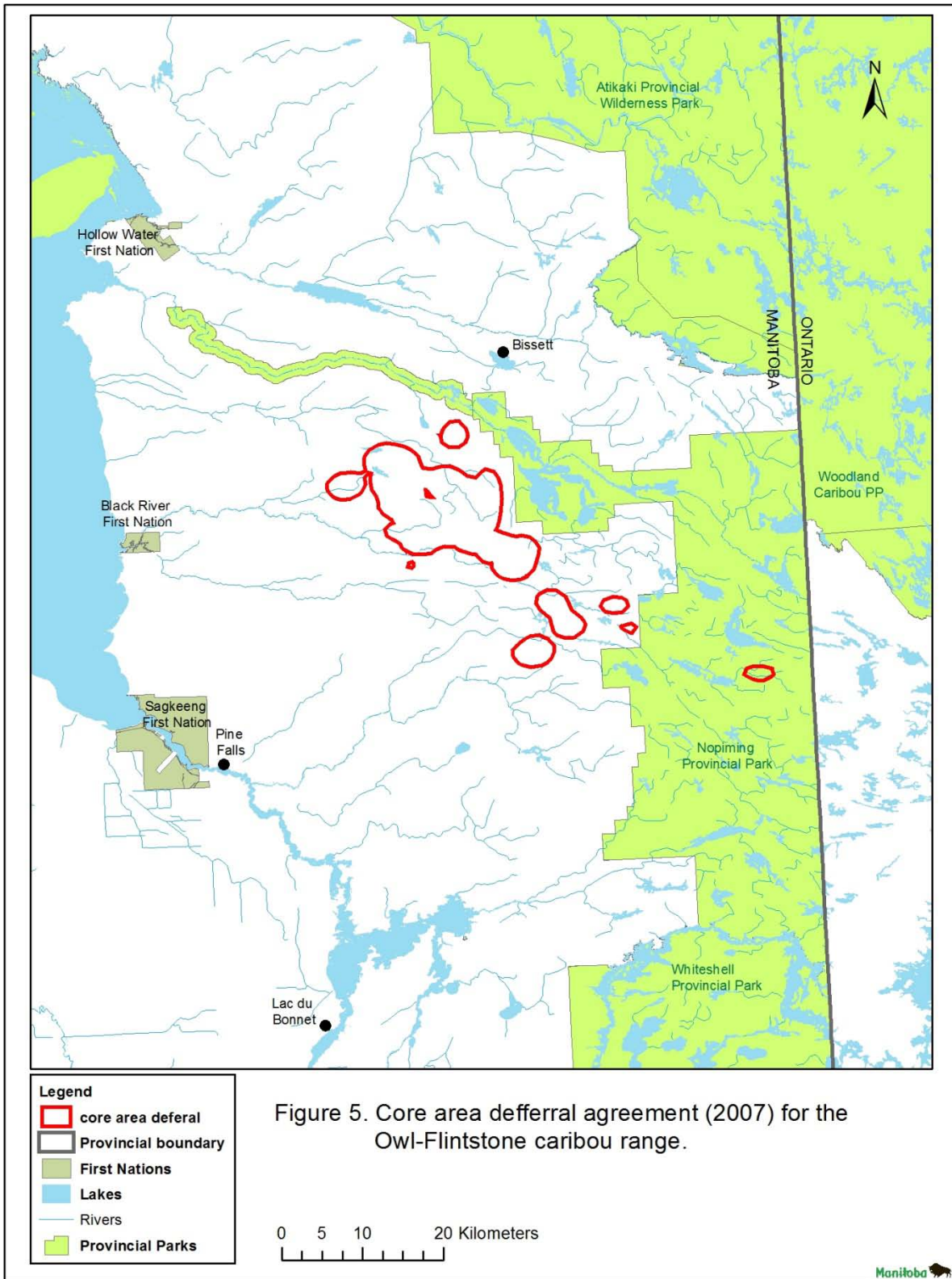


Figure 4. Anthropogenic disturbance footprint that currently exists within the Owl-Flintstone range. Data is current to February 2010.



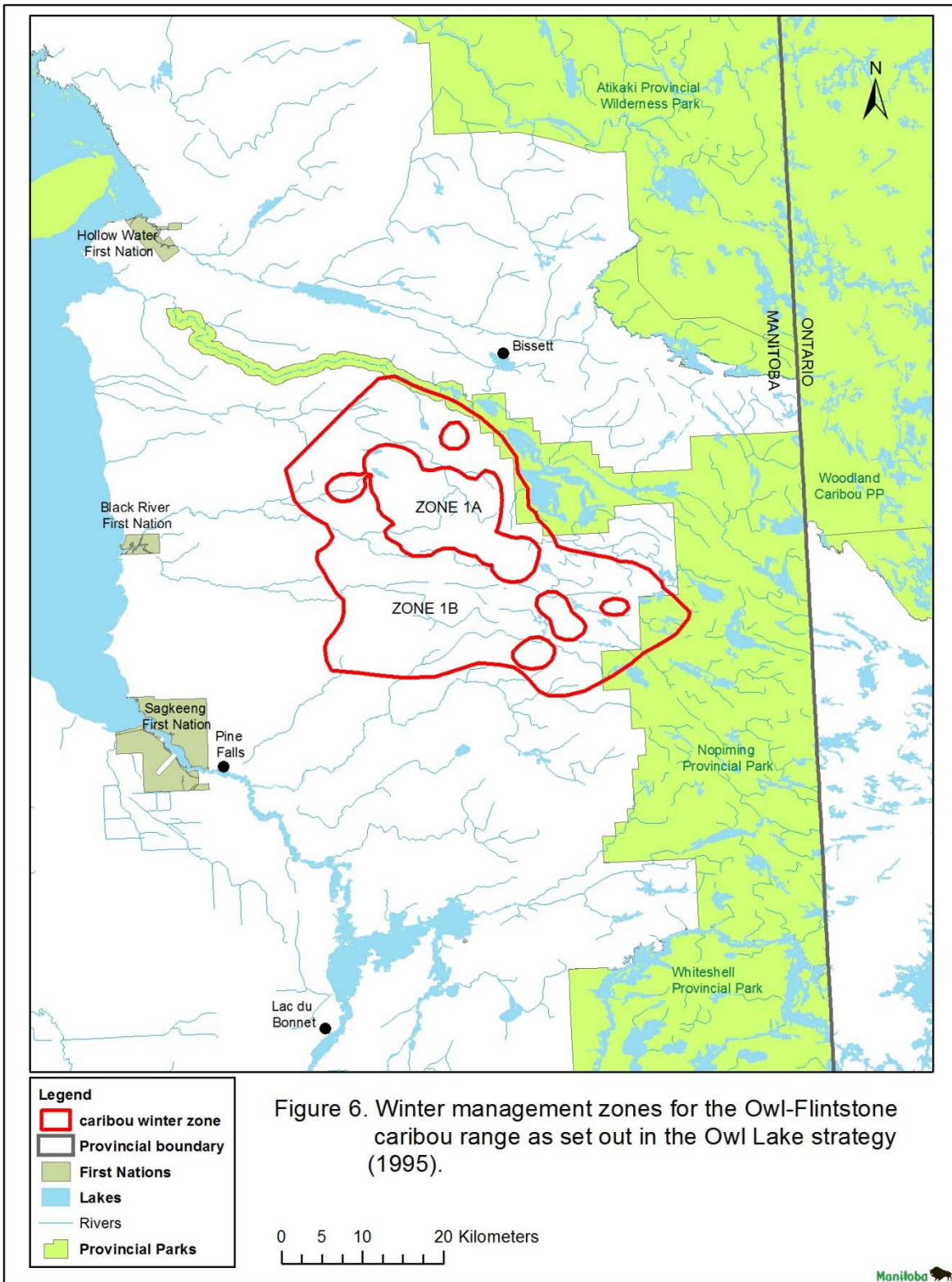


Figure 6. Winter management zones for the Owl-Flintstone caribou range as set out in the Owl Lake strategy (1995).

**Research/Monitoring - Completed, On-going, or Required**

Research and monitoring of the Owl-Flintstone population has occurred in some capacity since the 1970's. Population and observation data prior to the mid-1960's is limited with the first know survey of the Owl-Flintstone range occurring in 1968 (Miller 1968). Throughout the 1970's a number of surveys were conducted that provided minimum population estimates of the population (Larche 1972, MNR files 1976). In 1985, more in-depth surveys and monitoring began with the collaring of individual caribou. Through telemetry flights to monitor collared caribou, minimum population estimates were obtained and data on range size, habitat use and important habitat areas was beginning to be collected.

Since 1995, the research and monitoring of the Owl-Flintstone range has intensified to collect additional data on the population that is required to develop management plans that will ensure their long-term persistence on the landscape. Over the past 15 years, the number of individual caribou collared in the Owl-Flintstone range has increased such that currently there are 25, mostly females, collared in the population. These animals have been collared with a combination of GPS and VHF collars. The data collected from these collars have been providing information on distribution, seasonal habitat use and movement corridors. In addition, the collared animals are providing data on adult survival rates and helping to provide limited data on calf production and survival. In the winter of 2008, an annual calf recruitment survey was initiated. This survey will be conducted over the next 5 years to provide baseline data for the Owl-Flintstone population. DNA samples have also been collected that will enable an assessment of the genetic characteristics of the population.

Table 1 outlines the research and monitoring that has been either completed, is on-going or is required to inform future management decisions to be made for the Owl-Flintstone range.

**Table 1.** Research and Monitoring that has been completed, is on-going or that is required for the Owl-Flintstone range.

<b>Component</b>	<b>Research/Monitoring</b>	<b>Status of work</b>	<b>Comments</b>
<b>Population</b>	Range Distribution	Complete	Continually updated as new information is obtained
	Seasonal range delineation	Complete	Continually updated as new information is obtained
	Population Estimate	On-going	
	Genetic sampling	On-going	
	Animal collaring program	On-going	
	Adult female survival	On-going	In Year 4 of 5
	Calf Recruitment	On-going	In Year 4 of 5
	Aquire ATK	On-going	
	Calf mortality factors	Required	
	Predation rates	Required	
	Fecundity analysis	Required	
	Genetic analysis	Required	
<b>Habitat</b>	Habitat modeling	On-going	
	Development of an HSI model	Complete	
	Calving/Nursery Habitat study	On-going	Field work complete Thesis in progress
	Experimental Harvest study	On-going	Harvest is complete. Post-harvest monitoring will continue over the next 5 years
	Habitat connectivity study	Required	
	Identification of recovery habitat	On-going	
	Habitat availability projections	Required	
	Establishment of habitat management zones	On-going	Winter management zone has been identified. Zones will be updated every 5 years
	Aquire ATK	On-going	

## **Recommended Actions to Conserve the Owl-Flintstone Range**

### ***A. Population Monitoring and Management***

Population monitoring is required to guide management decisions and to generate data on caribou ecology. As new information is obtained, the data can be fed into an adaptive management framework that allows for alterations in the management directions and policies that are put into place to ensure the long term sustainability of caribou populations.

#### **ACTIONS**

1. Continue long-term monitoring of adult mortality, calf survival and population abundance to determine population trends and growth rate for the Owl-Flintstone range.
2. Monitor the locations, dates and probable causes of known adult caribou mortalities using collared animals.
3. Expand calf survival research to include studies to better determine causes of calf mortality.
4. Establish and monitor population indicators (population growth rates, calf recruitment rates, adult female survival rates) that would signal the need for more intense management actions to be undertaken.
5. Conduct data analysis to investigate the fecundity dynamics (pregnancy rates, birth rates) of the Owl-Flintstone range.
6. Undertake DNA analysis of the genetic relatedness within the Owl Lake herd and between neighboring ranges as a means to better understand the genetic structure of the Owl Lake herd.
7. Review the current delineation of the Owl-Flintstone range and ensure that any changes incorporate information from Ontario that accounts for the interprovincial movement of boreal woodland caribou between the two provinces.

## ***B. Habitat Planning and Management***

The management of boreal woodland caribou requires a landscape approach to habitat management. It is important to recognize and understand that changes to landscapes caused by human disturbances, including industry and recreational activities can impact woodland caribou. To ensure the long-term persistence of woodland caribou, land-use activities may have to be restricted or limited over large tracts of caribou habitat. Industry and other human activities might still occur within caribou habitat if it is determined that these activities, when considered in combination with natural landscape changes are compatible.

To ensure the long-term persistence of the Owl-Flintstone range, management strategies will need to be implemented that will see caribou concerns continue to be addressed at the beginning of land use planning.

### **ACTIONS**

1. Manitoba will develop caribou habitat management guidelines so that all resource development activities within caribou range consider implications to woodland caribou and include appropriate conservation and mitigation measures.
2. Establish seasonal habitat management zones for the Owl-Flintstone range and incorporate specific habitat objectives within seasonal ranges. Objectives will include thresholds for acceptable levels of habitat change resulting from natural and anthropogenic disturbances. The province will ensure that forest management practices will consider both current and future habitat needs (cover and forage) for boreal woodland caribou
  - a. Forest harvest and renewal activities within the Owl-Flintstone range will be designed to maintain current and future caribou habitat needs.
  - b. Manage for large patches (>10,000ha) of intact coniferous forests >60 years old. The overall goal will be to create a landscape mosaic that consolidates disturbances in large 10,000 ha patches while maintaining a continuous supply of suitable habitat for the future in large patches.
  - c. Within caribou management zones, limit the growth of early seral forests that provide habitat for other ungulate species and ultimately attract predators.
3. Identify habitat zones and objectives for areas that were previously occupied and are adjacent to the currently occupied Owl-Flintstone range which will provide alternative or future suitable habitat for caribou.
4. Protect recovery habitat which will include calving, nursery, winter core areas and other identified important areas of the Owl-Flintstone range inside and outside of Nopiming Provincial Park within the current established legislative framework to ensure the long-term persistence of the Owl-Flintstone population.



5. Develop fire management plans that assist in meeting the habitat objectives set out for each habitat zone.
6. Undertake management actions to protect recovery habitat and minimize habitat alteration and disturbance associated with industrial activities across the Owl-Flintstone caribou range. These actions will be undertaken with discussion and/or the cooperation of industry.
7. Undertake habitat modeling analysis that will improve and/or update the identification of habitat use and availability and include an analysis of future habitat condition over 50 or 100 years under different management/natural disturbance regimes.

### ***C. Disturbance Management***

The existence of human disturbances/developments that take on many forms can have serious consequences for woodland caribou populations. These disturbances directly or indirectly influence the impacts from other threats (e.g. predation). Access and recreational management will be key to limiting disturbance within important caribou habitats for the Owl Lake caribou population.

#### **ACTIONS**

1. Develop management guidelines that limit human and industrial disturbances within each of the identified seasonal habitat management zones.
2. Develop road management guidelines for future resource access roads within caribou range. The guidelines will outline direction and standards for decommissioning and removing resource access roads within the Owl-Flintstone range where necessary and feasible.
3. Restrict or minimize access development and existing access within the Owl Lake range to reduce the potential for detrimental impacts associated with predator intrusion, illegal hunting and sensory disturbance.
4. Limit the development of linear corridors through important caribou habitat through avoidance and or mitigation of impacts.
5. Continue monitoring the response of the Owl-Flintstone population to land use activities by following movements and habitat use in relation to the land use activities.
6. Undertake research that will identify disturbance thresholds across the Owl-Flintstone range. Disturbance thresholds define the maximum cumulative disturbances that a range can undergo before negative impacts to the population are observed.

#### ***D. Other Wildlife Species Interactions***

Habitat change and access are the main factors leading to increases in other ungulate species and predators such as wolves. Resource development activities and natural disturbances that produce early seral forests with new browse and linear features are important components of habitat change. Areas of high wolf and primary prey densities that overlap caribou range, impact caribou populations and lead to declines.

Manitoba will primarily manage populations of predators and other ungulate species through habitat and access management to maintain natural densities of predators and other ungulate species within caribou range. It will be important however to develop indicators that will guide decisions that will determine if more intensive management is required of predators and other ungulate species if caribou populations are being highly impacted.

#### **ACTIONS**

1. Manage white-tailed deer populations to limit the northward expansion of deer range into caribou range and limit the spread of associated parasites and disease.
2. Monitor impacts to the Owl Lake caribou population from parasites and disease.
3. Initiate predator ecology research to gain a better understanding of the predator/prey relationship that exists across the Owl-Flintstone range.
4. Monitor wolf and moose densities within the Owl-Flintstone range by using current techniques recognized in the field of wildlife management.
5. Maintain natural densities of moose and wolves primarily through habitat management. Initiate population control measures only when there is certainty that caribou populations are in trouble and that these efforts will increase caribou survivorship and population stability.
6. Develop indicators that will guide future decisions on the need for intensive management of predators and other ungulate species within the Owl-Flintstone range.

### ***E. Stewardship and Outreach***

The conservation of caribou populations is the responsibility of all Manitobans. To ensure that residents are informed and educated about caribou conservation, government will ensure there is continual outreach to the public. Government itself will strive to facilitate better coordination of land-use policies that promote caribou conservation.

#### **ACTIONS**

1. Manitoba will continue to support the woodland caribou conservation efforts of the Manitoba Model Forests through the Eastern Manitoba Woodland Caribou Advisory Committee and through funding initiatives.
2. Promote a co-operative relationship with First Nation communities surrounding the Owl-Flintstone range, by engaging communities and look at ways to use ATK in woodland caribou conservation. This will be achieved by seeking the active participation of communities on the Eastern Manitoba Woodland Caribou Advisory Committee.
3. Continue to promote awareness and knowledge of the Owl Lake caribou range among the public, First Nations and industry by providing educational material and outreach about woodland caribou conservation.
4. Communicate with other Departments to foster coordinated policies that ensure the *Endangered Species Act* requirements of incorporating caribou conservation measures in resource development activities are met. It will be important to ensure that caribou concerns are considered at the beginning of any development planning process.

### ***F. Legislation/Policy***

The protection of a species at risk requires the backing of legislation and regulation to ensure the long term persistence of the species. To meet this need, Manitoba will develop policy and implement legislation or regulation for woodland caribou and its habitat to meet specific conservation goals and objectives.

#### **ACTIONS**

1. Manitoba will continue to develop and review legislation/regulation that will strengthen the protection of woodland caribou and their habitat across the boreal landscape.

**Table 2. Implementation schedule for actions identified in the action plan for the Owl-Flintstone range over the next 5 years.**

Action	Recovery Strategy Objectives <sup>1</sup>	Recovery Strategy Initiatives <sup>1</sup>	Target Date for Starting and Completion				
			Year 1	Year 2	Year 3	Year 4	Year 5
			2012/13	2013/14	2014/15	2015/16	2016/17
<b>Population Monitoring and Management</b>							
1. Monitor survival and abundance	A, D	1, 2	Start				
2. Investigate Mortalities	A, D	3	Start				
3. Calf mortality research	A, D	1, 3		Start			
4. Establish population indicators	A, D	1, 4	Start		Complete		
5. Fecundity dynamics study and analysis	A, D	1	Start			Complete	
6. DNA analysis	A, D	1	Start				Complete
7. Review range delineation	D, E	2	Start	Complete			
<b>Habitat Planning and Management</b>							
1. Develop habitat management guidelines	B, C	2, 3	Start	Complete			
2. Establish seasonal habitat zones and develop habitat objectives	B, C	2, 3	Start	Complete			
3. Identify habitat zones for adjacent areas	B, C	3, 4	Start	Complete			
4. Protect recovery habitat	B, C	2, 3, 5	Start		Complete		
5. Develop fire management plans	B, C	3, 4		Start		Complete	
6. Management actions for recovery habitat	C, E	2, 3		Start	On-going	On-going	On-going
7. Habitat modeling analysis	B, C	1, 2, 4		Start			Complete
<b>Disturbance Management</b>							
1. Develop guidelines to limit disturbance	D	2	Start			Complete	
2. Develop road management policy	D	2	Start				Complete
3. Restrict/minimize access	D	2	On-going	On-going	On-going	On-going	On-going
4. Limit linear corridors	D	2	On-going	On-going	On-going	On-going	On-going
5. Monitor response to land use activity	D	2	On-going	On-going	On-going	On-going	On-going
6. Identify disturbance thresholds	D	2			Start		Complete

<sup>1</sup>Recovery strategy objectives and initiatives classification is derived from Manitoba Conservation and Recovery Strategy for Boreal Woodland Caribou, 2006

Action	Recovery Strategy Objectives <sup>1</sup>	Recovery Strategy Initiatives <sup>1</sup>	Target Date for Starting and Completion				
			Year 1	Year 2	Year 3	Year 4	Year 5
			2012/13	2013/14	2014/15	2015/16	2016/17
<b>Other Wildlife Species Interactions</b>							
1. Manage white-tailed deer populations	C	2		Start			
2. Monitor disease and parasites	C	2		Start			
3. Initiate predator research	C	1, 2			Start		
4. Monitor moose and wolf densities	C	1, 2	Start				
5. Manage for naturally low moose/wolf densities	C	1, 2	Start				
6. Develop indicators	C	1, 2			Start		Complete
<b>Stewardship and Outreach</b>							
1. Support MBMF caribou research	F	1, 2, 3	On-going	On-going	On-going	On-going	On-going
2. Promote cooperation with First Nations	F	2, 3	On-going	On-going	On-going	On-going	On-going
3. Communication with public and industry	F	1, 2, 3	On-going	On-going	On-going	On-going	On-going
4. Initiate discussions with other Ministries	F	1, 3, 4	Start				Complete
<b>Legislation/Policy</b>							
1. Consultations with First Nations	A, C, D	1	Start				Complete
2. Legislation to protect habitat	A, C, D	1	Start			Complete	
3. Develop range specific prescriptions	A, C, D	1	Start				Complete

<sup>1</sup> Recovery strategy objectives and initiatives classification is derived from Manitoba Conservation and Recovery Strategy for Boreal Woodland Caribou, 2006

## **The Atikaki - Berens Range**

### ***Background***

In 2006, Manitoba's Conservation and Recovery Strategy for Boreal Woodland Caribou classified the Atikaki – Berens range as high risk. The assessment was based on known threats to caribou sustainability and the degree of existing or imminent development within the range. The range in its entirety has been relatively undisturbed by human development activities, however, the western and southern edges of the range have been impacted to varying degrees by forestry, mining and community/recreational developments and their associated roads and power services. The surficial geology and natural processes across much of the range support vegetation communities compatible with current and future caribou occupancy, and the size of the range is considered to be of sufficient area to accommodate periodic shifts to alternate suitable habitat within the natural wildfire cycle.

Within the Atikaki – Berens range, there appear to be four local populations that constitute a meta-population currently occupying patches of suitable habitat within the overall range. These four sub-populations have been named Atiko, Bloodvein, Round and Berens. The threats and associated management implications for all four identified sub-populations within the range are similar. However the Atiko and Bloodvein sub-groups currently inhabit the southern portion of the range, where human activities pose potential threats to woodland caribou occupancy, and risks to population persistence are the greatest.

The Atikaki – Berens range covers a large landscape on the east side of Lake Winnipeg. Within this range, much of the monitoring and research that has occurred has focused on the southern portion of the range within the areas occupied by the Atiko and Bloodvein sub-populations. While there has been some limited collaring of animals in the Round and Berens sub-populations, very little is known about these more northern groups. Effort has focused primarily on animals in the western portion of the range. Outside of incidental observances from the general public, very little is known with respect to caribou distribution and numbers in the northeast portion of the range.

In 1994, the Eastern Manitoba Woodland Caribou Advisory Committee (EMWCAC) was established as a sub-committee of the Manitoba Model Forest as a means to address conservation concerns initially for the Owl Lake range. Over time, the committee expanded their focus to include the Atikaki – Berens range as well. The committee brought together government, industry and non-government organizations along with First Nations in an effort to build a multi-stakeholder group that would oversee woodland caribou conservation in eastern Manitoba and provide recommendations on management strategies to government to ensure the continued persistence of woodland caribou on the landscape. The committee's fundamental purpose is to conduct research and monitoring.

### ***Population Status***

The 2006 provincial Caribou Strategy provided a rough estimate of 300 – 500 animals in the Atikaki – Berens range. This estimate was not based on any systematic surveys but derived from animals observed during winter telemetry flights over a number of years. To date, none of the sub-populations have been systematically surveyed to determine population estimates. Rough estimates provided are obtained from minimum counts obtained during winter telemetry flights by counting animals associated with collared animals.

For the Atiko sub-population, a minimum of 60 animals were observed during the winter of 2007. For the Bloodvein sub-population, it is estimated that there are a minimum of 50 animals based on general counts of animals associated with collared animals. For the two northern sub-populations, it has been more difficult to obtain minimum counts because there are fewer animals being followed via collars within these groups. For the Round sub-population there is no current minimum count available. For the Berens sub-population, there were a minimum of 103 animals counted in November of 2008.

The stability of any wildlife population depends on key factors such as the mortality and survival rates of both the adult portion and the calf portion of the population. Currently there are no data available on survival and recruitment rates for caribou in the Atikaki – Berens range. Research will need to be implemented to obtain this important information. The collection of this data will aid in determining the status of this meta-population.

### ***Current Range Occurrence***

The Atikaki – Berens range is located on the east side of Lake Winnipeg and north of the Wanipigow River (Figure 1). Within this large landscape, four sub-populations have been identified as previously mentioned. Figure 1 delineates currently known areas of occurrence for the four identified sub-populations. Figure 2 presents what is believed to be the historical area of occurrence based on VHF and limited GPS data prior to 2000. It should be noted that there is a lack of current occupation data available in the northern and northeastern portions of the range. There is limited anecdotal information that suggests that there are caribou in this portion of the range. Effort will need to be placed on surveying this area to confirm occupation.

Caribou that belong to the Atiko sub-population are distributed across a large portion of the southern area east of Lake Winnipeg. The herd migrates between wintering areas, in the southwest portion of the range, and summering areas in the northeast portion of the range. Summering areas where calving occurs, include the Sasaginnigak Lake area and areas closer to the Ontario boundary (Figure 3). Fall concentrations have been observed in several areas including Kautunigan Lake. Wintering areas include the Shallow Lake, Beaver Creek and Atiko Lake areas (Figure 4).

The Bloodvein sub-population is distributed over a relatively small area northwest of the Atiko range (Figure 1). There is very little movement outside of this area with both

summer and winter use areas overlapping (Figures 3 and 4). Their distribution is the most geographically confined of all the caribou populations on the eastside.

There is limited information available to help define the range areas of the two northern sub-populations (Round and Berens). The current delineations are based on GPS and VHF data from only a few animals that have been followed between 2000 and 2004. Figure 1 illustrates the currently known areas of occurrence of the Round and Berens sub-populations. Figures 3 and 4 present currently known areas used in summer and winter.

### *Habitat Use*

Within the Atikaki - Berens range, caribou use upland rock ridges that are dominated by older (60-90 yrs) jack pine stands during the winter months. These areas are lichen-rich areas that provide an abundance of forage during the winter months. In summer, caribou groups split up and individuals tend to isolate themselves, especially females during the calving season. Females seek out islands on lakes, islands in bogs, or peninsulas that allow for easy escape. The vegetative cover in these areas is most often black spruce on the islands or jack pine rock outcrops on islands in bogs.

Within the Bloodvein sub-range, the habitat used by caribou is bog/fen/peatland with black spruce and rock outcrop islands covered with jack pine trees scattered across the landscape. In summer and winter, these islands serve as refuge areas especially during the calving season. Calving appears to occur predominately on rock outcrop "islands" within string bogs. In summer, the wet bogs make it difficult for predators to move around the landscape. In winter, these same bogs fill with deep snows which once again reduce the abilities of predators to move across the landscape.

Areas of high habitat quality have been identified using a habitat suitability index (HSI) model for the southern portion of the range. The newest version of the model only applies to the areas within the forest management license area (FML-01). The HSI model uses forest resource inventory (FRI) data to provide the habitat data set to run the model. Within the FML area the FRI has been updated to 1997. Outside the FML (i.e. Atikaki Provincial Park area and north) the FRI data is from 1984. An older and less suitable HSI model is available for this area to provide very rough estimates of suitable habitat.



### ***Current Habitat Management***

The EMWCAC works with government and industrial users within the Atikaki-Berens range to review and provide recommendations on the mitigative measures that are required to conserve boreal woodland caribou. Over the past 3 years, the Committee has been developing a conservation plan for the two southern sub-ranges within the Atikaki-Berens range (Atiko and Bloodvein). The plan provides direction on harvest prescriptions and other mitigation necessary for specific resource and recreational activities across the landscape. The plan also makes recommendations on monitoring, research and stewardship activities. It is anticipated that the conservation plan will be completed and submitted to government for consideration within one year.

The southern portion of the Atikaki-Berens range exists within FML 01. Prior to the closing of the Tembec mill, the committee was engaged in providing guidance to Tembec with respect to forest harvesting activities by providing input on the necessary prescriptions necessary to benefit woodland caribou. With the release of Tembec's draft 2009-2028 Forest Stewardship Plan, several general operating areas were identified for harvest during the 20 year plan within this southern portion of the range. During the development of the 20 year plan, core caribou use areas (70% kernels) were avoided in identifying new operating areas. The Committee reviewed Tembec's plan and provided comments on the necessary mitigative measures required that would promote the continued persistence of woodland caribou across the landscape and provide for alternate habitat now and in the future that is adjacent to currently occupied areas. Primarily this would be achieved through the development of prescriptions that incorporated landscape management principles. Harvest prescriptions and recommendations laid out in the caribou conservation plan will be incorporated into future detailed harvest designs. A landscape design that can be implemented at the site and stand level to accommodate caribou habitat needs will be important.

As part of the development of the Atiko/Bloodvein Conservation Plan, the EMWCAC conducted a SARA based threat assessment for the Atikaki/Berens caribou range that systematically addressed and evaluated the potential threats to boreal woodland caribou. The overall process looked at the Atikaki-Berens range as a whole, and the individual Atiko and Bloodvein sub-ranges. The purpose of the assessment was to provide a systematic approach to identify threats to caribou and a process for ranking threat attributes and the overall risk of each threat on the sub-ranges. The results of the assessment will provide a working tool to the EMWCAC in focusing future research and management efforts for the Atikaki-Berens caribou range.

During the design phase of the all weather road from PR304 to Berens River First Nation along the western edge of the Atikaki-Berens range, the EMWCAC worked co-operatively with the Eastside Road Authority (ESRA) by providing data that was used to identify important caribou habitat areas and allowed the routing of the road to be moved accordingly to avoid these important areas. During the construction and post construction phases, the Committee will continue to work co-operatively with the ESRA in monitoring possible impacts to the Atikaki-Berens range.

### ***Human Caused Disturbances***

The Atikaki – Berens range exist within a broad landscape that is largely undisturbed by humans. The majority of the human activity exists along the southern and western boundaries of the range (Figure 6). Atikaki Provincial Park (3,981 km<sup>2</sup>) covers approximately 40%-50% of the caribou landscape. Within the Park, there is little or no historical record of mining or forestry in the area, and while mineral exploration has occurred over the years prior to the park designation, forestry activities have not. Both forestry and mining activities are prohibited within the Park. Outside Atikaki Provincial Park, the remaining land falls within Forest Management Licence 01 (FML 01) which has a long history of forest harvesting in the southern areas of the FML and is currently licensed to Tembec. As part of the forestry operations, summer and winter roads have been built to access the FML. Over time, many of these roads have gone through various stages of use and decommissioning. An all-weather road exists along the western edge of the range which is used as part of the provincial winter road system that routes roads across the range to northern communities.

The map also indicates significant mineral exploration leases and mining claims that exist on the southern edge of the range. While mineral exploration has less total disturbance on habitat and the animals themselves than forest harvesting, it may still cumulatively add to a loss of functional habitat or increased mortality through an extensive network of winter trail development required to access drill sites. Mitigation of these impacts through discussion with mining companies has begun.

Fishing, hunting and trapping are popular and long established activities on this landscape. Within Atikaki park, there are 4 tourism lodges, 17 out-camps, 5 tent camps and 13 commercial boat, motor and fuel caches. There are also 4 private cabins as well (MB Conservation 2001). Rivers like the Bloodvein and Gammon provide opportunities for canoeing and whitewater rafting.

In June of 2009, Tembec submitted a draft 2009-2028 Forest Stewardship Plan to MB Conservation for review and approval. Seven general operating areas were identified for harvest during the 20-year plan within the southern portion of the range. With the closure of the mill in September 2009, the future of forest operations in this area is uncertain. If forestry activities resume in the future, harvest prescriptions will be developed that promote the continued persistence of woodland caribou across the landscape and provide for alternate habitat that is adjacent to currently occupied areas now and in the future.

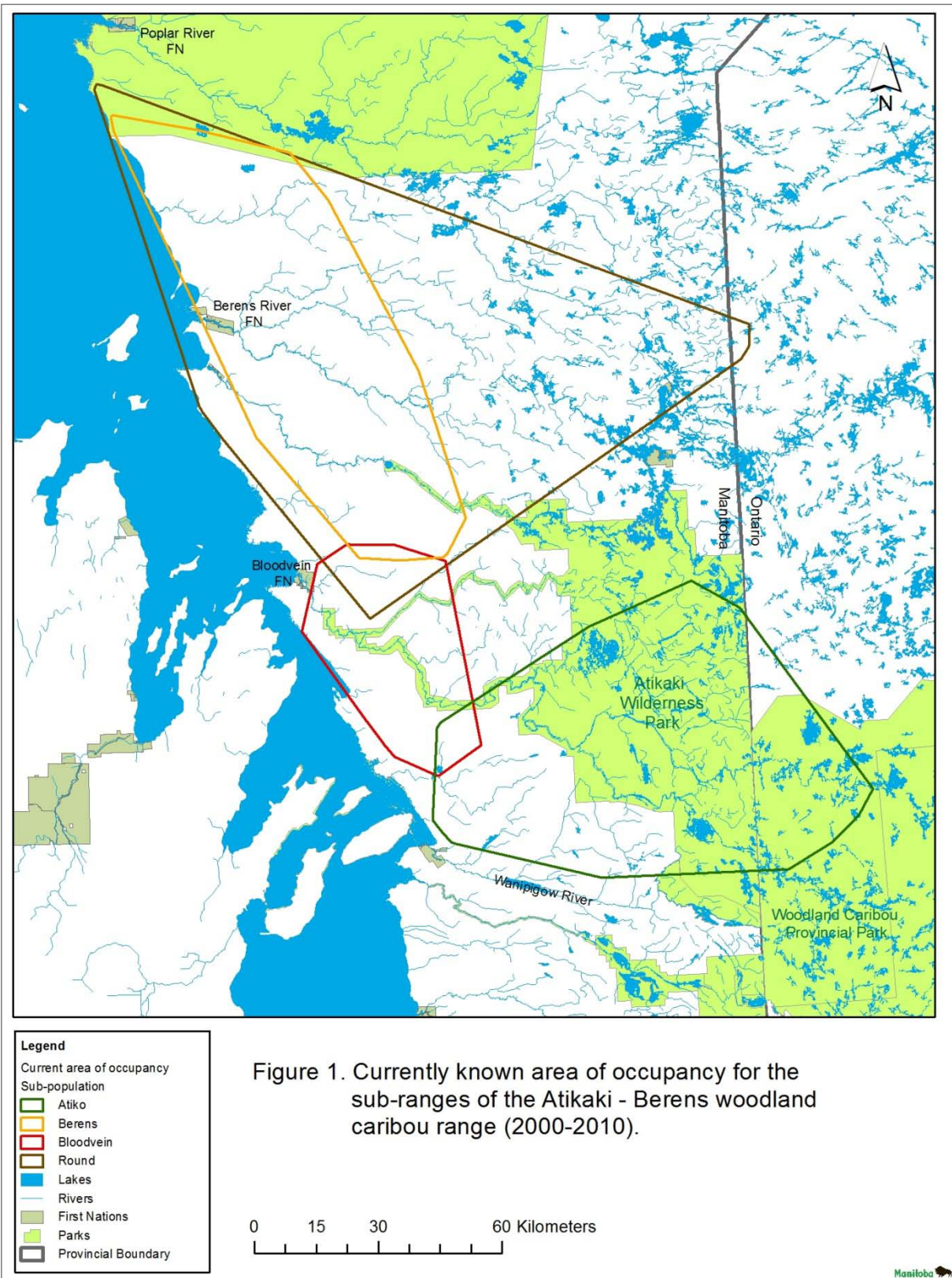
The Provincial Government is committed to constructing an all-season road to northern communities along the east side of Lake Winnipeg. Current plans are to upgrade the existing Rice River Road to provincial standards from its beginning at highway 304 to the Bloodvein River and extend the road north to Barrens River First Nation. Construction of the northern section, from the Bloodvein River to Berens River First Nation will begin in the fall of 2010. The extent of potential impacts to woodland caribou range by the development of an all-season road up the east side of Lake Winnipeg is currently

unknown. The original routing of the Rice River Road was intentionally selected to avoid and minimize disturbance to caribou range by routing the road as close to Lake Winnipeg as possible. Upgrading this section of road will see the routing remain the same with minor changes. The routing of the section from the Bloodvein River to Berens River First Nation has been selected. Of the three routes that were proposed, the route closest to Lake Winnipeg was recommended by the proponent as part of the environmental impact assessment. Wildlife staff with Manitoba Conservation and the Eastern Manitoba Woodland Caribou Advisory Committee worked with the proponent to provide caribou telemetry data on caribou locations and possible important habitat to ensure that the route selected would minimize impacts to woodland caribou to the extent possible. There will be a need for further monitoring to help determine possible impacts to caribou range in the area.

### ***First Nations Land Use Planning – East Side Lake Winnipeg***

In June of 2009, the Province of Manitoba enacted the *East Side Traditional Lands Planning and Special Protected Areas Act*. The Act enabled First Nation and Aboriginal communities on the east side of Lake Winnipeg to engage in land use and resource management planning for designated areas of crown land that the communities have traditionally used. Under the act, designated protected areas of crown land on the east side of Lake Winnipeg receive protection from development and other activities that may occur across the landscape. Regulation through establishment of land use zones provides the mechanism for prohibitions governing activities within these zones.

For First Nation communities who have begun land use planning across their respective traditional areas, they have recognized the importance of woodland caribou conservation. Through the establishment of protected area zones and/or caribou conservation zones, large portions of the Atikaki-Berens range will receive additional protection from development in addition to that currently protected by Atikaki Provincial Park. Through the establishment of these protected zones the long-term habitat requirements for caribou in the Atikaki-Berens range will be safe-guarded ensuring its long-term persistence across the landscape.



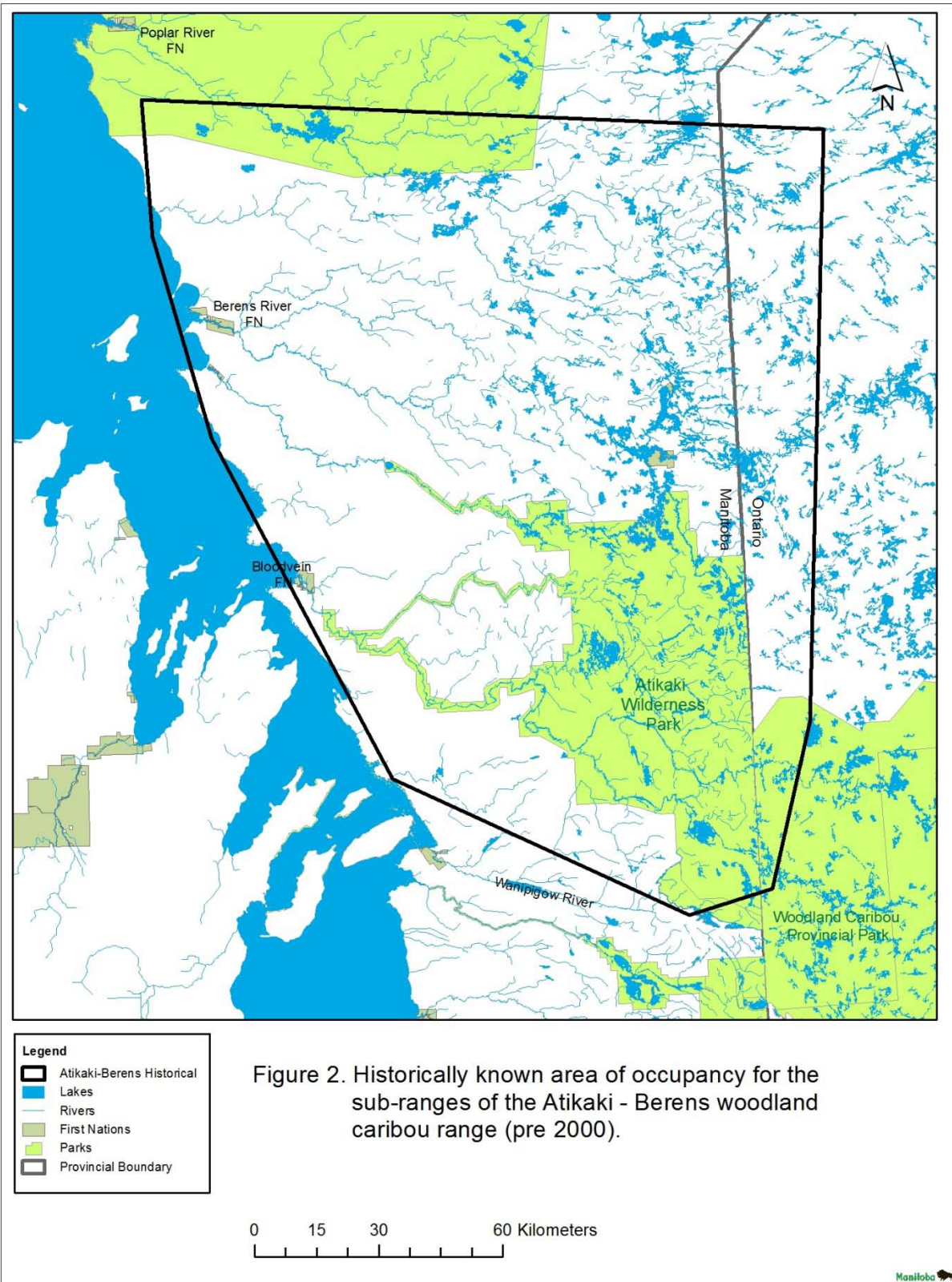
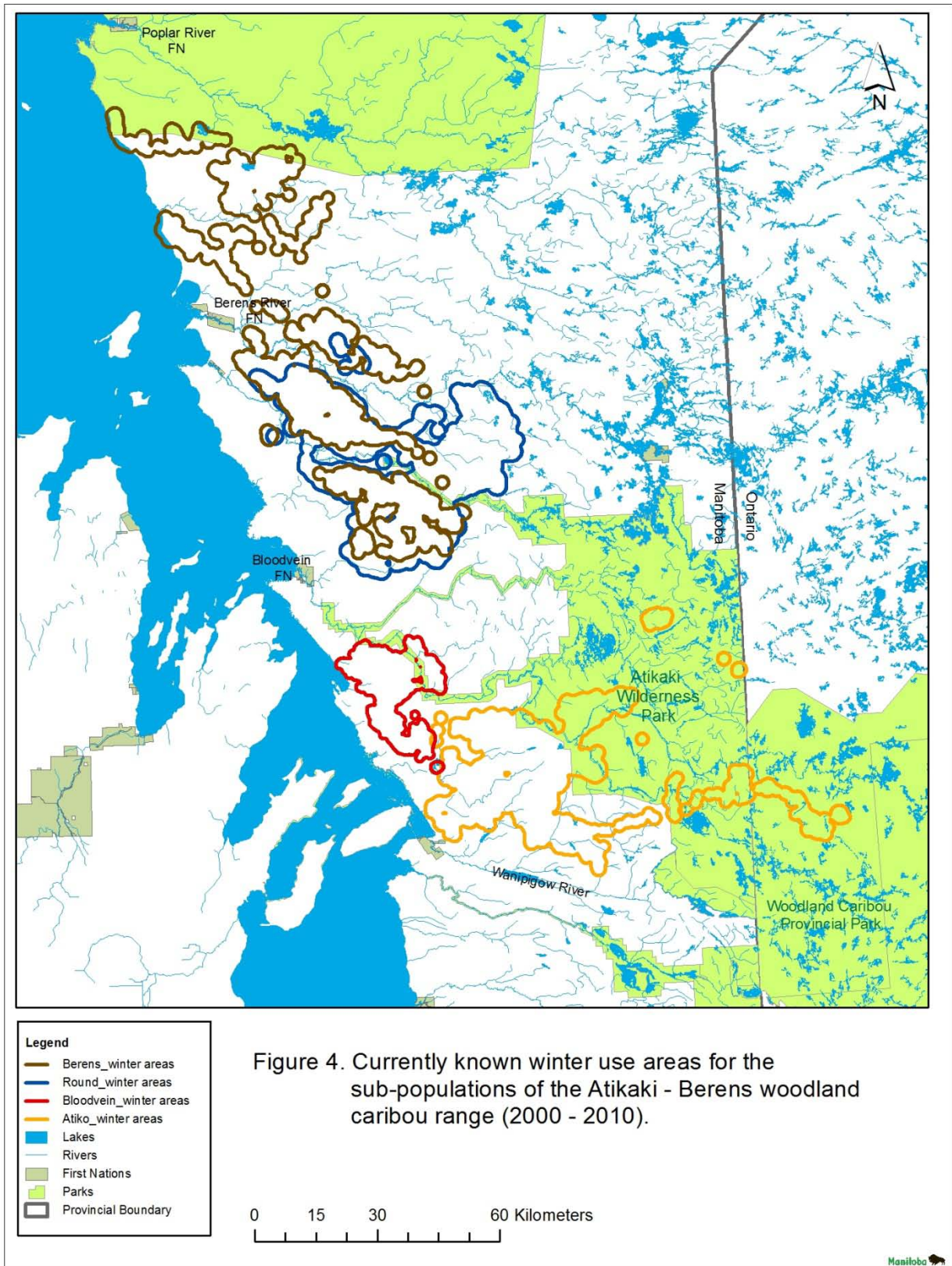


Figure 2. Historically known area of occupancy for the sub-ranges of the Atikaki - Berens woodland caribou range (pre 2000).





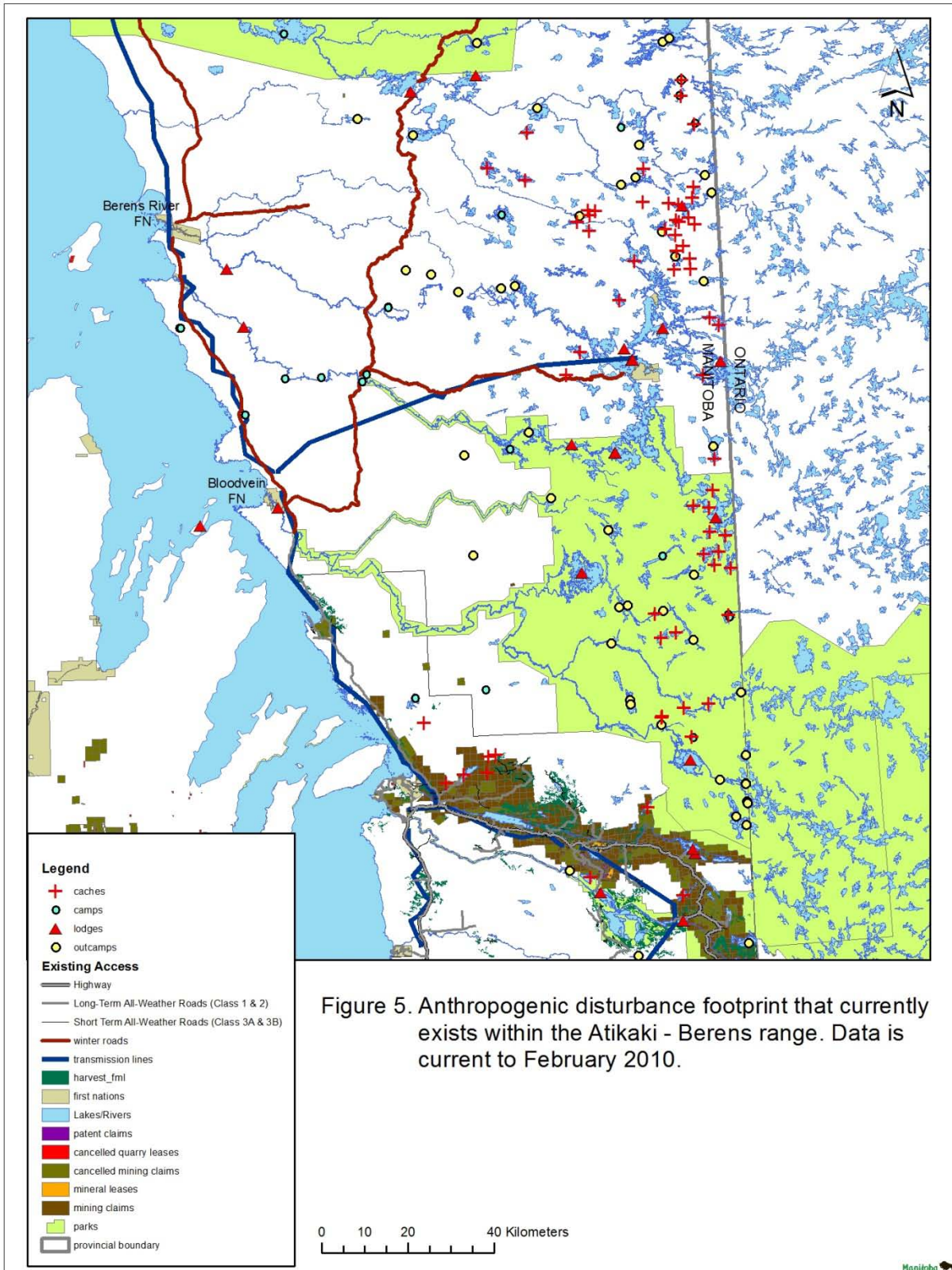


Figure 5. Anthropogenic disturbance footprint that currently exists within the Atikaki - Berens range. Data is current to February 2010.



**Research/Monitoring - Completed, On-going, or Required**

The earliest known documented woodland caribou surveys in eastern Manitoba were conducted by the Department of Mines and Natural Resources during the 1960's across the Aikens Lake and Sassaginnigak Lake areas (Carbyn 1968). One of the first studies focusing on the southern herds was Stardom's (1977) study on caribou winter ecology. From 1975-1978, Darby (1979) collected data on the herd's movements, habitat use and population ecology. Throughout the 1970's and early 80's department staff collared individual caribou in the Sassaginnigak Lake area following their movements and monitoring their habitat use. In addition, winter aerial surveys were conducted to obtain estimates of caribou numbers. During 1984 and 1985, Schaeffer (1988) studied the effects of recent fires on the Aikens Lake herd.

Recent studies on the Atikaki-Berens range have focused primarily on obtaining detailed data on seasonal habitat use, and distribution within the southern portion of the range (Atiko and Bloodvein sub-ranges). GPS collars were deployed on individual animals in 2000 to collect the required data. For the northern sub-ranges, a combination of GPS and VHF collars were deployed on a limited number of individual caribou between 2000 and 2004. As of July 2010, a total of 18 caribou are collared across the Atikaki-Berens range. The majority (12) are located within the Atiko-sub-range. In order to gain a better understanding of caribou distribution and seasonal habitat use across the northern portion of the Atikaki-Berens range, additional research will be required.

The following table outlines the research and monitoring that has been either completed, on-going or is required to enable future management decisions for the Atikaki-Berens range.

**Table 1.** Research and Monitoring that has been completed, is on-going or that is required for the Atikaki-Berens range.

<b>Component</b>	<b>Research/Monitoring</b>	<b>Status</b>	<b>Comments</b>
<b>Population</b>	Range Occupancy/Distribution	On-going	Required for the northeast portion of the range.
	Seasonal range delineation	On-going	More data is required.
	Population Estimate	Required	
	Genetic sampling	On-going	
	Animal collaring program	On-going	
	Adult female survival	Required	
	Calf Recruitment	Requires	
	Aquire ATK	On-going	
	Calf mortality factors	Required	
	Predation rates	Required	
	Fecundity analysis	Required	
	Genetic analysis	Required	
	Threat Assessment	Complete	
<b>Habitat</b>	Habitat modeling	On-going	
	Development of an HSI model	On-going	Continued work required due to lack of FRI data for the range
	Calving/Nursery Habitat study	Required	
	Habitat connectivity study	Required	
	Identification of critical habitat	On-going	
	Habitat availability projections	Required	
	Establishment of habitat management zones	On-going	
	Aquire ATK	On-going	

## **Recommended Actions to Conserve the Atikaki - Berens Range**

### ***A. Population Monitoring and Management***

Population monitoring is required to guide management decisions and to generate data on caribou ecology. As new information is obtained, the data can be feed into an adaptive management framework that allows for alterations in the management directions and policies that are put into place to ensure the long term sustainability of caribou populations.

#### **ACTIONS**

1. Expand long-term monitoring of adult mortality, calf survival and population abundance to determine population trends and growth rates for the sub-populations of the Atikaki - Berens range.
2. Undertake an aerial survey to determine range occupancy in the northeast portion of the range where little is known about the distribution of caribou.
3. Establish and monitor population indicators that would signal the need for more intense management actions to be undertaken.
4. Undertake DNA analysis of the genetic relatedness among the Atikaki – Berens sub-populations and between neighboring ranges as a means to better understand the genetic structure of the woodland caribou ranges in eastern Manitoba.
5. Initiate a calf survival research to better determine calf survival rates and causes of calf mortality.
6. Conduct data analysis to investigate the fecundity dynamics (pregnancy rates, birth rates) of the Atikaki-Berens range.
7. Monitor the locations, dates and probable causes of known adult caribou mortalities.
8. Review the current delineation of the Atikaki-Berens range and ensure that any changes incorporates information from Ontario that accounts for the interprovincial movement of boreal woodland caribou between the two provinces.

## ***B. Habitat Planning and Management***

The management of boreal woodland caribou requires a landscape approach to habitat management. It is important to recognize and understand that changes to landscapes caused by human disturbances, including industry and recreational activities can impact woodland caribou. To ensure the long term persistence of woodland caribou land use activities may have to be restricted or limited over large tracts of caribou habitat. Industry and other human activities might still occur within caribou habitat if it is determined that these activities, when considered in combination with natural landscape changes are compatible.

To ensure the long term persistence of the Atikaki-Berens population, management strategies will need to be put into place that will see caribou concerns continue to be addressed at the beginning of land use planning and not at the end.

### **ACTIONS**

1. Manitoba will develop caribou habitat management guidelines so that all resource development activities within caribou range consider implications to woodland caribou and include appropriate conservation and mitigation measures.
2. Establish habitat management zones within the Atikaki - Berens range and incorporate specific habitat objectives within each zone. Objectives will include thresholds for acceptable levels of habitat change resulting from natural and anthropogenic disturbances. The province will ensure that forest management practices will consider both current and future habitat needs (cover and forage) for boreal woodland caribou
  - a) Forest harvest and renewal activities within the Atikaki - Berens range will be designed to maintain current and future habitat needs.
  - b) Manage for large patches (>10,000ha) of intact coniferous forests >60 years old. The overall goal will be to create a landscape mosaic that consolidates disturbances in large 10,000 ha patches while maintaining a continuous supply of suitable habitat for the future in large patches.
  - c) Within caribou management zones, limit the growth of early seral forests resulting from industrial activities that provide habitat for other ungulate species and ultimately attract predators.
  - d) Maintain connectivity between patches of high habitat quality within sub-ranges and between sub-populations.
  - e) Restrict industrial activity and linear developments within core range areas.
3. Identify habitat and objectives for areas adjacent to currently occupied areas which will provide alternative suitable habitat for caribou.
4. Protect recovery habitat which will include calving, nursery, winter core areas and other identified important areas outside of Atikaki Provincial Park. This will be accomplished within the current established legislative framework to ensure the long-term persistence of the Atikaki – Berens sub-populations.

5. Using Manitoba's current fire program policy as a basis, develop fire management guidelines that promote natural boreal forest ecological dynamics and assist in meeting future habitat objectives for habitat management zones.
6. Undertake management actions to protect recovery habitat and minimize habitat alteration and disturbance associated with industrial activities across the Atikiki-Berens range. These actions will be undertaken with discussions and/or the cooperation of industry.
7. Continue habitat modeling analysis that will improve and/or update the identification of habitat use and availability and continue an analysis of future habitat condition over 50 or 100 years under different management/natural disturbance regimes.

### ***C. Disturbance Management***

The existence of human disturbances/developments that take on many forms can have serious consequences for woodland caribou populations. These disturbances directly or indirectly influence the impacts from other threats (e.g. predation). Management of access and recreational developments/activities will be important to limiting disturbance within important caribou habitats for the Atikiki – Berens meta-population.

#### **ACTIONS**

1. Develop management guidelines that limit and mitigate human and industrial disturbances within accepted levels in each of the identified seasonal habitat management zones.
2. Develop road management guidelines for future resource access roads within caribou range. The guidelines will outline direction and standards for decommissioning and removing resource access roads within the range where necessary and feasible.
3. Restrict or minimize access development and existing access within core habitat areas of the Atikiki - Berens range to reduce the potential for detrimental impacts associated with predator intrusion, illegal hunting and sensory disturbance.
4. Limit the development of linear corridors through important caribou habitat through avoidance, minimizing and/or mitigation of impacts.
5. Undertake research that will identify disturbance thresholds across the Atikiki - Berens range. Disturbance thresholds define the maximum cumulative disturbances that a range can undergo before negative impacts to the population are observed.
6. Continue monitoring the response of the Atikiki – Berens sub-population to land-use activities by following movements and habitat use in relation to the land-use activities.

#### ***D. Other Wildlife Species Interactions***

Habitat change and access are the main factors leading to increases in other ungulate species and predators such as wolves. Resource activities that produce early seral forests with new browse and linear features are important components of habitat change. Areas of high wolf and primary prey densities that overlap caribou range, impact caribou populations and lead to declines.

Manitoba will primarily manage populations of predators and other ungulate species through habitat and access management to maintain natural densities of predators and other ungulate species within caribou range. It will be important however to develop indicators that will guide decisions that will determine if/when more intensive management may be required of predators and other ungulate species if caribou populations are being highly impacted.

#### **ACTIONS**

1. Manage white-tailed deer populations across the landscape to limit the northward expansion of deer into caribou range and limit the spread of associated parasites and disease.
2. Develop thresholds and indicators that will guide future decisions on the need for intensive management of predators and other ungulate species within the Atikaki – Berens range.
3. Initiate predator ecology research to gain a better understanding of the predator/prey relationship that exists across the Atikaki – Berens range.
4. Monitor wolf and moose densities across the southern portion of the Atikaki - Berens range by using current techniques recognized in the field of wildlife management.
5. Maintain natural densities of moose and wolves primarily through habitat management across caribou habitat. Initiate population control measures when there is certainty these efforts will increase caribou survivorship and population stability.
6. Monitor impacts to the Atikaki - Berens caribou meta-population from parasites and disease.

### ***E. Stewardship and Outreach***

The conservation of caribou populations is the responsibility of all residents in Manitoba. To ensure that residents are informed and educated about caribou conservation, The Government of Manitoba will ensure there is continual outreach to communities. In addition, government itself will strive to facilitate better coordination of land-use policies that promote caribou conservation.

#### **ACTIONS**

1. Manitoba will continue to support the woodland caribou conservation efforts of the Manitoba Model Forests through the Eastern Manitoba Woodland Caribou Advisory Committee and through funding initiatives.
2. Promote a co-operative relationship with First Nation communities located across the Atikaki – Berens range by engaging them in woodland caribou conservation through land-use planning and through discussions with the resource management boards.
3. Facilitate the collection and use of ATK and invite more communities to participate on the Eastern Manitoba Woodland Caribou Advisory Committee.
4. Continue to promote awareness and knowledge of the Atikaki - Berens caribou range among the public, First Nations and industry by providing educational material and outreach concerning woodland caribou conservation.
5. Communicate with other Departments to foster coordinated land use policies that will ensure that the Endangered Species Act requirements to incorporate caribou conservation needs in other resource development activities are met. It will be important to ensure that caribou concerns are considered at the beginning of any development planning process.

### ***F. Legislation/Policy***

The protection of a species at risk requires the backing of legislation and regulation to ensure the long term persistence of the species. To meet this need, Manitoba will continue to develop policy and implement legislation or regulation as required for woodland caribou and its habitat to meet specific conservation goals and objectives.

#### **ACTIONS**

1. Manitoba will continue to develop and review legislation/regulation that will strengthen the protection of boreal woodland caribou and their habitat across the landscape.

**Table 2. Implementation schedule for actions identified in the action plan for the Atikaki-Berens range over the next 5 years.**

Action	Recovery Strategy Objectives <sup>1</sup>	Recovery Strategy Initiatives <sup>1</sup>	Target Date for Starting and Completion				
			Year 1	Year 2	Year 3	Year 4	Year 5
			2012/13	2013/14	2014/15	2015/16	2016/17
<b>Population Monitoring and Management</b>							
1. Monitor survival and abundance	A, D	1, 2		Start			
2. Range Occupancy Survey	A, D	2	Start				Complete
3. Establish population indicators	A, D	1, 4			Start		Complete
4. DNA analysis	A, D	1	Start				Complete
5. Calf mortality research	A, D	1, 3		Start			
6. Fecundity dynamics study and analysis	A, D	1			Start		
7. Investigate Mortalities	A, D	3	Start				
8. Review range delineation	D, E	2	Start	Complete			
<b>Habitat Planning and Management</b>							
1. Develop habitat management guidelines	B, C	2, 3	Start	Complete			
2. Establish seasonal habitat zones and develop habitat objectives	B, C	2, 3		Start			Complete
3. Identify habitat zones for adjacent areas	B, C	3, 4		Start			Complete
4. Protect recovery habitat	B, C	2, 3, 5	Start				Complete
5. Develop fire management guidelines	B, C	3, 4		Start			Complete
6. Management actions for recovery habitat	C, E	2, 3		Start	On-going	On-going	On-going
7. Habitat modeling analysis	B, C	1, 2, 4	Start				Complete
<b>Disturbance Management</b>							
1. Develop guidelines to limit disturbance	D	2	Start				Complete
2. Develop road management guidelines	D	2	Start				Complete
3. Restrict/minimize access development	D	2	On-going	On-going	On-going	On-going	On-going
4. Limit linear corridors	D	2	On-going	On-going	On-going	On-going	On-going
5. Identify disturbance thresholds	D	2			Start		Complete
6. Monitor response to land use activities	D	2	On-going	On-going	On-going	On-going	On-going

<sup>1</sup> Strategy objective classification is derived from Manitoba Conservation and Recovery Strategy for Boreal Woodland Caribou, 2006



Action	Recovery Strategy Objectives <sup>1</sup>	Recovery Strategy Initiatives <sup>1</sup>	Target Date for Starting and Completion				
			Year 1	Year 2	Year 3	Year 4	Year 5
			2012/13	2013/14	2014/15	2015/16	2016/17
<b>Other Wildlife Species Interactions</b>							
1. Manage white-tailed deer populations	C	2		Start			
2. Develop thresholds and indicators	C	1, 2			Start		Complete
3. Initiate predator research	C	1, 2				Start	
4. Monitor moose and wolf densities	C	1, 2		Start			
5. Maintain naturally low moose/wolf densities	C	1, 2	Start				
6. Monitor disease and parasites	C	2				Start	
<b>Stewardship and Outreach</b>							
1. Support MBMF caribou research	F	1, 2, 3	On-going	On-going	On-going	On-going	On-going
2. Promote cooperation with First Nations	F	2, 3	On-going	On-going	On-going	On-going	On-going
3. Collect and use ATK	F	2,3	On-going	On-going	On-going	On-going	On-going
4. Communication with public and industry	F	1, 2, 3	On-going	On-going	On-going	On-going	On-going
5. Initiate discussions with other Ministries	F	1, 3, 4	Start				Complete
<b>Legislation/Policy</b>							
1. Consultations with First Nations	A, C, D	1	Start				Complete
2. Legislation to protect habitat	A, C, D	1	Start			Complete	
3. Develop range specific prescriptions	A, C, D	1	Start				Complete

<sup>1</sup> Strategy objective classification is derived from Manitoba Conservation and Recovery Strategy for Boreal Woodland Caribou, 2006

## Glossary

**Caribou range** – The geographical limits of woodland caribou within a specific area. Woodland caribou typically have seasonal ranges (summer, winter, etc.) which may overlap.

**Core range area** – A geographical area that represents the main area of use for a given season. The area is delineated by an analysis of home range and represents approximately 70% of the total number of data locations being used for the analysis.

**Habitat Suitability Index Model (HSI)** – An HSI is a numerical index that represents the capacity of a given habitat to support a selected species. The HSI describes the suitability of a given habitat by combining the interactions of all key environmental variables on a species' vital rates and ultimately, survival.

**Kernel Density Home Range** – Kernel density estimates are calculated from a set of relocation points (i.e., radiotelemetry contacts) that can be interpreted as a utilization distribution (UD). The UD estimates the amount of time spent at a given point within the home range. e.g. 70% kernel represents a defined area where an animal or species spends approximately 70% of its time.

**Minimum Convex Polygon (MCP)** – a statistical method of defining a home range of an animal or species. The analysis connects the outermost points of the relocation data points.

**Range occurrence** – A geographic area where a species currently can be found or an area that is being used by a species.

**Recovery Habitat** - A geographic area that contains important habitat components that are required to maintain self-sustaining populations. Recovery habitat may also include currently unoccupied areas that may be required to ensure that populations can be maintained as self-sustaining into the future.

## **Acronyms**

**AOP** – Annual Operating Plan

**ATK** – Aboriginal Traditional Knowledge

**EIS** – Environmental Impact Statement

**EMWCAC** – Eastern Manitoba Woodland Caribou Advisory Committee

**ESRA** – Eastside Road Authority

**FML-01** – Forest Management License 01

**FRI** – Forest Resource Inventory

**GPS** – Global Positioning System

**IRMT** – Integrated Resource Management Team

**MESA** – Manitoba Endangered Species Act

**SARA** – Species At Risk Act

**VHF** – Very High Frequency

## References

- Carbyn, L.N. 1968. Woodland caribou survey in the Bloodvein River region of eastern Manitoba. Manitoba Dept. of Mines and Natural Resources, Wildlife Branch.
- Darby, W. R. 1979. Seasonal Movements, Habitat Utilization and Population Ecology of Woodland caribou (*Rangifer tarandus caribou* Gmelin) in the Wallace-Aikens Lake region of southeastern Manitoba. M.Sc. Thesis, University of Manitoba. 187pp.
- Larche, R. A. 1972. The woodland caribou east of Lake Winnipeg. Man. Dept. Mines Resour. Environ. Manage. 9pp.
- Manitoba Conservation 2001. Atikaki Provincial Park and Bloodvein Canadian Heritage River Draft Management Plan. Winnipeg, MB. 25pp.
- Manitoba Model Forest. 2005. Landscape management strategy for the Owl lake boreal woodland caribou herd, eastern Manitoba: An Update of the original 1995 strategy. A report of the Eastern Manitoba Woodland Caribou Advisory Committee to the Manitoba Model Forest. April 2005. Manitoba Model Forest Report 04-2-33. 66pp.
- Miller, D. 1968. Woodland Caribou Report. Draft of several papers, Wildlife and Ecosystem Protection Branch.
- Schafer, J.A. 1988. Fire and woodland caribou (*Rangifer tarandus caribou*): An evaluation of range in southeastern Manitoba. . M.S. Thesis, Univ. Manitoba Winnipeg. 145pp.
- Schindler, Doug. 2006. Home range and core area determination, habitat use and sensory effects of all weather access on boreal woodland caribou, *Rangifer tarandus caribou*, in Eastern Manitoba. M. Environment Thesis. University of Manitoba. 165pp.
- Stardom, R.R.P. 1977. Winter ecology of woodland caribou, *Rangifer tarandus caribou*, and some aspects of winter ecology of moose, *Alces alces andersoni*, and whitetail deer, *Odocoileus virginianus dacotensis* (Mammalia: Cervidae) in southeastern Manitoba. M.Sc. Thesis, University of Manitoba. 157 pp.
- TAEM. 1995. Report on the Manitoba Model Forest Integrated Forestry/ Woodland Caribou Management Strategy. Manitoba Model Forest. 26pp.

DRAFT

**MANITOBA CONSERVATION**

**Wildlife and Ecosystem Protection Branch**

**Box 24, 200 Saulteaux Crescent**

**Winnipeg, Manitoba R3J 3W3**

**Phone: 204-945-7775**

**[www.manitoba.ca/conservation](http://www.manitoba.ca/conservation)**