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FACSIMILE TRANSMISSION MESSAGE

DATE: August 31, 2012
FAX NO: 1-877-288-8803

NAME: Joint Review Panel
FIRM: Enbridge Northern Gateway Project
FROM: Beaver Lake Cree Nation
RE: Enbridge Northern Gateway Project

TOTAL NUMBER OF PAGES: 89 (INCLUDING COVER PAGE)
ORIGINAL BEING SENT BY MAIL - NO.

Please see letter and Beaver Lake Cree Nation Process for Consultation attached.

United Nations Declaration of the Rights of Indigenous Peoples under separate cover.

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BEAVER LAKE
CREE NATION

MAIL ROOM
SALLE DE COURIER

2012 SEP -4 A 8:39

NEB/ONE

August 31, 2012

By Mail

By Fax: 1-877-288-8803

Enbridge Northern Gateway Project
444 7th Avenue S.W.
Calgary, Alberta
T2P 0Y8

Attention: Joint Review Panel

Dear Panel Members:

On behalf of the people and the Government of the Beaver Lake Cree Nation, I am submitting this letter to the Panel to provide our comments on the Enbridge Northern Gateway Project. We appreciate the opportunity of allowing us to submit this letter.

Our Nation is located in northeastern Alberta. We are a beneficiary of Treaty 6. The portion of Alberta in which we have traditionally hunted, trapped, fished and conducted traditional activities, and continue to do so today, includes the area outlined in the map we attach to this submission. In addition to the rights guaranteed to us under the provisions of Treaty 6, we also possess aboriginal rights beyond the geographic area bounded by Treaty 6, which aboriginal rights include but are not limited to, hunting, gathering, fishing, trapping, cultural, and spiritual activities.

Our people wish to ensure that development on our lands occurs in a responsible and coordinated manner that balances the benefits of development with the adverse impacts to our lands and our community. Unfortunately, it has been our experience that Governments have approved developments in our Territory without conducting meaningful and adequate consultation. There has been a substantial amount of oil and gas developments in our Territory over the years. This has resulted in severe impacts on our aboriginal and treaty rights including the erosion and diminution in the abundance and the diversity of wildlife in our Territory, the loss of wildlife habitat, erosion of water abundance and water purity, just to name a few. In addition, the caribou herds in our Territory are on the verge of extinction, but the Governments of Alberta and Canada have done nothing to protect them.

As a result of the failures of these Governments to properly engage with us in a consultation process that meets the obligations as set out in our Constitution, the Treaty and our Courts, we took the step of filing a Statement of Claim in the Court of Queen's Bench of Alberta against the

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Province of Alberta and the Government of Canada as a result of the developments infringing our existing aboriginal and treaty rights. The case is slowly working its way through the court system and it has been a long and difficult, but necessary, struggle.

It is our sincere hope and desire that the Governments of Alberta, British Columbia and Canada conduct an adequate and thorough consultation with First Nations in order to avoid the litigation that we have had to take in our case in order to protect our aboriginal and treaty rights regarding the industrial developments in our Territory.

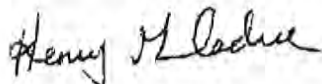
There is no question that there will be impacts on the First Nation communities located along the pipeline route and on the tanker traffic routes. Just like us, those First Nations depend on the land and waters for their survival as well as their social and cultural well-being. The risk of oil spills from this Project could cause severe impacts to the environment. We have seen this already with spills that have occurred with pipelines in other parts of Canada and the United States. Furthermore, the risk of oil spills caused by tankers which will be shipping the bitumen from Kitaamat could be enormous. The Exxon Valdez disaster in Alaska that happened a number of years ago could very well happen along the coast of British Columbia. There could be wide spread ecological disaster from an oil tanker accident.

Therefore it is imperative that there be a thorough and adequate consultation with First Nations which complies with our Constitution and the legal principles expressed in our Courts. Our Nation has taken the time and effort to develop a process for consultation which in our view meets the requirements of our Constitution and the Courts. We attach it for your information and benefit.

In closing, we trust that the Panel will carefully consider all the submissions being made by the First Nations during this process. As well, we trust that you will also carefully consider the submissions being made by all Canadians during this Hearing, whether they are individuals, groups or communities. Let us not forget that "we are all here to stay".

Yours truly,

BEAVER LAKE CREE NATION



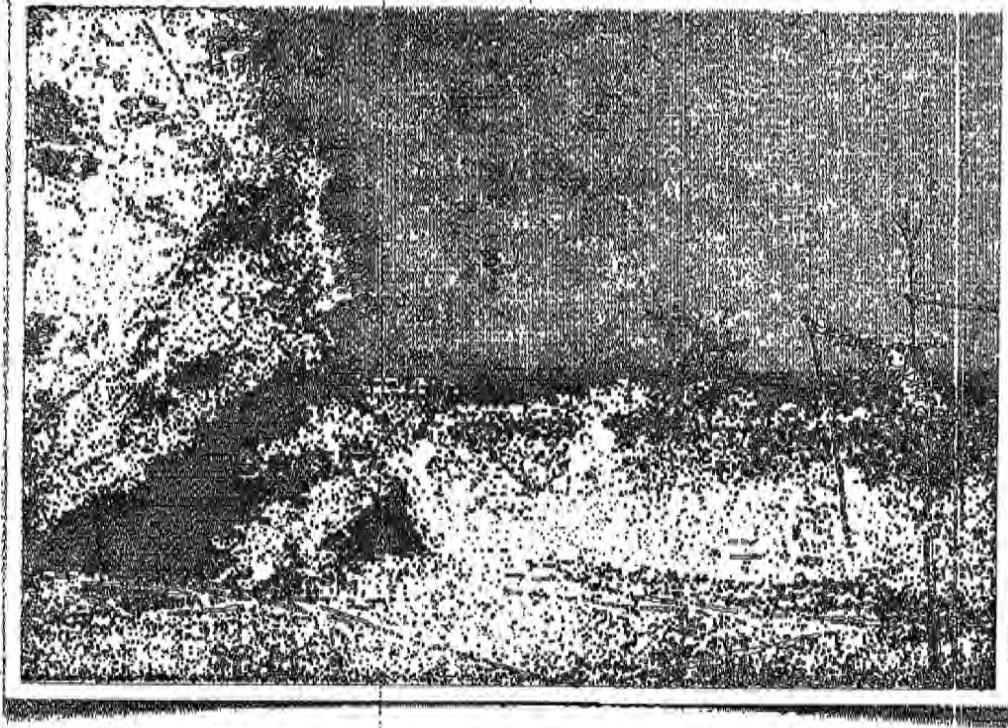
Chief Henry Gladue

Enclosure

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BEAVER LAKE
CREE NATION



Beaver Lake Cree Nation

Process for Consultation

Band Council Resolution #

Intergovernmental Affairs and Industry Relations
PO Box 2186
Lac La Biche, AB
T0A 2C0

Beaver Lake Cree Nation • telephone: 760-623-9221 • www.blcn.ca

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January 31, 2012

To whom it may concern:

On behalf of the People and Government of Beaver Lake Cree Nation (BLCN), I am communicating with you how we, as a Nation, choose to be consulted and accommodated in the social, cultural, political and economical uses and developments of our ancestral lands (the "Lands"). Our people wish to ensure that development on our Lands occurs in a responsible and coordinated manner that balances the benefits of development with the adverse impacts to our Lands and our community. We have legal rights to our Lands and a responsibility to our current and future generations to ensure our Lands will continue to sustain us long after the resource industries have left.

We, as a sovereign people, continue to live, hunt, trap, fish, gather and practice activities in sustaining all aspects of community and Self. We must ensure that our way of living continues to grow and evolve with existing and developing projects. We are not opposed to development but need to facilitate a good working relationship and have an adequate consultation process that meets legal obligations as set out in our Constitution, statutes and legislation, Treaty 6, and our Courts.

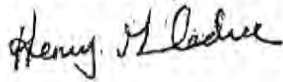
Impacting or restricting our Aboriginal and Treaty Rights will permanently, for multiple generations, preclude the intergenerational transmission of BLCN's traditional use, core knowledge and wisdom. To date, deep and meaningful consultations have not occurred on any developments within our Lands.

Our existing Aboriginal and Treaty Rights are recognized and affirmed in Section 35 of the Constitution of Canada, 1982. On May 14, 2008, we filed a Statement of Claim in the Court of Queen's Bench of Alberta against the Province of Alberta and the Government of Canada (Action No. 0803 06718) as a result of developments infringing on our existing Aboriginal and Treaty Rights. Developments which have occurred without deep and meaningful consultation have negatively impacted our Lands and cultural practices and we, as a sovereign Nation, will not tolerate this any further.

We have attempted various processes to engage in consultation with Government and Industry. Yet regulatory bodies have responded with approval of projects without adequate consultation. These processes have failed our Nation and our interests, rights and identity have consistently been disregarded. The duty to consult and accommodate is an obligation on the Government which our Nation recognizes and affirms.

We include with this letter our Principles of Consultation and Accommodation as well as a Process for Consultation. This package has been prepared after giving much time and thought after seeing our Nation's identity, Lands and rights compromised by industrial development. We ask you to review and become familiar with these documents. It is my hope that we will be able to work together in following these Principles and Process in order to ensure that development occurs after meaningful consultation and accommodation.

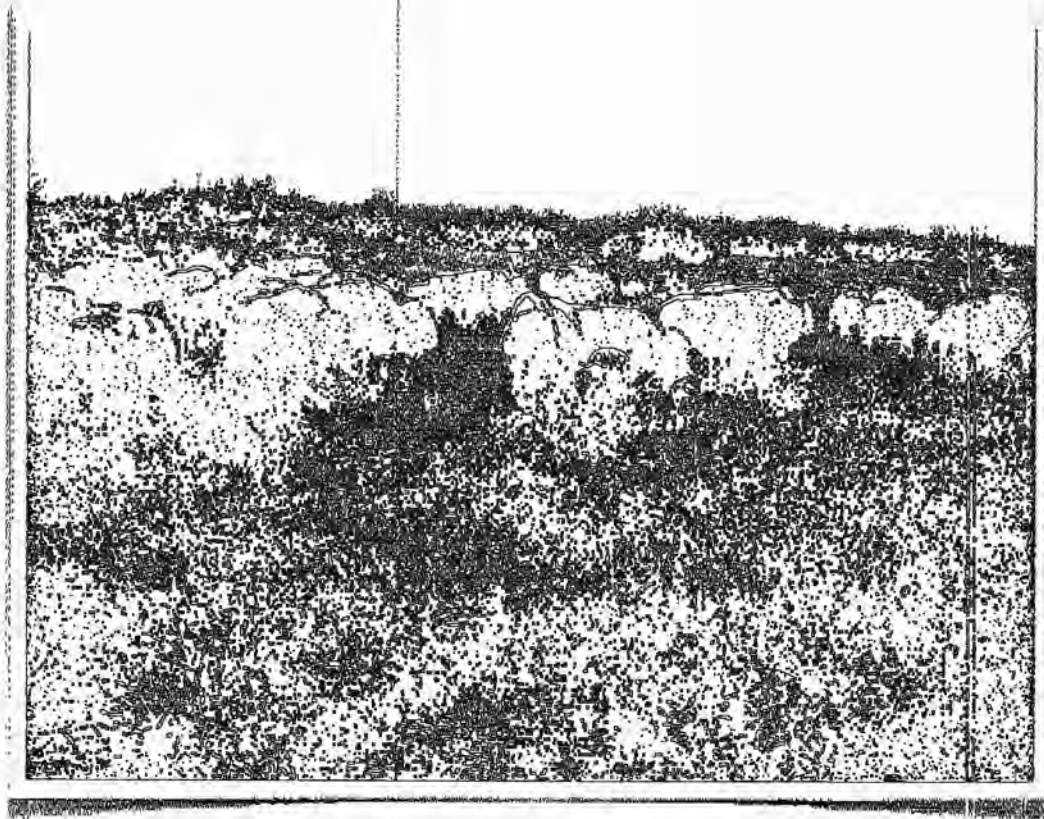
Yours truly,



Chief Henry Gladue
Beaver Lake Cree Nation

Introduction

The purpose of this package is to provide industry and government with information pertinent to how the Government of Beaver Lake chooses to be consulted for proposed development in our traditional territory. We have provided you with our Ketuskeno Declaration (2008) outlining our defined traditional territory, Section 35 (Constitutional Act, 1982) to affirm our aboriginal rights, and Treaty 6 (1876) to state our guaranteed legal right to use in our territory for our subsistence for as long as we exist. This provides you all the legal justification for our choices and decisions when consulting with industry and the Government of Canada and Alberta.



Principles of Consultation and Accommodation

The Beaver Lake Cree Nation view all industrial activities occurring in our Lands as an infringement of our rights to our Lands. We believe, however, that development can occur in a manner that balances the interests of development with the need to maintain the health of our Lands and our culture. This is the perspective from which we approach meaningful consultation and accommodation.

From this perspective flows the following principles of consultation and accommodation upon which we will rely in our discussion with Government and Industry:

1. Activities or decisions that may affect BLCN rights and interests must not proceed without full and meaningful consultation and accommodation with the BLCN.
2. The Government of BLCN consults only with the Crown of Alberta and Canada within their duty to consult. The Crown of Alberta and Canada will assign a single point of contact for each proposed project application. Industry may take the initiative as a positive step in building a relationship with BLCN, and must also assign a single point of contact for consultations.
3. BLCN must be engaged in the earliest possible stages of project planning and/or decision making, allowing adequate time for BLCN to fully and meaningfully participate in consultation and accommodation processes.
4. BLCN must be involved in scoping, prioritizing, and determining the level of engagement, consultation and accommodation required for each project and/or decision that may affect our rights or interests.
5. BLCN has a strong connection to the lakes, rivers and streams within our Lands. BLCN must be consulted prior to any activity including water withdrawal that may potentially impact wetlands, rivers, muskeg, lakes, streams, creeks and springs.
6. Cultural, ceremonial and heritage impacts on BLCN can only be determined by BLCN.
7. Processes should reflect the notion of free, prior and informed consent recognized in the United Nations Declaration of the Rights of Indigenous Peoples to which Canada is a signatory.
8. BLCN must have the capacity to consult. BLCN expects that the Government and/or Industry proponent will provide capacity funding to allow us to participate in consultation and accommodation processes.

9. Engagement in a consultation process does not mean that BLCN agrees to or supports any proposed activity or decision.
10. Consultations must be conducted with such BLCN representatives as they appoint. While all BLCN members are to be informed of the impacts to their rights, consultation cannot be conducted through individual BLCN members.
11. Accommodation discussions with Government and Industry proponents may include but not necessarily be limited to the following terms which will be expected to be included in an agreement with the Government or Industry proponent to be concluded at the end of the consultation and accommodation process:
- a. modifying or canceling a proponent's activity or decision;
 - b. undertaking conservation and mitigation measures;
 - c. limiting the level and pace of resource harvesting;
 - d. conducting joint land use planning and joint decision making;
 - e. revenue sharing/employment and business contracting opportunities/education and training;
 - f. social, environmental and cultural protection;
 - g. financial compensation for infringement;
 - h. environmental monitoring throughout all stages of the project, including ongoing monitoring during the operational stage.

Process for Consultation

Contact Information:

BLCN, Intergovernmental Affairs and Industry Relations
Email: IAIR@blcn.ca

Single point of contact: Government of Beaver Lake Cree Nation, Intergovernmental Affairs and Industry Relations (Personnel to be designated / assigned once consultation begins).

Industry introduction and Process of consultation will occur exclusively with the office of BLCN's Intergovernmental Affairs and Relations department.

Hours of Operation: Monday-Thursday, 9:00 AM – 4:00 PM. Our offices are not open Fridays, weekends or stat-holidays, January to November. Proposal packages submitted in December will be reviewed in January of the following calendar year.

Only packages received via registered mail will be accepted (faxes/emails will no longer be accepted).

The First Nation Consultation (FNC) number, and applicable regulator application number(s) must be included and there will be an initial file opening fee of \$250.00 charged per FNC number the Government Department or Industry Proponent to for initial processing service payable to: BLCN, Intergovernmental Affairs and Industry Relations Department. If this process is not adhered to, BLCN will not be in a position to process your project proposal.

Upon receipt of industry notification of proposed projects, BLCN, Intergovernmental Affairs and Industry Relations Department will respond within five (5) business days to the notification outline the next steps of how we, as a sovereign Nation, choose to be consulted thereafter.

Should the preceding processes for consultation not be adhered to, BLCN will have no alternative than for challenge or object to the proposed project as per applicable provincial and federal legislation.

*Please check for updates to BLCN's processes and procedures on our website:
www.blcn.ca

Beaver Lake Cree History

The Cree are one of the largest tribes in Canada. Their territory covers a vast area of Western Canada from the Hudson-James Bay region to the foot of the Rocky Mountains, and in Alberta between the North banks of the North Saskatchewan River to Fort Chipewyan. This includes the Beaver, Athabasca and Peace Rivers basins. It is noted in the Department of Indian Affairs Annual Reports that Pee-ay-sis of the Lac La Biche Band as far north as Great Slave Lake.

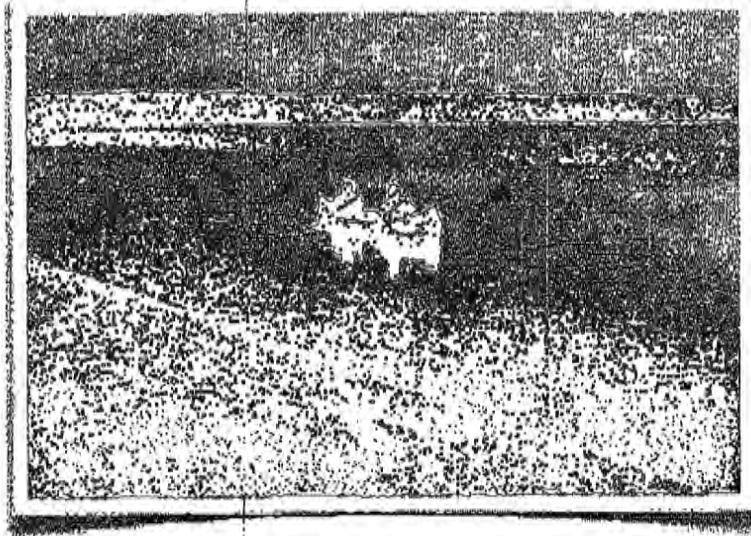


The Cree were referred to by early explorers and fur traders as Kristineaux, Kinisteneaux, Killiston, Kree, Cris, and various other names such as the Nahathaway. Alexander Mackenzie who traveled from Montreal to the Arctic Ocean via the Methy Portage provided a detailed account of the Kinisteneaux (Cree) in 1709. During his stay at Red Deer Lake (Lac La Biche) during the winter of 1789-99, David Thompson noted in his Daily Journal that he met and traded with the Nahathaway (Cree) from time to time.

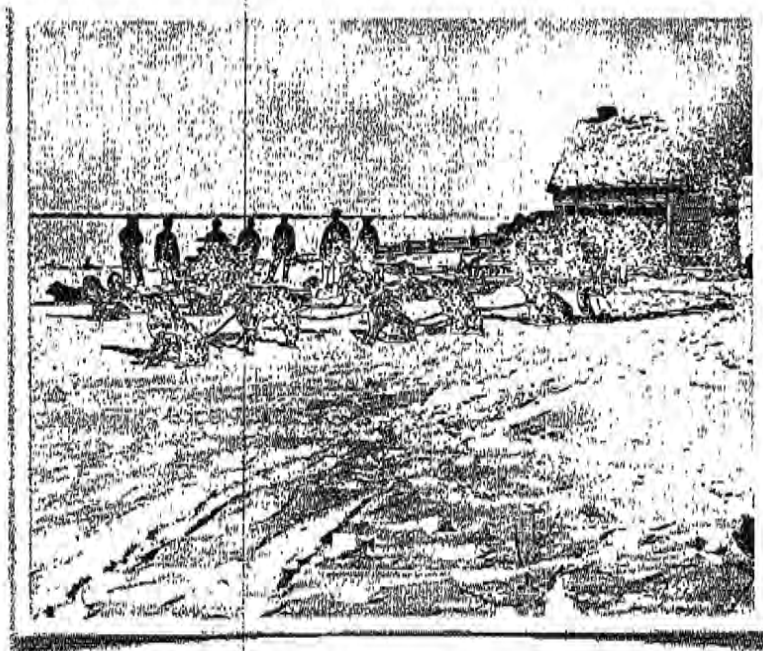
In Alberta, the Cree are divided into two main groups, the Plains Cree who live on the prairies, and the Wood Cree who live in the boreal or northern forest region.

Beaver Lake Cree Nation is a Wood Cree Band. Missionaries visited the Cree on the South shore of Beaver Lake as early as 1856. No one really knows when the Cree first arrived in the Lac La Biche region. However, it is known that the Cree expanded steadily westward from the Hudson Bay-James Bay country. There is archeological evidence in the form of pre-contact pottery which indicates that the Cree were in this region in the 1500s. A type of early Cree pottery known as leafwater Punctate, which is found regularly in the

Saskatchewan forests, was also found on Black Fox Island on Lac La Biche, and on the shores of Wappau Lake.

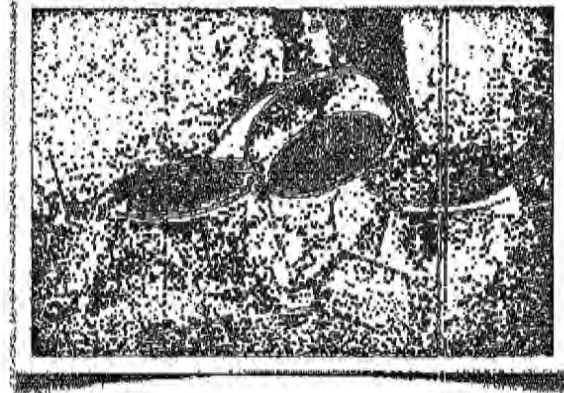


The Cree, who had good relations with the early White Fur traders, served as middlemen between the White fur traders and the interior tribes as exploration advanced westward. Buffalo was the mainstay of the Plains Cree, but Whitefish was the staff of life of the Wood Cree, who mostly resided in areas of high Whitefish availability.



Beaver Lake Cree Nation is located in the Treaty No.6 area. This treaty was first signed at Ft. Carlton on August 23, 1876. Beaver Lake Cree Nation was a signatory to the adhesion made to Treaty No.6 at Ft. Pitt on September 9, 1876. Chief Pee-Yas-See-Wah-We-Cha-Koot, also known as Pee-ay-sis, or Pee-ay-sees and Councilor, Pay-Pay-See—See-Moo signed on behalf of the Beaver Lake Band No.131.

When a number of the members of the Lac La Biche Band were discharged from the Treaty and accepted Scrip, others joined the Beaver Lake Band whose Chief at that time was Rolling Thompson, and subsequently, Kah-qua-num. The numbers involved in these occurrences appear to be uncertain.



Although it was a term of the Treaty that the Dominion Government would set apart for Reserves "farming lands...after consulting with the Indians thereof as to the locality to be most suitable for them," and that that the surveys required to establish the boundaries of the Reserves would be completed within a reasonable time, the lands for Beaver Lake Indian Reserve No.131 were not set apart until the required Order-in-Council was issued on May 31, 1911. (Saddle Lake Indian Reserve was established in 1886.) Furthermore, the population of Beaver Lake Cree Nation had declined significantly prior to 1911 as a result of epidemics and other factors. The land entitlement for Beaver Lake Cree Nation was based on the 1908 population of 105.

Prior to 1911 some of the Indian Agents made efforts to coerce the members of the Beaver Lake Band to abandon their chosen area for their Reserve on the South shore of Beaver Lake and to move to Saddle Lake. This dubious coercion was steadfastly resisted even though it meant deprivation of food and other assistance promised by the Treaty. Beaver Lake Cree Nation suffered greatly from the serious decline of fish and game in the region during the latter part of the 19th Century.

The Department of Indian Affairs suspended the treaty payment of \$5.00 per capita for the entire Band in 1885, 86 and 87 as punishment for the ransacking of the Hudson's Bay Company's Post at Lac La Biche at the instigation of Cree War Chief, Wandering Spirit.

BLCN

Process for Consultation

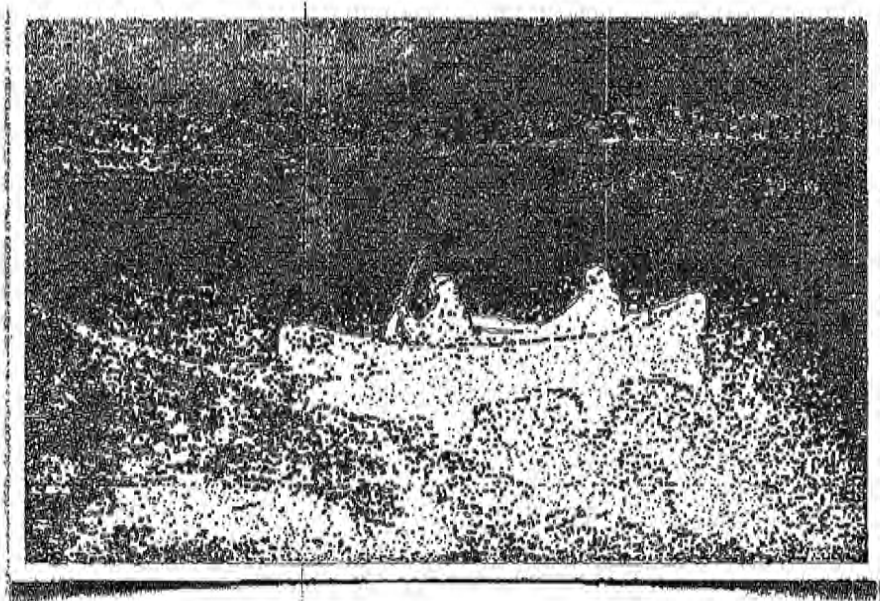
Although many members of the Beaver Lake Band converted to Christianity, the oral traditions and oral knowledge passed down from generation to generation since time immemorial were preserved. Elders and tradition keepers of Beaver Lake Cree Nation have faithfully kept stories and legends relating to places, events, spiritual matters, burials, ceremonial areas, communal gathering sites, the location of medicinal plants and berries, as well as other important cultural aspects.

The Beaver Lake Indian Reserve is located approximately 17 km. southeast of Lac La Biche and presently encompasses 6145.5 hectares (15,185 acres.) The registered membership as of March 2006 was 870, approximately 325 of whom reside on the Reserve.

The principal means of survival, namely, the traditional practices of hunting and fishing are still carried on. Band members are also actively engaged in farming, ranching, forestry, the oil and gas industry and other trades and occupations. Beaver Lake Cree Nation has taken great strides to improve the quality of life of its members. Among other things, it has its own school system, health and treatment centers, Head Start program and administration. Beaver Lake Cree Nation also maintains and operates Spruce Point Campground, and hosts an annual Pow Wow.

It works in a cooperative manner with other levels of government and industry for the betterment of its members.

Beaver Lake Cree Nation has always valued its heritage and traditional culture, which hold the hope and optimism for self determination and a strong and enduring future for today's people and tomorrow's generations.



The following page is a copy of Beaver Lake Cree Nation's Declaration, May 14, 2008.

BEAVER LAKE CREE NATION

Kéhuskénio Declaration
Nisichamowiwini ojci Kéhuskénio

Let it be known that we, the Beaver Lake Cree Nation, are the keepers of the lands that we have on the right attached, which form part of our traditional territory.

This land is our spiritual, physical and economic homeland. We keep it in honour of our ancestors and on behalf of our future generations. As long as we exist as a nation, the rivers flow and the grass grows, we can continue our traditional way of life. This is the land where we and our future generations will practice our sacred and spiritual ways and exercise our traditional rights to hunt, fish, trap and gather food and medicine, which have been part of our lives for thousands of years.

It is our right to keep our traditional documents, organizations, laws and customs from these lands.

Our responsibility is to limit our activities and our future generations can be surrendered or abandoned. We have an obligation to ensure that the lands, waters and resources within traditional territory are used sustainably and responsibly. As such, we declare that activities are in accord here that will destroy these lands, habitats and waters or their plants, fish, plants and medicine, fish, birds, and other animals within our waters.

Although our traditional way of life cannot allow any activities that would make our traditional lands, waters, and resources unrecognizable, we do not intend to restrict our traditional way of life. We respect our obligations and our traditional, constitutional and treaty rights.

We do this in honour of our ancestors and on behalf of our future generations.

Chief Albert Lamoie
Chief Omer Anderson
Chief Mike Anderson
Chief Roy Anderson

May 14, 2008

Caribou Case

Expert report on woodland caribou [*Rangifer tarandus caribou*] in the
Traditional Territory of the Beaver Lake Cree Nation

July 5, 2010

Dr. Stan Boutin PhD, FRSC

Acronyms

ACC – Alberta Caribou Committee

ALT – Athabasca Landscape Team

ASRD – Alberta Sustainable Resource Development

CLAWR – Cold Lake Air Weapons Range

COSEWIC – Committee on the Status of Endangered Wildlife in Canada. URL: <http://www.cosewic.gc.ca> [Updated April 2006].

EC – Environment Canada

ESAR – East Side of Athabasca River

RE – Red Earth

SARA – Species at Risk Act, Statutes of Canada 2002, chapter 29

TT – Beaver Lake Cree Nation's Traditional Territory in Alberta, as taken from the map included in Figure 1 of this report

WSAR – West Side of the Athabasca River

Definitions

Critical Habitat: The resources and conditions required for persistence of local populations of boreal caribou throughout their current distribution in Canada. The quantity, quality and spatial configuration of resources and conditions may be influenced by both natural and human-induced conditions (from EC 2008).

Ecotypes: forms of a given species with characteristic adaptations.

Habitat: The suite of resources (food, shelter) and environmental conditions (abiotic variables such as temperature and biotic variables such as competitors and predators) that determine the presence, survival and reproduction of a population (Caughley and Gunn 1996). (from EC 2008).

Home range: The area covered by an individual during its reproductive life-time.

Local Population: A group of caribou occupying a defined area that can be distinguished spatially from areas occupied by other groups of caribou. Local populations experience limited exchange of individuals with other groups, such that population dynamics are

driven by local factors affecting birth and death rates, rather than immigration or emigration among groups (from EC 2008).

Lambda: Population growth expressed as population recruitment/survival expressed on a yearly basis. Values <1 signify the population has decreased from one year to the next while values >1 signify population increase. Details of calculations can be found in Appendix 1.

Range: A geographic area occupied by individuals of a local population that are subjected to the same influences affecting vital rates over a defined time frame (see Appendix 4.2: Delineating Units of Analysis for Boreal Caribou Critical Habitat Identification, EC 2008).

Realized Population Growth: Changes in population size determined by multiplying year lambda values together. Details of calculations can be found in Appendix 1.

Assumptions

I have assumed that the Traditional Territory of the Beaver Lake Cree Nation in Alberta is the area set out in the map included in Figure 1 of this report (I do not render any opinion about whether this map accurately reflects the Beaver Lake Cree Nation's Traditional Territory in Alberta).

Author's statement

The opinions in this report are my own. While some portions of the report involving GIS mapping and data summaries (Appendix 3) were prepared by others under my supervision, I am responsible for the entire contents of the report as the sole author.

I certify that I am aware of my duty as an expert witness to assist the court and not be an advocate for any party. I further certify that I have made this report in conformity with this duty and will, if called on to give oral or written testimony, give that testimony in conformity with this duty.

Dr. Stan Boutin PhD, FRSC

Summary

Caribou inhabiting the TT are classified as the boreal ecotype of the woodland subspecies (*Rangifer tarandus caribou*). All woodland caribou in Alberta have been designated as Threatened by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC 2007), and also listed as Threatened under Canada's Species at Risk Act (SARA). Under the Government of Alberta general wildlife status process, woodland caribou have been determined to be an At Risk species in the province (Alberta Sustainable Resource Development 2007). The provincial wildlife status review process resulted in woodland caribou receiving legal status as a Threatened species under Alberta's Wildlife Act in 2001.

Woodland caribou in the TT are estimated to number between 175 and 275. This is down 10-fold from historical numbers. Recent systematic monitoring indicates that numbers have been declining. The ESAR herd has declined by 71% since 1996 while the CLAWR has declined 74% since 1998. This level of decline is dramatic and it is a strong signal that drastic immediate management action is required to keep caribou from disappearing completely in the TT. If current rates of decline continue, this population will drop below 50 individuals (the number of individuals below which small populations are vulnerable to extinction events and at extreme risk of extirpation) by 2025-2030. The current rate of population decline is likely to increase over the next decade if human-caused habitat change continues to increase, further reducing the time to extirpation.

The ultimate cause of the decline is human-caused changes in vegetation and the creation of linear features such as seismic lines, pipelines, and roads. These changes can result in physical loss of habitat, avoidance of areas by woodland caribou, and increased caribou mortality as a result of population increases of moose and deer and wolves. The primary changes that have occurred in the TT on or near caribou range include agricultural development to the south of caribou range, forest harvesting (107,998 ha cut or 2.8% of the range in TT), energy sector development (34,773 wells, 66,489 km of seismic lines, 11,591 km of pipelines), and 12,283 km of roads associated with this activity. Given that the creation of linear features due to energy sector development is the most prominent human-caused habitat change in caribou range in the TT, it is likely that these changes are the primary contributor to the declines in caribou seen in the TT. Extensive oil and gas deposits underlie most caribou ranges in Alberta and very high levels of petroleum and natural gas exploration and development have taken place on most of Alberta's caribou ranges including the caribou range within the TT. The majority of the well sites, seismic lines, and pipelines created by the energy sector remain in place on-caribou range because of continued industrial use, slow forest regeneration, and/or high levels of recreational vehicle use. All of these human-caused changes have decreased the quality and quantity of caribou habitat in the TT by reducing lichen cover, enhancing habitat for moose and deer which has led to increased numbers of predators, and increasing access to caribou habitat by predators. There are 20,005 km of linear features on caribou range in the TT. Caribou are known to avoid habitat within 250m of these features. If all linear features are buffered within caribou

range in the TT, 51% of CLAWR and 66% of ESAR caribou ranges in the TT would be functionally lost.

There is clear evidence that the human-caused changes in vegetation on caribou range in the TT are well above any threshold that could support viable caribou populations. Population declines in recent years have been drastic and recovery of caribou in the TT requires immediate action involving restoration of linear features, well sites, and cut blocks to natural vegetation, no further habitat change caused by human land use (full protection of caribou range), and caribou mortality management. It is clear that the history of planning and mitigation of activities at local project scales has not worked to protect caribou. The cumulative effects of many individual projects have led to total industrial activity exceeding the levels that can support viable caribou herds in the TT and surrounding area.

The information necessary to act to conserve caribou has been available for the past 3-5 years but there has been no action undertaken on the ground to date. The identification of critical habitat and development of a recovery strategy are fundamental steps in the conservation of any species, including caribou (see also the Federal SARA). No National Recovery Strategy has been produced for caribou, partially due to a purported claim that Critical Habitat has not yet been identified (EC 2008). In my opinion, the scientific information provided in EC (2008) was fully adequate to identify caribou Critical Habitat. This opinion was also held by the Scientific Advisory Group (of which I was a member) involved in drafting of the document. Any delays in the implementation of conservation actions for caribou greatly increase the risk of failure (ALT 2009). Given the rapid rates of decline that are now well-documented for the herds in the TT, the number of animals left is fast approaching levels where management actions are less and less likely to be effective. It is my opinion that caribou will be extirpated from the TT, most of northeastern Alberta, and in many other parts of Canada if the conservation actions outlined in this report are not implemented immediately.

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Woodland caribou in the TT

All woodland caribou in Alberta belong to either the nationally defined Boreal or Southern Mountain populations, both of which have been designated as Threatened by the COSEWIC (COSEWIC 2007), and also listed as Threatened under Canada's Species at Risk Act (SARA).

Under the Government of Alberta general wildlife status process, woodland caribou have been determined to be an At Risk species in the province (Alberta Sustainable Resource Development 2007). The provincial wildlife status review process resulted in woodland caribou receiving legal status as a Threatened species under Alberta's Wildlife Act in 2001.

Ecotypes (forms of a given species with characteristic adaptations) are frequently used in the description of caribou (Edmonds 1991, Thomas and Gray 2002). Woodland caribou that live year-round in forested habitat are of the boreal ecotype.

Caribou inhabiting the TT are classified as the boreal ecotype of the woodland subspecies (*Rangifer tarandus caribou*). Throughout this document this ecotype will simply be referred to as "caribou".

General habitat needs

The basic habitat of caribou must provide adequate food and protection from predation. Lichen is the major winter food source and it is considered to be the food most influential to caribou habitat delineation. Caribou require large tracts of low productivity mature to old coniferous forests or forested peatlands that contain lichens. These tracts must be large (caribou herd ranges are 3,000-18,000 km² and individual caribou home ranges are 700 km²) and there must be relatively low productivity of ground vegetation (shrubs, herbs, and grasses) to prevent their use by other ungulate species such as moose and white-tailed deer. The latter is important because abundant deer and moose support higher numbers of wolves. High wolf densities make areas uninhabitable for caribou because predator-caused mortality becomes too high. The current suggested threshold for wolf densities is 6.5 wolves/1000 km² with wolf densities above this target meaning that caribou populations will decline because caribou productivity cannot match the mortality rates caused by predators (Bergerud and Elliot 1986).

There are three recent comprehensive reviews of caribou habitat requirements and all have produced similar conclusions to the above. The most thorough review can be found in EC (2008) which states:

In general, suitable boreal caribou habitat is characterized by large tracts of mature to old conifer forests with abundant lichens, or peatlands intermixed with uplands dominated by mature to old conifers (Darby and Pruitt 1984; Brown et al. 1986;

Bradshaw et al. 1995; Stuart-Smith et al. 1997; Rettie and Messier 2000; Courtois 2003). However, there is variability among regions in vegetation types used.

Boreal caribou have distinct habitat requirements at different spatial and temporal scales (Rettie and Messier 2000, Johnson et al. 2001, O'Brien and Manseau 2003)...Coarser scales encompass large areas (e.g. ranges) and broad time frames (e.g. seasons, years and decades), whereas finer scales cover small areas (e.g. forest stands or habitat patches) and narrow time frames (e.g. hours and days). Boreal caribou [appear to] collect habitat to avoid predation at coarser scales (Bergerud 1988; Johnson et al. 2001) and then select habitat to meet forage requirements at finer scales (Schaefer and Pruitt 1991; Rettie and Messier 2000).

At coarser scales, boreal caribou local populations require large range areas that contain sufficient suitable habitat and reduce predation by allowing caribou to avoid areas of high predation risk (Rettie and Messier 2001; Brown et al. 2003). At finer scales, boreal caribou select individual habitat patches (within ranges) that provide food, particularly ground and tree lichens during late winter and early spring, and they avoid early stage seral forests and recently disturbed areas (Schaefer and Pruitt 1991; Stuart-Smith et al. 1997; Rettie and Messier 2000). Although forest fire destroys lichens and other vegetation in the short term, it is an important factor in regenerating caribou forage over long time scales (Dunford 2003)....

In general, boreal caribou require habitats that provide necessary functional attributes (the conditions and resources which provide for all of their life requirements), including physiological health, dispersal of cows during calving and post-calving periods, and refuge from predation.

EC (2008) defined woodland caribou critical habitat as: "the resources and environmental conditions required for persistence of local populations of woodland caribou throughout their current distribution in Canada", and added:

local population range is the relevant spatial scale for identification of critical habitat conditions that includes the habitat conditions (quantity, quality, spatial configuration) required for caribou.

Similar statements can be found in ALT (2009) and in ASRD (2010). For example, ASRD (2010) states that:

Woodland caribou require large tracts of relatively low-productivity mature to old coniferous forests and forested peat lands, which contain lichens, the primary winter food source for caribou. Under natural conditions, the forests used by woodland caribou typically contain relatively few other ungulates and as a result contain few

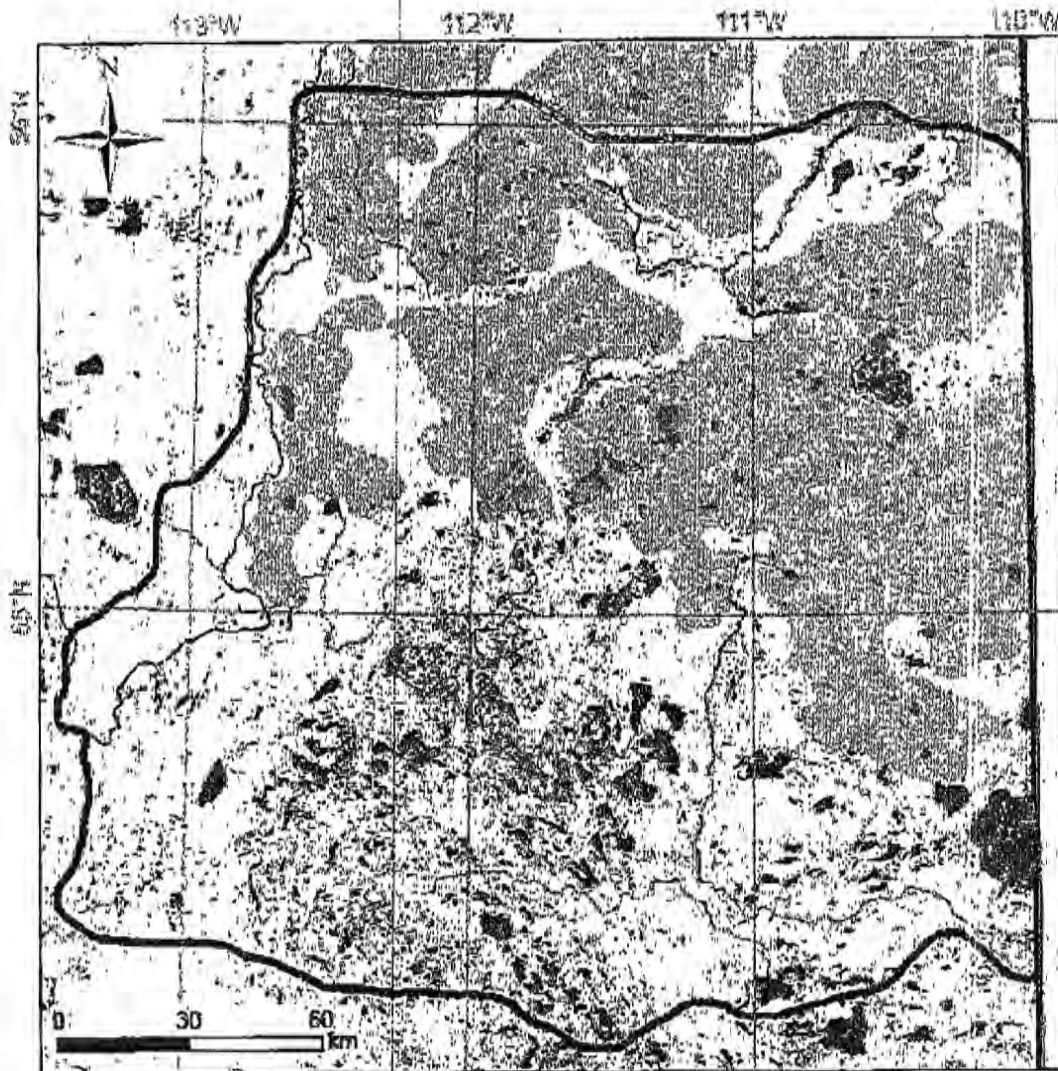
wolves; predation by wolves is the primary cause of woodland caribou death. Through their adaptation to these types of habitats, under natural conditions woodland caribou are able to spatially separate themselves from other prey species and thereby reduce the risk of predation by wolves.

Although the proximate cause of caribou mortality has always likely been predation, under historical conditions, predator-caused mortality was sufficiently low to allow cows to produce enough calves that survived to adulthood to allow for replacement of adults, thus leading to stable populations.

There have been no published studies of habitat use by caribou occupying the TT but there have been numerous studies on adjacent herds (WSAR and RE). These include Bradshaw et al. 1995, Stuart-Smith et al. 1997, Anderson 1999, James et al. 2004, Dunford et al. 2006, Latham 2009). These studies were conducted in areas that have very similar conditions to those found in the TT and they reinforce the general finding that caribou are found in mature to old conifer or forested peatlands and they avoid shrub-rich habitats (often termed uplands in the woodland caribou literature) that support higher densities of moose and deer.

Caribou habitat and ranges in the TT

The TT contains important caribou habitat as delineated by Provincial Government caribou range maps (Fig. 1, boundaries provided by ASRD staff 19 January, 2010). As outlined in EC (2008), the herd range is the accepted unit of analysis for caribou population viability and conservation.







-  Beaver Lake Cree Nation's Traditional Territory in Alberta
-  Major rivers and lakes
-  CLAWR caribou range
-  ESAR caribou range



Figure 1. Caribou ranges within the Beaver Lake Cree Nation's Traditional Territory in Alberta (boundaries of Traditional Territory are taken from Schedule 1 to the Amended Statement of Claim, filed 23 October 2009, for Alberta Court of Queen's Bench Action No. 0803 06718). Caribou range boundaries provided by ASRD staff 19 January 2010.

Two (ESAR, CLAWR) of the 12 designated boreal ecotype woodland caribou herds in Alberta have 52% and 100% respectively, of their current ranges within the TT. ESAR extends north of the TT while the northern CLAWR boundary is jurisdictional (Federal Cold Lake Air Weapons Range) rather than biological and there is likely exchange of animals between the ESAR and CLAWR herds. Both ESAR and CLAWR are bounded on the east by the Alberta-Saskatchewan border and there is likely exchange of animals across this border.

The range occurring within the TT represents 11% of the total boreal caribou range in the Province (13,294 of 115,608 km²). The caribou range within the TT is important because it supports a significant proportion of the estimated total number of boreal caribou in Alberta (8-10% of the roughly 2265-2725 caribou thought to be currently present in the Province (ASRD 2010)); it comprises the southeastern boundary of caribou range in the province, and if compromised, would greatly increase the risk of extinction for the ESAR and CLAWR herds.

The current ESAR and CLAWR boundaries are based on caribou habitat (as defined above), telemetry locations of radio-collared animals, and sightings of caribou. These boundaries represent the best estimates by Provincial Government biologists and are those accepted by federal agencies and caribou researchers. The exact range boundaries are regularly updated as new information is obtained. Historical ranges are more difficult to determine, but Thomas and Gray (1992) show the historical southern distribution of caribou to be well south of their current distribution. There is widespread agreement that the southern distribution of caribou has moved northward in the last 30-50 years. Hummel and Ray (2008) suggest that as much as 60% of historical woodland caribou range in Alberta has disappeared. ASRD (2010) states:

The current distribution of woodland caribou in Alberta has declined relative to its historical distribution. Although a detailed description of historical caribou distribution in northern Alberta is not available, Soper (1964) described the former range of woodland caribou in the northern part of the province as the "whole of northern Alberta south to the lower limits of mixed-wood forest (approximately Cold Lake; Lac la Biche; Barrhead) and south in comparable, western environment to about the latitude of Sundre; now absent in the major part of that region.

Although one cannot be certain of the exact amount of range contraction, I support the conclusion that caribou range contraction has taken place in the TT.

Changes in habitat condition in recent times

Quoting from ASRD (2010):

Habitat change as a result of human activities can result in both physical loss of habitat and avoidance of areas by woodland caribou (e.g., Smith et al. 2000, Dyer et al. 2001, Oberg 2002). It can also cause increased caribou mortality as a result of population increases in other ungulate prey species and wolves (Bowman et al. 2010), and increased predator travel efficiency and hunting success (James 1999, James and Stuart-Smith 2000). The primary anthropogenic disturbances to woodland caribou habitat in Alberta are due to oil and gas exploration and development, forest harvesting, peat mining, agricultural development, and the development of linear features (e.g., roads, pipelines, seismic lines) associated with these activities.

Based on the above and similar conclusions in EC (2008) and ALT (2009), I conclude that the quality of the ESAR and CLAWR caribou range in and around the TT has declined relative to historical conditions. Any human-caused vegetation change which is favourable for moose or deer is detrimental to caribou. The primary changes that have occurred in the TT on or near caribou range include:

- 1) agricultural development to the south of caribou range
- 2) forest harvesting (107,998 ha cut or 2.8% of the range in TT)
- 3) energy sector development (34,773 wells, 66,489 km of seismic lines, 11,591 km of pipelines), and
- 4) 12,283 km of roads associated with this activity.

Data sources for these figures can be found in Appendix 3. All of these changes have decreased the quality and quantity of caribou habitat in the TT by reducing lichen cover and enhancing habitat for moose and deer which has led to increased predator densities. These habitat changes are the root cause of a proximate increase in predation risk to caribou. Each of these aspects will be discussed in detail when limiting factors are considered.

Historical and current caribou densities

Most density estimates of boreal woodland caribou are considered "best guesses" because methods to count caribou accurately are unproven and costly. Estimates from ASRD (2010) include values of 150-250 for ESAR and 100-150 for CLAWR. Given that all of the CLAWR and roughly half of the ESAR are in the TT, the current estimate of caribou within the TT is 175-275 animals.

Historical estimates of population size do not exist but estimates based on a range capacity of 3.3 caribou per 100 km² (Thomas and Gray 1992, ALT 2009) would put the potential number of caribou in the TT at 1286 animals, roughly 10 times higher than current values. The difference between current and historic numbers of caribou in the TT is likely to be greater than outlined above, given that the actual area occupied by caribou in the TT has shrunk relative to historical conditions.

Population trend and risk of extirpation

Although it is not possible to get accurate estimates of population size it is possible to measure population trend (lambda and realized population growth) through systematic monitoring. Details of the methods employed can be found in Appendix 1. In general, the technique involves assessing adult female survival through the use of radio telemetry and measuring calf recruitment through the ratio of calves per cow as obtained through aerial surveys in February-March. This methodology has been used for the ESAR herd since 1996 and for the CLAWR herd since 1998. Adult survival and calf recruitment are combined to determine the finite rate of increase (termed lambda). A lambda of 1 means the population is stable from one year to the next whereas <1 means the population is declining and >1 means the population is increasing. When yearly estimates of lambda are multiplied together one can calculate the realized population change (Fig 2a,b). By these calculations the ESAR herd has declined by 71% since 1996 while the CLAWR has declined 74% since 1998. Given the sample data used in the calculation, it is possible that the population declines could be as low as 50% or as high as 90%. Although there is uncertainty around the exact rate of population decline given the available data, there is high certainty that both the ESAR and CLAWR herds have declined since detailed monitoring began in 1996 and 1998. This level of decline is dramatic and it is a strong signal that drastic immediate management action is required to keep caribou from disappearing completely in the TT.

Figure. 2a.

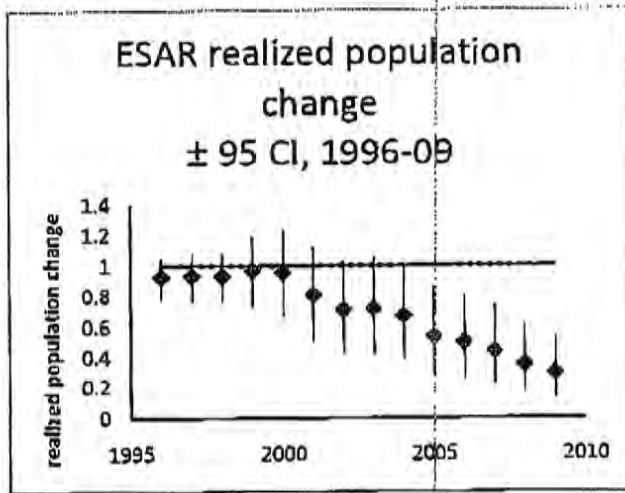


Figure 2b.

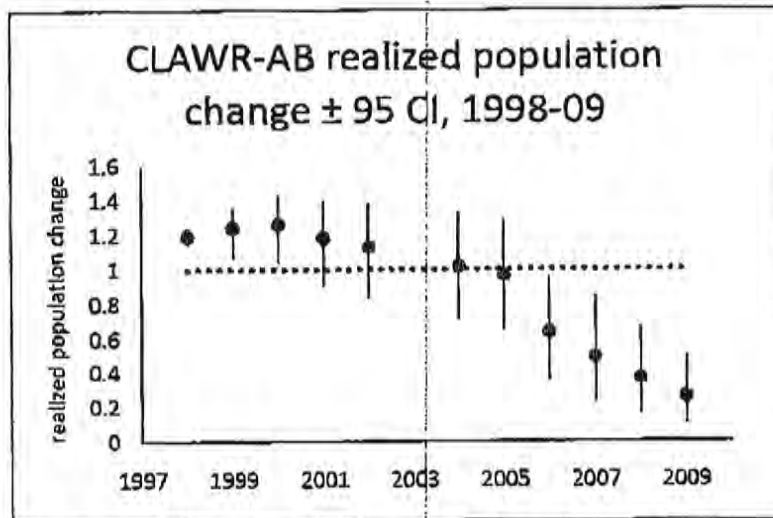


Figure 2. Realized population change for ESAR (a) and CLAWR (b). See Appendix 1 for methods and definitions.

Caribou herds immediately adjacent to the TT show similar population trends. WSAR, directly west of the TT has declined by 66% since 1996 levels while RE (northwest of TT) has declined by 74% from 1995 levels. The Richardson herd, located north of the TT, is considered stable at present but monitoring has been done for the past 3 years only.

It is difficult to determine the actual time to extinction for a population because small populations (<50 individuals) are subject to potential rapid extinction due to chance events. As a guideline for calculating when populations are at high risk of extinction EC (2008) states:

Therefore, the population assessment component of critical habitat identification recognizes that very small populations (<50) are vulnerable to stochastic events and phenomena, resulting in an especially low probability of persistence, whereas local populations of >50 but <300 caribou are less vulnerable but still face risks, and populations greater than 300 can persist indefinitely when range conditions support average adult female and calf survival.

Two independent assessments of the risk of extirpation for the caribou in ESAR and CLAWR (EC 2008, ALT 2009) rated these herds as having a high risk of extirpation in the absence of management intervention; I support these assessments. If the populations in the TT were to continue to decline at the rates seen since systematic monitoring began and current population size is taken as 175-275 individuals, the population would reach 50 individuals by 2025-30 and 10 individuals by 2041-46. The current rate of population decline is likely to increase over the next decade if human-caused habitat change continues to increase, further reducing the time to extirpation.

Causes of population decline

Early studies suggested that the direct loss of habitat could be a major limiting factor for caribou populations (Edwards 1954, Bloomfield 1980), but Bergerud (1974) proposed that it was not the loss or alteration of habitat that caused the decline and range recession of caribou in many areas of North America, but rather the secondary effects associated with increased predation. This latter view is now embodied in the concept that human-caused habitat changes ultimately affect caribou populations by affecting habitat use, movements and the abundance of predators and alternate prey. This results in increased predation on caribou which becomes the proximate factor for declining caribou populations in the presence of industrial activity (McLoughlin et al. 2003, Bowman et al. 2010). I strongly support this view, as do many other scientists (EC 2008, ALT 2009, ASRD 2010, Festa-Bianchet et al. 2010).

Human-caused habitat change can affect the vulnerability of caribou to predation in the following ways:

- 1) by altering vegetation through agriculture, forest cutting, and the creation of well-sites and linear features leading to an increase in the density of other prey species which in turn, increases wolf density

- 2) by creating linear features (seismic lines, pipelines, roads) that increase hunting efficiency and penetration by wolves into caribou range, and
- 3) by both of the above, leading to a reduction in large, intact patches of habitat where caribou can space themselves out and away from other ungulates and wolves.

Predation (primarily by wolves) is the main proximate limiting factor for woodland caribou throughout Alberta and Canada (Bergerud 1974, 1988, 1992, Bergerud and Elliot 1986, Rettie and Messier 1998, Schaefer et al. 1999, Thomas and Gray 2002, McLoughlin et al. 2003, Wittmer et al. 2005a, 2005b, Courtois et al. 2007, Festa-Bianchet et al. 2010). Woodland caribou that are able to spatially separate themselves from other ungulates and wolves are less susceptible to predation (Bergerud and Page 1987, Seip 1992, James et al. 2004, Latham 2009). Boreal caribou normally exist at low densities in very large range areas that contain lower densities of alternate prey and hence lower densities of predators. Boreal caribou in and around the TT select fen/bog complexes whereas moose, deer and wolves select well-drained habitat, resulting in spatial separation (James et al. 2004, Latham 2009). In winter, predation pressure and risk were found to be higher in well-drained upland habitat than in fen/bog complexes in the WSAR (McLoughlin et al. 2005, James et al. 2004).

Small changes in predation pressure can trigger caribou population declines (e.g., Wittmer et al. 2005b, 2007) and the availability of other prey species means that wolves have the potential to extirpate caribou herds because there is no negative feedback effect on their own populations (i.e., apparent competition; Edmonds 1988, Holt and Lawton 1994, Messier 1994, Cumming et al. 1996, Rettie and Messier 2000, Mech and Boitani 2003, James et al. 2004, Wittmer et al. 2005b, Hebblewhite et al. 2007).

If wolves reach a density of >6.5 wolves/1000 km², caribou populations are expected to decline (Bergerud and Elliot 1986). Recent surveys suggest that the wolf density estimates are now 10-11/1000 km² in the ESAR and CLAWR (Latham 2009, ALT 2009). I will now address the potential effects of the human activities that are the ultimate cause of changes in caribou numbers in the TT.

Agriculture

The amount of agriculture in the TT is 7891.66 km² which is roughly 20% of the TT (based on the 2001 Agricultural census of Alberta). Forested areas near agriculture can be highly productive deer and moose habitat because wolf numbers are reduced in agricultural areas (predator refuge) and food supply is abundant (ALT 2009). These productive populations, in turn, increase populations in adjacent habitat which leads to higher wolf densities. Aerial surveys of moose and deer by Provincial Government personnel in Wildlife Management Units in the TT that contain agriculture suggest relatively high moose and deer densities (up to 36 moose and 203 deer per 100km², ALT 2009). Although wolf densities have

not been measured in these areas it is likely that their densities are also high and this could increase predation pressure on caribou in adjacent caribou range.

Forest cutting

Habitat created following forest cutting tends to favour moose and deer and this effect can last up to 30 years (Rempel et al. 1997, Festa-Bianchet et al. 2010). Timber harvesting in black spruce/larch forests (caribou habitat) is generally not currently cost effective in Alberta. However, as with agriculture, cutting adjacent to or in uplands within peatlands, can increase moose, deer, and wolf densities. Although the magnitude of change will vary among caribou ranges, there is a strong theoretical and empirical basis for the relationship between timber harvesting in or near caribou range and its subsequent effects on predator-caribou dynamics (e.g. Seip 1992, Messier 1994, Cumming et al. 1996, James 1999, Vors et al. 2007, Bowman et al. 2010). In Ontario, Schaefer (2003) hypothesized that the northward recession of caribou was driven by the northward advancement of timber harvesting. This was supported by Vors et al. (2007), who determined that the probability of caribou persistence was negatively related to the presence of timber harvesting and Smith et al. (2000) found that caribou avoided cutblocks for up to 1 km away in west central Alberta.

The amount of forest cut in the last 30 years in the TT is 1080 km² which is roughly 3% of the TT. This is a relatively small change suggesting that forest harvesting has played a small role to date in the caribou population decline in the TT. Forest harvesting also creates roads, and this potentially negative effect will be addressed below.

Energy sector activities

Extensive oil and gas deposits underlie most caribou ranges in Alberta and very high levels of petroleum and natural gas exploration and development have taken place on most of Alberta's caribou ranges including the caribou range within the TT. The majority of the well sites, seismic lines, and pipelines created by the energy sector remain in place on caribou range because of continued industrial use, slow forest regeneration, and/or high levels of recreational vehicle use (Lee and Boutin 2006). Linear features may affect caribou populations by altering the movements and distribution of both predators and prey, and by providing easier access for predators to travel into caribou habitats and prey on caribou (James and Stuart-Smith 2000). Wolves have been found to occur closer to linear features than expected by chance and to use linear features as travel routes (Musiani et al. 1998, James 1999, James and Stuart-Smith 2000, Whittington et al. 2005, Neufeld 2006). These features may give wolves greater access into caribou range, especially to areas that weren't previously accessible. It also means that linear features are associated with high predation risk for caribou as a result of increased wolf-caribou encounters. James and Stuart-Smith (2000) found that caribou killed by wolves were closer to linear features than

were locations of live caribou. Furthermore, wolf use of lines is associated with faster travel (James 1999), which could lead to increased wolf hunting efficiency and kill rates.

Boreal caribou in Alberta have also been documented to avoid roads, pipelines, seismic lines, and well sites. Caribou avoidance distances depend on season, and the type and age of the disturbance, but range from 0.1 to 1.2 km (Smith et al. 2000, Dyer et al. 2001, Oberg 2001). Dyer et al. (2002) determined that seismic lines were not barriers to caribou movements while roads with moderate vehicle traffic acted as semi-permeable barriers.

In the case of energy sector activities, functional habitat loss (as a result of caribou avoidance behaviours) is estimated to be much greater than direct habitat loss. For example, Dyer et al. (2001) estimated that during late winter in the WSAR, 1% of habitat was directly lost to anthropogenic disturbance (predominantly seismic lines) and 48% was functionally lost as a result of avoidance behaviour by caribou. This major increase in functional habitat loss arises when avoidance buffers are applied to each linear feature. Dyer et al. (2001) used a 250m buffer (caribou avoided habitat within 250m of a linear feature) and as a consequence, linear features that were only 5-8 m wide become 500m wide (see Fig. 3 for an example). The total km of linear features (seismic, pipelines) on caribou range in the TT is 20,005 km. If the 250m buffer suggested by Dyer et al. (2001) is implemented, 51% of CLAWR and 66% of ESAR in the TT would be functionally lost to caribou.

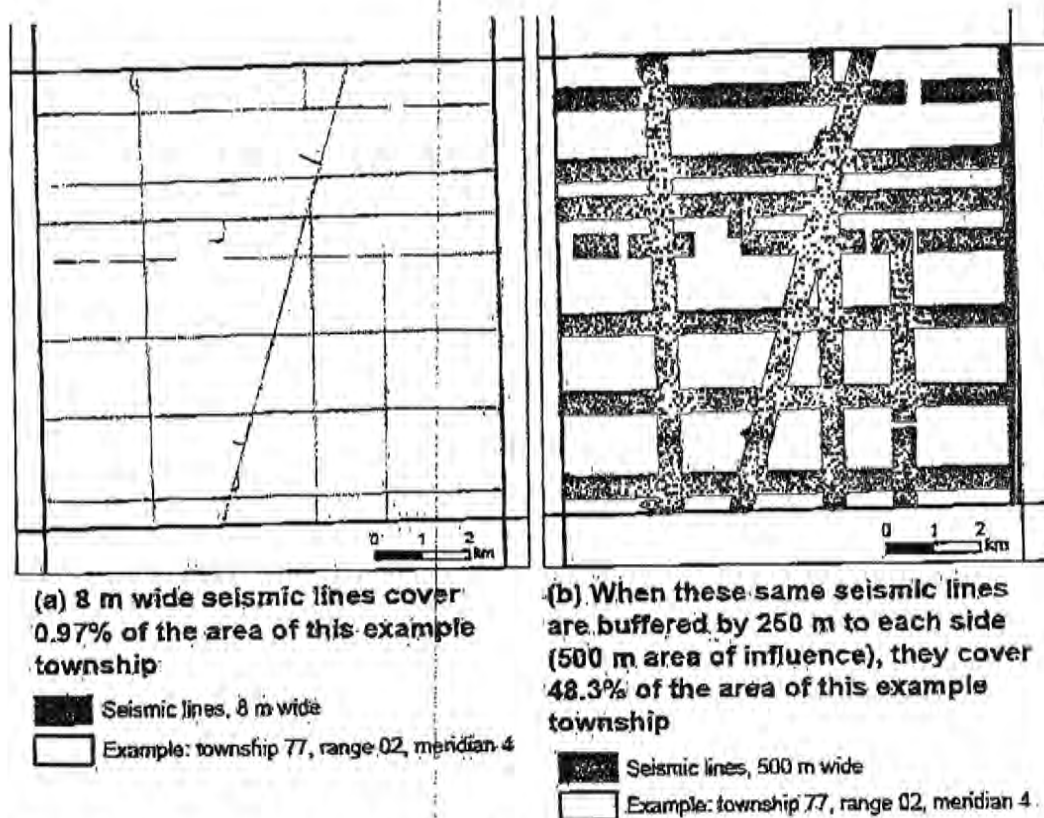


Figure 3. An example of how buffering of linear features can have large effects on the proportion of habitat affected.

The consequence of direct and indirect habitat loss is that caribou have less available habitat to space themselves away from other prey species and wolves, possibly resulting in effective increases in caribou density and predictability of distribution, and contributing to population declines because of increased susceptibility to predation. Compression of caribou populations into higher densities (e.g., Nellemann and Cameron 1998, Vistnes and Nellemann 2001, Nellemann et al. 2001) may make individual caribou easier for wolves to find (Smith et al. 2000, Dyer et al. 2001, 2002, Kuzyk et al. 2004). Studies to date for boreal caribou in northern Alberta have failed to demonstrate decreased home range size in response to anthropogenic disturbance (Tracz 2005, Tracz et al., in prep.; also see Dale-urum et al. 2007).

Although the majority of pipelines are buried, some above-ground pipelines are constructed when Steam Assisted Gravity Drainage (SAGD) is the mode of oil extraction. Above-ground pipelines tend to be <0.8 m above ground and such lines act as barriers to caribou movement (Dunn and Quinn 2009). There is some scientific evidence that caribou will cross under pipelines >2.0 m above ground and above-ground pipeline crossings are also constructed at variable intervals as a mitigation technique. Although there are records

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(photographs) of caribou using these crossings, there is no evidence to indicate that such structures fully mitigate the barrier effect of above-ground pipelines. At present there are relatively few above-ground pipelines (< 50 km) in the TT but this amount will grow as SAGD extraction systems develop.

Sensory disturbance (e.g., noise and activity associated with industrial or recreational activities) may affect caribou by increased energetic expenditure and/or habitat avoidance. Caribou in northern Alberta that were exposed to simulated elements of seismic activity showed higher mean movement rates and linear displacement relative to control animals, but feeding patterns were not affected by the disturbance (Bradshaw et al. 1997, Bradshaw et al. 1998). Caribou behavioural responses (displacement/avoidance) have been demonstrated in oilfields in Alaska (Dau and Cameron 1986, Murphy and Curatolo 1987, Nellemann and Cameron 1996) but not in Alberta. Sensory disturbance is likely to have a much smaller effect on caribou survival and productivity compared to the effects of predation.

The number of well sites within caribou range in the TT is 11,111 with each well site being roughly 1 ha in size. Well sites represent a loss of habitat for caribou in winter because these sites would have no lichen present. In addition, Dyer et al. (2001) reported functional habitat loss around well sites (250m radius).

Roads

Although roads were found to act as semi-permeable barriers to caribou (Dyer et al. 2002) and they can lead to mortality through collisions, the greatest effect is likely to occur through the increased access they create for hunters. Licensed harvest of caribou has not been allowed in Alberta since 1981 but hunting by First Nations can still occur. Available data for some boreal ecotype caribou populations indicates that human hunting may account for at least 15% to 20% of mortality on radio collared adult caribou (ACC unpubl.). Improved access into caribou range as a result of an expanding network of linear corridors could lead to increased First Nations and illegal hunting of caribou.

Caribou range in the TT contains 948.31 km of roads. Although not insignificant, seismic lines and pipelines are likely more important in providing human and predator access to caribou range.

Hunting

There is no opportunity for a harvestable surplus of caribou in the TT given the low numbers of caribou currently present. In addition, reproductive rates of caribou are much lower than moose or deer, meaning that any harvest by humans would result in a population decline unless other sources of mortality (predator) were greatly reduced. Any level of hunting is not advisable until recovery has taken place.

Fire

Fire is the dominant natural factor shaping the boreal forest of Alberta (Rowe and Scotter 1973) and has important implications for caribou populations. In the short term, fire is detrimental to caribou habitat by removing lichens; however, in the long term, fire may be beneficial in some situations by removing competing vegetation and rejuvenating growing conditions for lichens that are declining in productivity (Scotter 1970, Klein 1982, Schaefer and Pruitt 1991, Thomas 1998). Terrestrial lichen abundance recovered 40 years after fire disturbance in peatlands in northern Alberta (Dunford et al. 2006), although caribou winter use of burned areas 60 years post-fire is generally low (Schaefer and Pruitt 1991, Thomas et al. 1998, Dalerum et al. 2007). In northern Alberta, boreal caribou did not change home range size or shift home ranges following fire, probably since initial home range sizes were large enough to provide adequate habitat and space for caribou even with fire disturbance (Dalerum et al. 2007). In general, woodland caribou have evolved in the presence of forest fires and have persisted in the boreal forest with the occurrence of this natural disturbance. However, I and several of my colleagues have raised concerns for the persistence of woodland caribou in relation to the combined effects of forest fire and the human-caused habitat changes listed above (e.g. Sorenson et al. 2008).

Twenty-nine to 35 percent of the caribou range within the TT has burned in the last 50 years.

Cumulative effects

It is difficult to apportion components of the caribou decline to different human land use changes and it may not be necessary to do so since the energy sector, forest cutting and roads tend to develop together. In other words, it is the combined disturbances that create the potential negative effects on caribou. Using data from Alberta woodland caribou populations, both Boutin and Arienti (2008) and Sorenson et al. (2008) demonstrated a negative relationship between the amount of linear features and young forest and caribou population growth rate. Sorenson et al. (2008) developed a 2 variable model which showed that the percentage of the caribou range within 250m of any linear feature and the percentage of the caribou range burned (burns in the last 50 years) had negative effects on lambda (rate of population change – described above). Similarly, Boutin and Arienti (2008), using updated information, determined that the density of linear features and the proportion of range covered by young forest (burns plus cut blocks in the last 30 years) were negatively correlated with caribou population growth (see Appendix 2). Both studies developed equations to describe the negative relationship between lambda and habitat alteration. According to these equations, given the linear feature density, percentage of young forest and percentage burned, the predicted lambda in the ranges is 0.88-0.89 for ESAR and 0.92-0.95 for CLAWR.

Given that the creation of linear features due to energy sector development is the most prominent human-caused habitat change in caribou range in the TT, it is likely that these changes are the primary contributor to the declines in caribou seen in the TT.

In other studies, female adult caribou survival was negatively associated with linear feature density in northern boreal caribou ranges (Dunford 2003) and with cut block and road density in west-central caribou ranges (Smith 2004). These results are consistent with research findings in other provinces. For example, in Quebec, Courtois et al. (2007) found that caribou were more likely to die as the amount of disturbed habitat, from timber harvest and fire, increased in their range. In British Columbia, Wittmer et al. (2007) established that survival of female mountain caribou declined with the proportion of early and mid-seral stage forests within the home range; higher survival was associated with increasing proportion of older forests. Kinley and Apps (2001) also determined that adult survival was lower in British Columbia ranges with more young forest as a result of timber harvesting, higher road densities, and more fragmentation. More generally, Apps and McLellan (2006) suggested that the persistence of mountain caribou in British Columbia was linked to the presence of old forest and to their isolation from human presence, areas of high road density and motorized access.

It is difficult to tease apart the potential causes of decline in the TT but all indications are that human-caused habitat change is playing a significant role. The changes to habitat created by human activity predict a population lambda of 0.88-0.89 for ESAR and 0.92-0.95 for CLAWR. Observed average lambdas are .9135 for ESAR and .8935 for CLAWR. These values would suggest that population size will drop by half every 8-10 years.

Disease and parasites

There is no evidence that caribou declines in Alberta are linked to disease or parasites.

Weather and climate warming

There are some arguments in the literature that weather can affect caribou population dynamics by reducing energy intake through deep snow or icing limiting access to lichens or by increasing calf mortality through wet, cold conditions during calving. These situations have been documented for migratory and Peary caribou but not for woodland caribou (Festa-Bianchet et al. 2010). In most years, winter conditions in Alberta are not likely to negatively affect caribou condition, survival or reproduction. However, it is possible that in winters with above average snowfall and/or severe crusting, caribou condition, reproduction and survival might be compromised. There is no information to my knowledge to suggest that weather in recent years has been more severe for caribou in Alberta or in the TT.

Warming associated with global climate change may alter caribou population dynamics through increased frequency/severity of forest fires and forest insect outbreaks (such as mountain pine beetle although this is not applicable to the TT), changes to forage type/quality/abundance, changes in conditions that may favour caribou diseases and parasites, and altered predator-prey dynamics. For climate warming to affect caribou in the TT, the effects have to be immediate, given that human-caused habitat changes are likely to lead to extirpation in the next 20-40 years. Given this, the most likely effects of warming climate would involve an increase in fire frequency and most importantly, an increase in deer abundance. Latham (2009) and Charest (2005) showed that deer are expanding northward in northeastern Alberta to the point that they have reached densities capable of supporting wolf populations. The cause of the northward expansion remains unknown but there is growing support for both habitat change (discussed above) and less severe winters (Dawe unpubl.) being contributing factors.

There is no evidence to suggest that winter weather or climate conditions have made the TT less suitable for caribou.

Recommendations for restoration and maintenance of caribou in the TT

The ALT (2009) report summarizes the recommended actions for recovery of caribou in the ESAR and CLAWR. The report is based on extensive modeling work using the best available information for the region. I fully support their recommendations which include:

1. The time for management action is now.
2. A suite of management actions requiring hundreds of millions of dollars is necessary to recover caribou.
3. The suite of management actions must include: aggressive restoration of seismic lines, well pads and pipelines; no further increase in industrial activity (no further habitat change caused by human land use; full protection of caribou range); and reduction of caribou mortality risk.

The ALT (2009) recommends that caribou management be conducted at a landscape scale. Tough choices need to be made between caribou conservation and industrial development of oil reserves. It is clear that the history of planning and mitigation of activities at local project scales has not worked to protect caribou. The cumulative effects of many individual projects have led to total industrial activity exceeding the levels that can support viable caribou herds in the TT and surrounding area. Restoration, protection, and caribou mortality management need to be part of a broad land use planning framework that recognizes the trade-off between caribou conservation and industrial development. The ALT (2009) recommends that zones within caribou range be created where caribou mortality

management, restoration, and protection are implemented. However, the smaller the proportion of the ranges that receives these management actions the lesser the effect will be on caribou population increase. It is more likely that recovery would be successful if the entire caribou range within the TT received all three management actions. Finally, long-term risk to caribou will be minimized if habitat restoration in the entire caribou range within the TT begins as soon as possible (ALT 2009).

Is there enough information available to act to conserve caribou?

Scientific knowledge concerning caribou habitat requirements, caribou status, and appropriate conservation actions has become available in the last 10 years and there was fully adequate knowledge to act in the last 3-5 years. This holds for the herds residing in the TT, northeastern Alberta, and the rest of Canada. Dzus (2001) reported most of the population trends and management concerns outlined here. Boreal caribou in Alberta were listed as Threatened under SARA in 2002 and a recovery plan was tabled in 2005 (ASRD 2005). Although the Provincial government developed a recovery strategy in 2004, no on the ground actions have been implemented to date with the exception of the Little Smoky Range in west-central Alberta.

The identification of critical habitat and development of a recovery strategy are fundamental steps in the conservation of any species, including caribou (see also the Federal SARA). No National Recovery Strategy has been produced for caribou, partially due to a purported claim that Critical Habitat has not yet been identified (EC 2008). In my opinion, the scientific information provided in EC (2008) was fully adequate to identify caribou Critical Habitat. This opinion was also held by the Scientific Advisory Group (of which I was a member) involved in drafting of the document. A 'preface' to the recent assessment EC (2008) hints at continued delay of the recovery strategy until 2011.

Neither the Provincial or Federal Governments have implemented any conservation-based land-use plans in the TT. The Lower Athabasca Regional Plan is currently under development but there are no explicit conservation strategies for woodland caribou. Recommendations made by ALT (2009) included the establishment of zone 1 areas within each caribou range that have caribou conservation as a priority. The management elements included caribou mortality management, restoration of current energy sector footprint and establishment of areas with no further industrial development. The location and size of these zones were not made explicit and to date, the Provincial Government has not acted to implement the ALT (2009) recommendations.

There is ample evidence to support the claim that any delays in the implementation of conservation actions for caribou greatly increase the risk of failure (ALT 2009). Given the rapid rates of decline that are now well-documented for the herds in the TT, the number of animals left is fast approaching levels where management actions are less and less likely to

be effective. It is my opinion that caribou will be extirpated from the TT, most of northeastern Alberta, and in many other parts of Canada if the conservation actions outlined in this report are not implemented immediately.

Literature cited

- ALT. 2009. Athabasca caribou landscape management options report. Prepared for the Alberta Caribou Committee, Edmonton, AB. 94pp.
- ASRD. 2010. Alberta Sustainable Resource Development and Alberta Conservation Association. In prep. Status of the Woodland Caribou (*Rangifer tarandus caribou*) in Alberta: Update 2010. Alberta Sustainable Resource Development, Wildlife Status Report No. 30 (Update 2010), Edmonton, AB.
- Alberta Sustainable Resource Development. 2007. The General Status of Alberta Wild Species 2005. URL: <http://www.srd.gov.ab.ca/fishwildlife/wildspecies/index.htm> [Updated January 2007].
- Alberta Sustainable Resource Development (Alberta Woodland Caribou Recovery Team). 2005. Alberta woodland caribou recovery plan 2004/05 – 2013/14. Alberta Sustainable Resource Development, Fish and Wildlife Division, Alberta Species at Risk Recovery Plan No. 4. Edmonton, AB. 48pp.
- Anderson, R. B. 1999. Peatland habitat use and selection by woodland caribou (*Rangifer tarandus caribou*) in northern Alberta. M.Sc. Thesis, University of Alberta, Edmonton, AB. 59 pp.
- Apps, C.D., and B.N. McLellan. 2006. Factors influencing the dispersion and fragmentation of endangered mountain caribou populations. *Biological Conservation* 130:84-97.
- Bergerud, A. T. 1974. Decline of caribou in North America following settlement. *J. Wildl. Manage.* 38:757-70.
- Bergerud, A. T. 1983. The natural population control of caribou. Pp. 14-61 in Symposium on natural regulation of wildlife populations. Proceedings of the northwest section, the Wildlife Society (F. L. Bunnell, D. S. Eastman, and J. M. Peek, eds.). Forest, Wildlife and Range Experiment Station, University of Idaho, Moscow, ID.
- Bergerud, A. T. 1988. Caribou, wolves and man. *Trends Ecol. Evol.* 3:68-72.

- Bergerud, A. T. 1992. Rareness as an antipredator strategy to reduce predation risk for moose and caribou. Pp. 1008-21 in *Wildlife 2001: populations*. (D. R. McCullough and R. B. Barrett, eds.) Elsevier, London.
- Bergerud, A. T., and J. Elliot. 1986. Dynamics of caribou and wolves in northern British Columbia. *Can. J. Zool.* 64: 515-1529.
- Bergerud, A. T., and R. E. Page. 1987. Displacement and dispersion of parturient caribou at calving as antipredator tactics. *Can. J. Zool.* 65:1597-1606.
- Bjorge, R. R. 1984. Winter habitat use by woodland caribou in west-central Alberta, with implications for management. Pp. 335-342 in *Fish and wildlife relationships in old growth forests. Proceedings of a symposium* (W. R. Meehan, T. R. Merrel Jr., and T. A. Hanley, eds.). American Institute of Fishery Research Biologists, Juneau, AK. 425 pp.
- Bloomfield, M. 1980a. Closure of the caribou hunting season in Alberta: management of a threatened species. Alberta Energy and Natural Resources, Fish and Wildlife Division, Edmonton, AB. 39 pp.
- Boutin, S., and C. Arienti. 2008. BCC equation reanalysis – final report. Unpublished report prepared for the Alberta Caribou Committee, Edmonton, AB. 19 pp.
- Bowman, J., Ray, J.C., Magoun, A.J., Johnson, D., and Dawson, F.N. 2010. Roads, logging, and the large-mammal community of an eastern Canadian boreal forest. *Can. J. Zool.* 88:454-467.
- Bradshaw, C. J. A., S. Boutin, and D. M. Hebert, A. B. Rippin, and S. Boutin. 1995. Winter peatland habitat selection by woodland caribou in northeastern Alberta. *Can. J. Zool.* 73:1567-1574.
- Brown, W. K., and J. B. Theberge. 1990. The effect of extreme snowcover on feeding-site selection by woodland caribou. *J. Wildl. Manage.* 54:161-168.
- Brown, G.S., F.F. Mallory, and W.J. Rettie. 2003. Range size and seasonal movement for female woodland caribou in the boreal forest of Ontario. *Rangifer* 14:227-233.
- Caughley, G. and A. Gunn. 1996. *Conservation biology in theory and practice*. Blackwell Science, Cambridge, Massachusetts, USA. 459pp.
- Charest, K. S. 2005. Changes in moose and white-tailed deer abundance in northeastern Alberta and the relationship to cumulative impacts. M.Sc. Thesis, University of Alberta, Edmonton, Alberta.

COSEWIC. 2002. COSEWIC assessment and update status report on the woodland caribou *Rangifer tarandus caribou* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xi + 98 pp.

COSEWIC. 2007. Database of species assessed by COSEWIC. Committee on the Status of Endangered Wildlife in Canada. URL:
http://www.cosepac.gc.ca/eng/sct1/searchform_e.cfm [Updated 4 October 2007]

Courtois, R., J.P. Ouellet, L. Breton, A. Gingras, and C. Dussault. 2007. Effects of forest disturbance on density, space use, and mortality of woodland caribou. *Ecoscience* 14:491-498.

Cumming, H. G., D. B. Beange, and G. Lavoie. 1996. Habitat partitioning between woodland caribou and Moose in Ontario: the potential role of shared predation. *Rangifer Special Issue No. 9*:81-94.

Dalerum, F., S. Boutin and J. S. Dunford. 2007. Wildfire effects on home range size and fidelity of boreal caribou in Alberta, Canada. *Can. J. Zool.* 85:26-32.

Darby, W. R., and W. O. Pruitt Jr. 1984. Habitat use, movements and grouping behaviour of woodland caribou *Rangifer tarandus caribou*, in southeastern Manitoba. *Can. Field-Natur.* 98:184-90.

Dau, J. R., and R. D. Cameron. 1986. Effects of a road system on caribou distribution during calving. *Rangifer Special Issue No.1*:95-101.

Dunford, J. S. 2003. Woodland caribou-wildfire relationships in northern Alberta. M.Sc. Thesis, University of Alberta, Edmonton, AB.

Dunford, J. S., P. D. McLoughlin, F. Dalerum, and S. Boutin. 2006. Lichen abundance in the peatlands of northern Alberta: Implications for boreal caribou. *Ecoscience* 13(4):469-474.

Dunn B. M. and M. S. Quinn. 2009. Effectiveness of above-ground pipeline mitigation for moose (*Alces alces*) and other large mammals. *Biological Conservation* 142: 332-343.

Dyer, S. J., J. P. O'Neill, S. M. Wasel, and S. Boutin. 2001. Avoidance of industrial development by woodland caribou. *Journal of Wildlife Management* 65:531-542.

Dyer, S. J., J. P. O'Neill, S. M. Wasel, and S. Boutin. 2002. Quantifying barrier effects of roads and seismic lines on movements of female woodland caribou in northeastern Alberta. *Canadian Journal of Zoology* 80:839-845.

- Dzus, E. 2001. Status of the woodland caribou (*Rangifer tarandus caribou*) in Alberta. Alberta Environment, Fisheries and Wildlife Division, and Alberta Conservation Association, Wildlife Status Report No. 30, Edmonton, AB. 47pp.
- Edmonds, E. J. 1988. Population status, distribution, and movements of woodland caribou in west-central Alberta. *Can. J. Zool.* 66:817-826.
- Edmonds, E. J. 1991. Status of woodland caribou in western North America. *Rangifer Special Issue No.7:91-107.*
- Edwards, R. Y. 1954. Fire and the decline of a mountain caribou herd. *J. Wildl. Manage.* 18:521-596.
- EC . 2008. Scientific review for the identification of critical habitat for woodland caribou (*Rangifer tarandus caribou*), boreal population, in Canada. August 2008. Ottawa: Environment Canada. 72 pp. plus 180 pp Appendices.
- Festa-Bianchet, M., J. C. Ray, S. Boutin, S. D. Co[^]te[^]AL and A. Gunn (in press). Caribou conservation in Canada: an uncertain future. *Can. J. Zool.*
- Hebblewhite, M., Whittington, J., Bradley, M., Skinner, G., Dibb, A., and C. White. 2007. Conditions for caribou persistence in the wolf-elk-caribou systems of the Canadian Rockies. *Rangifer Special Issue no. 17:79-91.*
- Holt, R.D., and J.H. Lawton. 1994. The ecological consequences of shared natural enemies. *Annual Review of Ecology and Systematics* 25:495-520.
- Hummel, M., and Ray, J.C. 2008. *Caribou and the North.* Dundurn Press, Toronto.
- James, A. R. C. 1999. Effects of industrial development on the predator-prey relationship between wolves and caribou in northeastern Alberta. Ph. D. Dissertation, University of Alberta, Edmonton, AB. 77 pp.
- James, A. R. C., S. Boutin, D. M. Hobart, and A. B. Rippin. 2004. Spatial separation of caribou from moose and its relation to predation by wolves. *Jour. Wildl. Manage.* 68:799-809.
- James, A. R. C., and A. K. Stuart-Smith. 2000. Distribution of caribou and wolves in relation to linear corridors. *Jour. Wildl. Manage.* 64:154-159.
- Johnson, E. A. 1978. Fire recurrence in the subarctic and its implications for vegetation composition. *Can. J. Bot.* 57:1374-1379.
- Johnson, C. J., K.L. Parker, and D.C. Heard. 2001. Foraging across a variable landscape:

- behavioural decisions made by woodland caribou at multiple spatial scales. *Oecologia* 127:590-602.
- Kelsall, J. P. 1984. Status report on woodland caribou, Rangifer tarandus dawsonii and Rangifer tarandus caribou, in Canada, in 1982. Committee on the Status of the Endangered Wildlife in Canada, Canadian Wildlife Service, Ottawa, ON. 103 pp.
- Kelsall, J. P., E. S. Telfer, and Wright Thomas D. 1977. The effects of fire on the ecology of the boreal forest, with particular reference to the Canadian north: a review and selected bibliography. Occasional Paper Number 32, Canadian Wildlife Service, Edmonton, AB. 56 pp.
- Kinley, T. A., and C.D. Apps. 2001. Mortality patterns in a subpopulation of endangered mountain caribou. *Wildl. Soc. Bull.* 29:158-164.
- Klein, D. R. 1982. Fire, lichens, and caribou. *J. Range Manage.* 35:390-395.
- Kuzyk, G. W., J. Kneteman, and F. K. A. Schmiegelow. 2004. Winter habitat use by Wolves, *Canis lupus*, in relation to forest harvesting in west-central Alberta. *Canadian Field Naturalist* 118:368-375.
- Latham, A.D.M. 2009. Wolf ecology and caribou-primary prey-wolf spatial relationships in low productivity peatland complexes in northeastern Alberta. Ph. D. Dissertation, University of Alberta, Edmonton, AB. 194 pp.
- Lee, P., and S. Boutin. 2006. Persistence and developmental transition of wide seismic lines in the western Boreal Plains of Canada. *Journal of Environmental Management* 78:240-250.
- McLoughlin, P. D., J. S. Dunford, and S. Boutin. 2005. Relating predation mortality to broadscale habitat selection. *Journal of Animal Ecology* 74:701-707.
- McLoughlin, P. D., E. Dzus, B. Wynes, and S. Boutin. 2003. Declines in populations of woodland caribou. *Journal of Wildlife Management* 67:755-761.
- Mech, L.D., and L. Boitani. 2003. Wolf social ecology. In *Wolves: Behavior, Ecology, and Conservation*. Edited by L.D. Mech and L. Boitani. The University of Chicago Press, Chicago. pp. 1-34
- Messier, F. 1994. Ungulate population models with predation: a case study with the North American Moose. *Ecology* 75:478-488.
- Murphy, S. M., and J. A. Curatolo. 1987. Activity budgets and movement rates of caribou

- encountering pipelines, roads, and traffic in northern Alaska. *Can. J. Zool.* 65:2483-2490.
- Musiani, M., H. Okarma, and W. Jedrzejewski. 1998. Speed and actual distances traveled by radiocollared wolves in Białowieża Primeval Forest (Poland). *Acta Theriologica* 43:409-416.
- Nellemann, C., and R. D. Cameron. 1996. Effects of petroleum development on terrain preferences of calving caribou. *Arctic* 49:23-28.
- Nellemann, C. and R.D. Cameron. 1998. Cumulative impacts of an evolving oil-field complex on the distribution of calving caribou. *Can. J. Zool.* 76: 1425-1430.
- Nellemann, C., I. Vistnes, P. Jordhøy, and O. Strand. 2001. Winter distribution of wild reindeer in relation to power lines, roads, and resorts. *Biological Conservation* 101:351-360.
- Neufeld, L. M. 2006. Spatial dynamics of wolves and woodland caribou in an industrial forest landscape in West-Central Alberta. M.Sc. Thesis, University of Alberta, Edmonton, AB.
- Oberg, P. R. 2001. Responses of mountain caribou to linear features in a west-central Alberta landscape. M.Sc. Thesis, University of Alberta, Edmonton, AB.
- O'Brien D., M. Manseau, A. Fall, and M.J. Fortin. 2006. Testing the importance of spatial configuration of winter habitat for woodland caribou: An application of graph theory. *Biological Conservation* 130:70-83.
- Rempel, R.S., Elkie, P.C., Rodgers, A.R., and Gluck, M.J. 1997. Timber management and natural-disturbance effects on moose habitat: landscape evaluation. *J. Wildl. Manag.* 61: 517-524.
- Rettie, W. J., and F. Messier. 1998. Dynamics of woodland caribou populations at the southern limit of their range in Saskatchewan. *Can. J. Zool.* 76: 251-259.
- Rettie, W. J., and F. Messier. 2000. Hierarchical habitat selection by woodland caribou: its relationship to limiting factors. *Ecography* 23: 466-478.
- Rowe, J. S., and G. W. Scotter. 1973. Fire in the boreal forest. *Quatern. Res.* 3:444-464.
- Saher, D. J. 2005. Woodland caribou habitat selection during winter and along migratory routes in West-Central Alberta, M.Sc. Thesis, University of Alberta, Edmonton, AB.

- Schaefer, J.A. 2003. Long-term range recession and the persistence of caribou in the taiga. *Conservation Biol.* 17:1435-1439.
- Schaefer, J. A., and W. O. Pruitt Jr. 1991. Fire and woodland caribou in southeastern Manitoba. *Wildl. Monogr.* 116:1-39.
- Scotter, G.W. 1970. Wildfires in relation to the habitat of Barren-ground Caribou in the taiga of northern Canada. Pp. 85-105 in *Proceedings of the tenth annual tall timbers fire ecology conference*. Florida State University, Tallahassee, FL.
- Seip, D. R. 1992. Factors limiting woodland caribou populations and their interrelationships with wolves and moose in southeastern British Columbia. *Can. J. Zool.* 20:1494-1503.
- Smith, K. G. 2004 Woodland caribou demography and persistence relative to landscape change in west-central Alberta. M.Sc. thesis, University of Alberta. Edmonton, AB.
- Smith, K. G., E. Janet Ficht, D. Hobson, T. Sorensen, and D. Hervieux. 2000. Winter distribution of woodland caribou in relation to clear-cut logging in west-central Alberta. *Can. J. Zool.* 78:1433-1440.
- Soper, J. D. 1964. *The mammals of Alberta*. The Hamly Press Ltd., Edmonton, AB. 410 pp.
- Sorenson, T., P.D. McLoughlin, D. Hervieux, E. Dzus, J. Nolan., B. Wynes., and S. Boutin. 2008. Determining sustainable levels of cumulative effects for boreal caribou. *Jour. Wildl. Manage.* 72:900-905.
- Stuart-Smith, A. K., C. J. A. Bradshaw, S. Boutin, D. M. Hebert, and A. B. Rippin. 1997. Woodland caribou relative to landscape patterns in northeastern Alberta. *J. Wildl. Manage.* 61:622-633.
- Telfer, E. S., and J. P. Kelsall. 1984. Adaption of some large North American mammals for survival in snow. *Ecology* 65:1828-1834.
- Thomas, D. C. 1998. *Fire-caribou relationships: the Beverly herd*. Canadian Wildlife Service, Edmonton, AB. 912 pp.
- Thomas, D.C., and D.R. Gray. 2002. Update COSEWIC status report on the woodland caribou *Rangifer tarandus* caribou in Canada, in COSEWIC assessment and update status report on the woodland caribou *Rangifer tarandus* caribou in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. 1-98pp.

- Tracz, B. V. 2005. Woodland caribou (*Rangifer tarandus caribou*) home range and habitat-use relationships to industrial activity in northeastern Alberta. MSc. Thesis. University of Alberta. 99p.
- Tracz, B.V., E.M. Bayne, J.M. LaMontagne, and S. Boutin. in prep. Site fidelity of female boreal caribou in response to petroleum development.
- Vistnes, I., and C. Nellemann. 2001. Avoidance of cabins, roads and power lines by reindeer during calving. *J. Wildl. Manage.* 65:915-925.
- Vistnes, I., and C. Nellemann. 2005. The matter of spatial and temporal scales: a review of reindeer and caribou response to human activity. *Polar Biology* 31:399-407.
- Vors, L.S., J.A. Schaefer, B.A. Pond, A.R. Rodgers, and B.R. Patterson. 2007. Woodland caribou extirpation and anthropogenic landscape disturbance in Ontario. *Jour. Wildl. Manage.* 71:1249-1256.
- Whittington, J., C. Cassady St. Clair, and G. Mercer. 2005. Spatial response of wolves to roads and trail in mountain valleys. *Ecol. Applications* 15:543-553.
- Wittmer, H.U., B.N. McLellan, D.R. Seip, J.A. Young, T.A. Kinley, G.S. Watts, and D. Hamilton. 2005a. Population dynamics of the endangered mountain ecotype of woodland caribou (*Rangifer tarandus caribou*) in British Columbia, Canada. *Can. J. Zool.* 83:407-418.
- Wittmer, H.U., A.R.E. Sinclair, and B.N. McLellan. 2005b. The role of predation in the decline and extirpation of woodland caribou. *Oecologia* 144:257-267.
- Wittmer H.U., B.N. McLellan, R. Serrouya, and C.D. Apps. 2007. Changes in landscape composition influence the decline of a threatened woodland caribou population. *Jour. of Animal Ecology* 76:568-579.

Appendix 1. Calculation of lambda and realized population change, from Latham et al. (in press): Invading white-tailed deer change wolf-caribou dynamics in northeastern Alberta. *Journal of Wildlife Management* (please see original for references).

A. DAVID M. LATHAM, M. CECILIA LATHAM, NICOLE A. MCCUTCHEN, STAN BOUTIN

The finite rate of population increase, lambda (λ), for caribou herds was based on a long term provincial monitoring program that tracked the survival and recruitment rates of collared caribou in northeastern Alberta. We typically maintained a sample size of 23 to 44 female caribou per range each year.

Caribou survival rates were determined by relocating radiocollared adult female caribou 3 to 12 times per year to check if they were alive, dead, or censored (i.e., the collar signal was lost). Annual survival rates and variance for each 'year' (May to April) were calculated using the Kaplan-Meier program in Krebs (1999), which is based on Pollock et al.'s (1989) staggered entry modification of Kaplan-Meier's (1958) survivorship model. Calf:cow ratios (calves per 100 cows) were used to estimate recruitment rates. Ratios were determined after recruitment surveys were flown in February or March of each year (i.e., when calves were 10 or 11 months old). We counted the number of calves and females in each group of caribou encountered during the survey. We predominantly used radiocollar signals to find groups of caribou; however, we also classified any groups encountered opportunistically during the survey. The mean calf:cow ratio and its variance was calculated for the entire survey with the means of ratio program in Krebs (1999), which is based on Cochran (1977).

Annual estimates of λ from 1996 to 2009 were calculated using a stochastic version of Hatter and Bergerud's (1991) equation, in which $\lambda = S/(1-R)$, S = female adult survival, and R = female calf recruitment (also see Patterson et al. 2002). We calculated female calf recruitment as $(Y/2)/(100 + Y/2)$, in which Y = number of calves per 100 cows. We generated error estimates around λ by randomly drawing from annual survival and recruitment distributions (i.e., means and standard deviations) 10,000 times using the Monte Carlo PopTools extension for Excel (Hood 2009). Survival rates were drawn from a beta distribution (which truncates values at 0 and 1) and calf:cow rates were drawn from a log-normal distribution (which truncates values at 0) (see Morris and Doak 2002). Annual estimates of λ prior to 1996 were calculated using the original deterministic version of Hatter and Bergerud's (1991) equation because the raw recruitment data were not available.

Realized population change was calculated as the successive product of λ calculated from the first year of monitoring up to and including the 2009 λ calculation following Anthony et al. (2003). For example, if λ for 1996, 1997, and 1998 was 0.97, 1.01, and 0.98 respectively, then realized population change would be calculated as $(0.97)(1.01)(0.98) = 0.96$. When λ was estimated stochastically, we generated error estimates around realized population change by drawing randomly from annual λ distributions

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(i.e., mean and standard deviation) 10,000 times using the Monte Carlo PopTools extension for Excel (Hood 2009). Lambda was drawn from a lognormal distribution.

Appendix 2. Calculation of the relationship between linear feature density, young forest and caribou population growth (lambda).

Adapted from Boutin, S., and C. Arjenti. 2008. BCC equation reanalysis – final report. Unpublished report prepared for the Alberta Caribou Committee, Edmonton, AB. 19 pp.

Sorensen et al. (2008) derived a linear regression equation relating caribou population growth rate (λ) to the proportion of each range within 250m of a linear feature and the Proportion of range burned in the last 30 years. The Sorensen et al. (2008) model was:

$$\lambda = 1.192 - 0.00315 * (\% \text{ within } 250\text{m of Industrial features}) - 0.0029 * (\% \text{ Burned}).$$

We performed a similar analysis but used additional years of caribou demographic information and more herds to derive an updated equation. The objectives were to examine potential statistical relationships between woodland caribou population growth and various disturbance variables (fires and human-caused). Selected variables for consideration were meant to assess the proposed relationship between human activities and the creation of primary prey habitat (young forest) and improved predator access (linear features).

Methods

We used nine herds in the analysis (WSAR, ESAR, Cold Lake Air Weapons Range (CLAWR), Chinchaga (CH), Red Earth (RE), Caribou Mountains (CM), Little Smoky (LS), Red Rock Prairie Creek (RRPC), and A La Peche (ALP); Table 1).

We calculated the geometric mean of annual λ for each herd as described in McLoughlin et al. (2003) over the period 1993-2006. For the Little Smoky herd, geometrical mean and variance were calculated over the period 1993-2005, discarding the population data from years after wolf control and calf penning were implemented.

We obtained range boundaries for each herd from the ACC website. The Base Features 2006 dataset was used as a source for all linear feature information. From it we calculated:

Linear feature density (LF): Road, Pipeline and Seismic line polyline shapefiles were intersected with the range to obtain the total length, in km, of each type of linear feature per range. The total length was then divided by the area of the range to obtain densities of roads, pipelines and seismic lines in km/km². These were also summed to provide the total density of all linear features.

Linear feature area (ha) + buffers: The Road, Pipeline and Seismic line polygonal shapefiles described above (where each polyline was buffered to represent their actual on-the-ground area) were each buffered by applying a 25m buffer to each side (50 m buffer in total), with flat ends, and then completely dissolved in order to remove any overlaps. Buffer sizes of 100m (50m to each side) and 200m (100m to each side) were also applied. Once buffered, each linear feature type was intersected with the range shapefiles in order to obtain the total area, in ha, of each type of linear features plus its buffer. This was then used to calculate the % of each range within a designated buffer.

We also calculated a number of variables that attempted to capture the potential of each range to support other ungulates as indicated by the % of recently disturbed habitat. These variables included:

Burns: Fire polygons were obtained from the Alberta fire database. All fires that occurred between 01/01/1976 and 01/01/2006 were included in the analysis (i.e. fires less than 30 yrs old). Polygons with burncode = 1 (unburnt islands) were discarded, however, polygons with burncode = PB (partial burns) were retained. All fire polygons were dissolved together in order to remove any overlap. The fire shapefile was then intersected with the range and buffered range shapefiles in order to obtain the total area, in ha, and the percent area of burns less than 30 yrs old.

Harvested: Because we couldn't get recent cutblock shapefiles for all of the ranges, we used a tabular database (provided by the Alberta Sustainable Resource Development Forest Branch) containing information on forestry cutblocks (location (see below), area and harvest date) that were harvested between 01/01/1976 to 01/01/2006. Many of the cutblock records in the tabular database had information on the township, range, meridian and section (TTRMMSS) in which the cutblock is located; however, some of the records only had information on township, range, meridian (TTRMM) so this was the only spatial reference that could be used. Each TTRMMSS and TTRMM was intersected with the range shapefiles, and the proportion of each one of these cells falling within each range/buffered range was calculated. Once this was known, each cutblock was matched to a range or buffered range based on the TTRMMSS or TTRMM where it is located. For those TTRMMSS/TTRMM that fell only partially within a certain range, the known area of the cutblock was multiplied by the proportion of the corresponding TTRMMSS or TTRMM that fell within the range or buffered range. We did this to avoid counting the totality of a large cutblock for a certain range if only part of the corresponding TTRMMSS/TTRMM fell within the range/buffered range. Once each cutblock was matched to a range and its area within the range proportionally adjusted, we added them in order to obtain the total area as well as the % of the range consisting of cutblocks less than 30 yrs old.

Young: This variable was calculated by adding the area of young burns and young cutblocks and then dividing this by the total area of the range. Additionally, we calculated the

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proportion of the range that had been disturbed; this variable included the area of young burns, young cutblocks, well sites (1 ha each), roads (10-30m), pipelines (30m) and seismic lines (5m).

Dependent and independent variables

Table 1 summarizes the values used in our statistical analysis. Road, pipeline, seismic, LF (linear features) values are expressed as km/km². Burn is the % of each range that has burned in the last 30 years and Harvested is the % of each range that has been harvested in the past 30 years. Young is the sum of Burn plus Harvested.

We used total linear feature density in our regression analyses. Linear features were dominated by seismic lines (75-99% of all linear features). Also, linear feature density and the % of range within buffers (25, 50, and 100m) of linear features were highly correlated ($R > 0.96$) so we did not include any buffer measures in the analysis.

The % of range in young habitat was highly correlated with the % of range that had been burned in the last 30 years ($r = 0.974$). The % of range that had burned in the last 30 years was not strongly correlated with the proportion that had been harvested ($r = -0.364$).

Linear features were not correlated with the % of young forest ($r = -0.082$).

Table 1. Values used in the statistical analyses.

HERD	Lambda	Range size (ha)	Road	Pipeline	Seismic	LF	Burn	Harvested	Young
ALP	1.02324	568717	0.08505	0.02137	0.50524	0.61167	0.00154	2.60203	2.60358
CM	0.89807	1863867	0.00492	0.00174	0.85822	0.86488	35.71134	0.96317	36.67450
CH	0.92613	894560	0.06655	0.12457	3.16567	3.35678	2.63241	0.15569	2.78810
CL	0.93344	267948	0.01821	0.24428	0.88927	1.15176	30.02471	0.02938	30.05409
ESAR	0.94522	1469081	0.05298	0.23616	1.49452	1.78366	22.70601	1.91660	24.62261
LS	0.90841	292706	0.21450	0.16892	3.36415	3.74757	0.09608	10.16583	10.26191
RE	0.92158	1597686	0.04959	0.06526	1.98245	2.09729	25.48671	1.60477	27.09148
RRPC	0.95995	451338	0.14688	0.06229	0.63225	0.84141	0.38400	5.42790	5.81190
WSAR	0.97512	1500989	0.05173	0.13034	0.99694	1.17901	2.78638	0.53021	3.31658

Table 1 summarizes the values used in our statistical analysis. Road, pipeline, seismic, LF (linear features) values are expressed as km/km². Burn is the % of each range that has burned in the last 30 years and Harvested is the % of each range that has been harvested in the past 30 years. Young is the sum of Burn plus Harvested. We used total linear feature density in our regression analyses. Linear features were dominated by seismic lines (75-99% of all linear features). Also, linear feature density and the % of range within buffers (25, 50, and 100m) of linear features were highly correlated ($R > 0.98$) so we did not include any buffer measures in the analysis.

The % of range in young habitat was highly correlated with the % of range that had been burned in the last 30 years ($r = 0.974$). The % of range that had burned in the last 30 years was not strongly correlated with the proportion that had been harvested ($r = -0.364$).

Linear features were not correlated with the % of young forest ($r = -0.082$).

Statistical analysis

To conduct regression analysis, we followed the methods used by Sorensen et al. (2008) and used a weighted least squares linear regression. The inverse of the geometric variance for each herd was used to weight the data. We produced the following set of candidate models for comparison using an AIC approach.

lambda=LF + Harvested + Burn
 = LF
 = Burn
 = Harvested
 = LF + Burn
 = LF + Harvested
 = Harvested + Burn
 = Young
 = LF + Young

Note that a model including both Burn and Young was not part of the candidate set because these two variables were highly correlated.

Table 2. Summary of AIC analyses for regression models listed above.

model	AIC	k	AICc	Delta AICc	likelihood	wi
LF+Young	-40.272	2	-38.272	0	1	0.590622
LF+Burn	-38.958	2	-36.958	1.3139675	0.5184126	0.306186
LF+Burn+Harvested	38.3337	3	33.5337	4.7382674	0.0935617	0.05526
Young	-31.727	1	31.1556	7.1164286	0.0284897	0.016827
LF	-30.882	1	30.3106	7.9614307	0.0186723	0.011028
Burn	30.5501	1	29.9787	8.293342	0.015817	0.009342
Burn+Harvested	31.1397	2	29.1397	9.1323423	0.0103977	0.006141
Harvested	-27.863	1	27.2916	10.980436	0.0041269	0.002437
LF+Harvested	29.0466	2	27.0466	11.225409	0.0036512	0.002156

The model receiving greatest support was Lambda = LF + Young. However, the model, Lambda = LF + Burn ranked second and had similar support. All other models had much weaker support.

The adjusted r on the best model was 0.74 and coefficients for LF and Young were negative and statistically significant (see Table 3).

Table 3. Summary statistics for the regression model, $\text{Lambda} = \text{LF} + \text{Young}$.

Coefficients:	Estimate	Std. Error	t value	Pr(>|t|)
(Intercept)	1.018402	0.016543	61.559	1.24E-09
LF	0.023373	0.006393	-3.656	0.01063
Young	0.002104	0.000538	-3.908	0.00791

Multiple R-squared: 0.802, Adjusted R-squared: 0.736

F-statistic: 12.15 on 2 and 6 DF p-value: 0.007759

Based on the above analyses we adopted the following empirical model to describe the relationship between caribou population growth and changes in linear feature density arising from energy exploration and restoration:

$$\text{Lambda} = 1.0184 - 0.0234 * \text{Linear feature density} - 0.0021 * \% \text{Young}$$

Where linear feature density is expressed as km/km² and Young is the % of a caribou range that has been burned or harvested in the last 30 years.

Literature Cited

- McLoughlin, P. D., E. Dzus, B. Wynes, and S. Boutin. 2003. Declines in populations of woodland caribou. *Journal of Wildlife Management* 67:755-761.
- Sorensen, T., P. McLoughlin, D. Hervieux, E. Dzus, J. Nolan, B. Wynes, and S. Boutin. 2008. Determining sustainable levels of cumulative effects for boreal caribou. *Journal of Wildlife Management* 72:900-905.

Appendix 3. Summary of land use change as determined by GIS-based calculations.

Area of Ranges

Cold Lake = 6,719.01 km² = 671,901.24 ha
 ESAR = 13,150.35 km² = 1,315,034.79 ha
 WSAR = 15,720.64 km² = 1,572,063.88 ha

Given the small proportion of WSAR in the TT we did not include it in the report but it is included this appendix.

1- What proportion of ESAR and Cold Lake ranges are in the TT?

CLAWR = 1
 ESAR = 0.516

Note: calculated using the latest available delineated caribou ranges for Alberta (ASRD 2010)

2- What proportion of the TT is covered by caribou habitat? What proportion of the TT is covered by delineated ranges?

Proportion of TT covered by caribou habitat (peatland) = 0.3116

Upland/Peatland Habitat in the TT			
Habitat type	Area (ha)	Area (km ²)	Proportion of TT
Peatland	1,214,425.17	12,144.25	0.3116
Upland	2,682,764.33	26,827.64	0.6884
Total	3,897,189.50	38,971.90	
Upland/Peatland Habitat inside of Caribou ranges in the TT			
Range	Habitat	Area (ha)	Area (km ²)
Cold Lake	Peatland	354,211.43	3,542.11
	Upland	317,689.81	3,176.90
ESAR	Peatland	330,319.09	3,303.19
	Upland	348,747.57	3,487.48
WSAR	Peatland	9,258.81	92.69
	Upland	2,929.86	29.30
Total Peatland in Caribou ranges		693,799.34	6,937.99
Total Upland in Caribou ranges		669,367.23	6,693.67
Total in Caribou ranges		1,363,166.57	13,631.67

Upland/Peatland Habitat Outside of Caribou ranges in the TT		
Total Peatland outside Caribou ranges	520,625.83	5,206.26
Total Upland outside Caribou ranges	2,013,397.10	20,133.97
Total	2,534,022.93	25,340.23

Note: Caribou habitat was calculated using the Alberta Peatland Inventory (Vitt et al. 1998). Caribou habitat was considered to be peatland habitat identified as those polygons with more than 50% of peatland types (e.g. bogs, fens, etc.)

Proportion of TT covered by delineated ranges = 0.34978 (includes ESAR, CLAWR and a bit of WSAR)

Proportion of TT covered by ESAR = 0.17425
 Proportion of TT covered by WSAR = 0.00313
 Proportion of TT covered by CLAWR = 0.17241

Note: calculated using the latest available delineated caribou ranges for Alberta (ASRD 2010).

3- What is the linear feature density in the TT? Total km?

Linear feature type	Length (km)	density (km/km ²)
Roads	12,283.98	0.3152
Pipelines	11,591.21	0.2974
Seismic	66,489.19	1.7061
Total	90,364.38	2.3187

Based on a Total Area for the TT = 38,971.90 km²

Note: Calculated using all roads, pipelines and seismic lines from the Provincial Digital Base Map Data (ASRD 2006).

4- What is the number of well sites in the TT?

	Number	Density (#/km ²)
Oil and gas wells (as of June 2007)	31,036	0.7964
Oil and gas wells (as of January 2010)	34,773	0.8923

In caribou range within the TT

CLAWR 7484
 ESAR 3603
 WSAR 24

Total number of wells in caribou ranges within the TT = 11,111 (as of January 2010)

Note: Calculated using all oil and gas wells, surface hole locations, from the dataset by IHS Energy (2007, 2010).

5- What percentage of the ranges in TT are covered by young forest?

Proportion of TT covered by fires < 30 yrs old = 0.1619

Fires < 30 yrs old inside of Caribou ranges in TT		
Range	Area (ha)	Area (km ²)
Fires in Cold Lake	180,762.34	1,807.62
Fires in ESAR	230,029.71	2,300.30
Fires in WSAR	193.02	1.93
Total Fires in Caribou Ranges in TT	410,985.07	4,109.85
Fires < 30 yrs old outside of Caribou ranges in TT		
Fires outside of caribou ranges in TT	219,971.47	2,199.71
Total area of fires in TT	630,956.54	6,309.57
Total area of TT	3,897,189.50	38,971.90

Note: Calculated using fire polygons from the provincial fire database (ASRD 2010). All fires that occurred between 30/04/1978 and 30/04/2008 were included in the analysis (i.e. fires less than 30 yrs old). These dates were selected based on the harvesting data available, which was current to 30/04/2008. Polygons with burncode = 1 (unburnt islands) were discarded, however, polygons with burncode = PB (partial burns) were retained. All fire polygons were dissolved together in order to remove any overlap.

Note: Calculated using the Alberta Provincial Fire Database (ASRD 2010).

Proportion of TT covered by cutblock < 30 yrs old = 0.0277
 Area of cutblocks in the TT = 107,998.10 ha.

Note: To calculate area harvested, we used tabular data from the ARIS database (ASRD 2008) containing information on forestry cutblocks (area (ha) and harvesting date) harvested between 30/04/1978 to 30/04/2008 (i.e. cutblocks less than 30 yrs old). Many of the cutblock records in the tabular database had information on the section (TTRMMSS) in which the cutblock is located; however, some of the records only had information on the township (TTRRMM); this was the only spatial reference information that could be used to spatially locate the cutblocks across the province. Township and Section shapefiles were spatially intersected with the TT shapefile, and the proportion of each one of these cells falling within the TT was calculated. Once this was known, each cutblock in the tabular database was retained if the TTRMMSS or TTRRMM where it was located was itself located within the TT. For those TTRMMSS/TTRRMM that fell only partially within the TT, the known area of the cutblock was multiplied by the proportion of the corresponding TTRMMSS or TTRRMM that fell within the TT. We did this to avoid counting the totality of a large cutblock if only part of the corresponding TTRMMSS/TTRRMM fell within the BLCN TT (and because we didn't know exactly where in the TTRMMSS or TTRRMM the cutblock was located). Once the cutblocks within the TT were identified, and their area within the TT proportionally adjusted, we added them in order to obtain the total area as well as the proportional area of cutblocks less than 30 yrs old within the traditional territory.

6- Linear feature density for the ESAR and CLAWR caribou ranges in the TT.

Range	Area within the TT (km ²)	Pipeline length (km)	Road length (km)	Seismic length (km)	Pipeline density (km/km ²)	Road density (km/km ²)	Seismic density (km/km ²)	All LF density (km/km ²)
CLAWR	6,719.01	2,014.88	394.16	9,198.68	0.300	0.059	1.369	1.73
ESAR	6,790.67	2,000.95	554.15	12,326.72	0.295	0.082	1.815	2.19
WSAR	121.99	11.90	-	174.14	0.098	0.000	1.428	1.53

So the density of linear features within ESAR and CLAWR in the TT is 2.19 km/km² and 1.73 km/km² respectively.

Note: Calculated using all roads, pipelines and seismic lines from the Provincial Digital Base Map Data (ASRD 2006).

7- Proportion of the ranges in the TT that are within 250m of a linear feature.

Range	Area of range within the TT (km ²)	Area of LF with 250m buffer (km ²)	Proportion of the range in the TT within 250m of a LF
CLAWR	6,719.01	3,436.60	0.511
ESAR	6,790.67	4,457.19	0.656
WSAR	121.99	62.91	0.516

Note: Calculated using all roads, pipelines and seismic lines from the Provincial Digital Base Map Data (ARSD 2006).

8- Proportion of young forest (burns and cuts < 30 yrs old) in caribou range within the TT for ESAR and CLAWR

Range	Area of range within TT (ha)	Area (ha) of fires ≤30 yrs within TT portion of the range	Area (ha) of CC ≤30 yrs within TT portion of the range	Area (ha) of young habitat (burns + cuts ≤30 yrs old) within the TT portion of the range	Proportion of young habitat (burns + CCs ≤30 yrs old) within the TT portion of the range
CLAWR	671,901.25	180,762.34	4,170.64	184,932.98	0.2752
ESAR	679,066.65	230,029.71	25,221.37	255,251.07	0.3759
WSAR	12,198.59	193.02	190.95	383.97	0.0315

Note: Calculated using the Alberta Provincial Fire Database (ASRD 2010) and the ARIS database (ASRD 2008).

9- The % burn in caribou range within the TT for ESAR and CLAWR (to use in Sorensen equation). The Sorensen equation considers recent fires (≤ 50 yrs old).

Range	Area of range within TT (km ²)	Area of fires ≤50 yrs within the TT portion of the range (ha)	Area of fires ≤50 yrs within the TT portion of the range (km ²)	Proportion of the TT portion of the range in ≤50 yrs old fires	Percentage of the TT portion of the range in ≤50 yrs old fires
CLAWR	6,719.01	198,222.54	1,982.23	0.295	29.5017
ESAR	6,790.67	237,360.94	2,373.61	0.350	34.9540
WSAR	121.99	276.78	2.77	0.023	2.2689

Note: Calculated using the Alberta Provincial Fire Database (ASRD 2010) and the ARIS database (ASRD 2008).

10- Agriculture

We used the Census of Agriculture for Alberta (AARD 2001) which provides tabular data on the number of farms of a given acreage by county/municipal district (table attached). We calculated the area of farms within the TT based on the counties/MDs that fall within the TT (and for those counties/MDs that do not fall completely within the TT we adjusted the area proportionally). We used a mean size for each acreage category. After doing all these calculations, it comes out to a proportion of 0.20250 of the TT under agriculture (789,166.07 ha = 7,891.66 km²).

Data sources:

- Alberta Agriculture and Rural Development (AARD). 2001. 2001 Census of Agriculture for Alberta. Available from [http://www1.agric.gov.ab.ca/login.ezproxy.library.ualberta.ca/\\$department/deptdocs.nsf/all/sdd5726?opendocument](http://www1.agric.gov.ab.ca/login.ezproxy.library.ualberta.ca/$department/deptdocs.nsf/all/sdd5726?opendocument)
- Alberta Sustainable Resource Development (ASRD). 2008. Alberta Reforestation Information System (ARIS). Maintained by the Forestry Branch, Alberta Sustainable Resource Development, Edmonton, Alberta.
- Alberta Sustainable Resource Development (ASRD). 2010. Delineated Caribou ranges for Alberta. Fish and Wildlife Division.
- Alberta Sustainable Resource Development (ASRD). 2010. Fire history database. Available at <http://www3.gov.ab.ca/srd/wildfires/> [Verified 01 June 2010]
- Alberta Sustainable Resource Development (ASRD). 2006. Provincial Digital Base Map Data. Resource Management Branch, Edmonton, Alberta. Available from ALTALIS (<http://www.altalis.com/>)
- IHS Energy. 2007. Wells, Surface Hole. Shapefile, current to June 2006. Calgary, Alberta.
- IHS Energy. 2010. Wells, Surface Hole. Shapefile, current to January 2010. Calgary, Alberta.
- Vitt, D.H., L.A. Halsey, M.N. Thormann, and T. Martin. 1998. Peatland Inventory of Alberta. Prepared for Alberta Peat Task Force, fall 1996. Sustainable Forest Management Network of Centres of Excellence, University of Alberta, Edmonton, Alberta, Canada.

* Researcher: Stan Boutin, PhD Curriculum Vitae available upon request.

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Constitution Act, 1982, Section 35PART II
RIGHTS OF THE ABORIGINAL PEOPLES OF CANADA

35. (1) The existing aboriginal and treaty rights of the aboriginal peoples of Canada are hereby recognized and affirmed.
- (2) In this Act, "aboriginal peoples of Canada" includes the Indian, Inuit, and Metis peoples of Canada.
- (3) For greater certainty, in subsection (1) "treaty rights" includes rights that now exist by way of land claims agreements or may be so acquired.
- (4) Notwithstanding any other provision of this Act, the aboriginal and treaty rights referred to in subsection (1) are guaranteed equally to male and female persons.

35.1 The government of Canada and the provincial governments are committed to the principle that, before any amendment is made to Class 24 of section 91 of the "Constitution Act, 1867", to section 25 of this Act or to this Part,

- (a) a constitutional conference that includes in its agenda an item relating to the proposed amendment, composed of the Prime Minister of Canada and the first ministers of the provinces, will be convened by the Prime Minister of Canada; and
- (b) the Prime Minister of Canada will invite representatives of the aboriginal peoples of Canada to participate in the discussions on that item.

Beaver Lake Cree Nation is a signatory of Treaty 6

COPY OF TREATY No. 6
 BETWEEN
 HER MAJESTY THE QUEEN
 AND THE
 PLAIN AND WOOD CREE INDIANS
 AND
 OTHER TRIBES OF INDIANS
 AT
 FORT CARLTON, FORT PITT AND BATTLE RIVER
 WITH ADHESIONS
 ROGER DUHAMEL, F.R.S.C.
 QUEEN'S PRINTER AND CONTROLLER OF STATIONERY
 OTTAWA, 1964
 Cat. No.: R33-0664
 (AND Publication No. QS-0574-000-EE-A-1)

TREATY No. 6

ARTICLES OF A TREATY made and concluded near Carlton on the 23rd day of August and on the 28th day of said month, respectively, and near Fort Pitt on the 9th day of September, in the year of Our Lord one thousand eight hundred and seventy-six, between Her Most Gracious Majesty the Queen of Great Britain and Ireland, by Her Commissioners, the Honourable Alexander Morris, Lieutenant-Governor of the Province of Manitoba and the North-west Territories, and the Honourable James McKay, and the Honourable William Joseph Christie, of the one part, and the Plain and Wood Cree and the other Tribes of Indians, inhabitants of the country within the limits hereinafter defined and described by their Chiefs, chosen and named as hereinafter mentioned, of the other part.

Whereas the Indians inhabiting the said country have, pursuant to an appointment made by the said Commissioners, been convened at meetings at Fort Carlton, Fort Pitt and Battle River, to deliberate upon certain matters of interest to Her Most Gracious Majesty, of the one part, and the said Indians of the other.

And whereas the said Indians have been notified and informed by Her Majesty's said Commissioners that it is the desire of Her Majesty to open up for settlement, immigration and such other purposes as to Her Majesty may seem meet, a tract of country bounded and described as hereinafter mentioned, and to obtain the consent thereto of Her Indian subjects

inhabiting the said tract, and to make a treaty and arrange with them, so that there may be peace and good will between them and Her Majesty, and that they may know and be assured of what allowance they are to count upon and receive from Her Majesty's bounty and benevolence.

And whereas the Indians of the said tract, duly convened in council, as aforesaid, and being requested by Her Majesty's said Commissioners to name certain Chiefs and Headmen, who should be authorized on their behalf to conduct such negotiations and sign any treaty to be founded thereon, and to become responsible to Her Majesty for their faithful performance by their respective Bands of such obligations as shall be assumed by them, the said Indians have thereupon named for that purpose, that is to say, representing the Indians who make the treaty at Carlton, the several Chiefs and Councillors who have subscribed hereto, and representing the Indians who make the treaty at Fort Pitt, the several Chiefs and Councillors who have subscribed hereto.

And thereupon, in open council, the different Bands having presented their Chiefs to the said Commissioners as the Chiefs and Headmen, for the purposes aforesaid, of the respective Bands of Indians inhabiting the said district hereinafter described.

And whereas, the said Commissioners then and there received and acknowledged the persons so presented as Chiefs and Headmen, for the purposes aforesaid, of the respective Bands of Indians inhabiting the said district hereinafter described.

And whereas, the said Commissioners have proceeded to negotiate a treaty with the said Indians, and the same has been finally agreed upon and concluded, as follows, that is to say: The Plain and Wood Cree Tribes of Indians, and all other the Indians inhabiting the district hereinafter described and defined, do hereby cede, release, surrender and yield up to the Government of the Dominion of Canada, for Her Majesty the Queen and Her successors forever, all their rights, titles and privileges, whatsoever, to the lands included within the following limits, that is to say:

Commencing at the mouth of the river emptying into the north-west angle of Cumberland Lake; thence westerly up the said river to its source; thence on a straight line in a westerly direction to the head of Green Lake; thence northerly to the elbow in the Beaver River; thence down the said river northerly to a point twenty miles from the said elbow; thence in a westerly direction, keeping on a line generally parallel with the said Beaver River (above the elbow), and about twenty miles distant therefrom, to the source of the said river; thence northerly to the north-easterly point of the south shore of Red Deer Lake, continuing westerly along the said shore to the western limit thereof; and thence due west to the Athabasca River; thence up the said river, against the stream, to the Jasper House, in the Rocky Mountains; thence on a course south-easterly, following the easterly range of the mountains, to the source of the main branch of the Red Deer River; thence down the said river, with the stream, to the junction therewith of the outlet of the river, being the outlet of the Buffalo Lake; thence due east twenty miles; thence on a straight line south-eastwardly to the mouth of the said Red Deer River on the south branch of the Saskatchewan River; thence eastwardly and northwardly, following on the boundaries of the tracts conceded by the several treaties numbered four and five to the place of beginning. And also, all their rights, titles and privileges whatsoever to all other lands wherever situated in the North-west Territories, or in any other Province or portion of Her Majesty's Dominions, situated and being within the Dominion of Canada.

The tract comprised within the lines above described embracing an area of 121,000 square miles, be the same more or less.

To have and to hold the same to Her Majesty the Queen and Her successors forever. And Her Majesty the Queen hereby agrees and undertakes to lay aside reserves for farming lands, due respect being had to lands at present cultivated by the said Indians, and other

reserves for the benefit of the said Indians, to be administered and dealt with for them by Her Majesty's Government of the Dominion of Canada; provided, all such reserves shall not exceed in all one square mile for each family of five, or in that proportion for larger or smaller families, in manner following, that is to say: that the Chief Superintendent of Indian Affairs shall depute and send a suitable person to determine and set apart the reserves for each band, after consulting with the Indians thereof as to the locality which may be found to be most suitable for them. Provided, however, that Her Majesty reserves the right to deal with any settlers within the bounds of any lands reserved for any Band as She shall deem fit, and also that the aforesaid reserves of land, or any interest therein, may be sold or otherwise disposed of by Her Majesty's Government for the use and benefit of the said Indians entitled thereto, with their consent first had and obtained; and with a view to show the satisfaction of Her Majesty with the behaviour and good conduct of Her Indians, She hereby, through Her Commissioners, makes them a present of twelve dollars for each man, woman and child belonging to the Bands here represented, in extinguishment of all claims heretofore preferred.

And further, Her Majesty agrees to maintain schools for instruction in such reserves hereby made as to Her Government of the Dominion of Canada may seem advisable, whenever the Indians of the reserve shall desire it.

Her Majesty further agrees with Her said Indians that within the boundary of Indian reserves, until otherwise determined by Her Government of the Dominion of Canada, no intoxicating liquor shall be allowed to be introduced or sold, and all laws now in force, or hereafter to be enacted, to preserve Her Indian subjects inhabiting the reserves or living elsewhere within Her North-west Territories from the evil influence of the use of intoxicating liquors, shall be strictly enforced. Her Majesty further agrees with Her said Indians that they, the said Indians, shall have right to pursue their avocations of hunting and fishing throughout the tract surrendered as hereinbefore described, subject to such regulations as may from time to time be made by Her Government of Her Dominion of Canada, and saving and excepting such tracts as may from time to time be required or taken up for settlement, mining, lumbering or other purposes by Her said Government of the Dominion of Canada, or by any of the subjects thereof duly authorized therefor by the said Government.

It is further agreed between Her Majesty and Her said Indians, that such sections of the reserves above indicated as may at any time be required for public works or buildings, of what nature soever, may be appropriated for that purpose by Her Majesty's Government of the Dominion of Canada, due compensation being made for the value of any improvements thereon. And further, that Her Majesty's Commissioners shall, as soon as possible after the execution of this treaty, cause to be taken an accurate census of all the Indians inhabiting the tract above described, distributing them in families, and shall, in every year ensuing the date hereof, at some period in each year, to be duly notified to the Indians, and at a place or places to be appointed for that purpose within the territory ceded, pay to each Indian person the sum of \$5 per head yearly. It is further agreed between Her Majesty and the said Indians, that the sum of \$1,500.00 per annum shall be yearly and every year expended by Her Majesty in the purchase of ammunition, and twine for nets, for the use of the said Indians, in manner following, that is to say: In the reasonable discretion, as regards the distribution thereof among the Indians inhabiting the several reserves, or otherwise, included herein, of Her Majesty's Indian Agent having the supervision of this treaty.

It is further agreed between Her Majesty and the said Indians, that the following articles shall be supplied to any Band of the said Indians who are now cultivating the soil, or who shall hereafter commence to cultivate the land, that is to say: Four hoes for every family actually cultivating; also, two spades per family as aforesaid; one plough for every three families, as aforesaid; one harrow for every three families, as aforesaid; two scythes and one whetstone, and two hay forks and two

reaping hooks, for every family as aforesaid, and also two axes; and also one cross-cut saw, one hand-saw, one pit-saw, the necessary files, one grindstone and one auger for each Band; and also for each Chief for the use of his Band, one chest of ordinary carpenter's tools; also, for each Band, enough of wheat, barley, potatoes and oats to plant the land actually broken up for cultivation by such Band; also for each Band four oxen, one bull and six cows; also, one boar and two sows, and one hand-mill when any Band shall raise sufficient grain therefor. All the aforesaid articles to be given once and for all for the encouragement of the practice of agriculture among the Indians.

It is further agreed between Her Majesty and the said Indians, that each Chief, duly recognized as such, shall receive an annual salary of twenty-five dollars per annum; and each subordinate officer, not exceeding four for each Band, shall receive fifteen dollars per annum; and each such Chief and subordinate officer, as aforesaid, shall also receive once every year, a suitable suit of clothing, and each Chief shall receive, in recognition of the closing of the treaty, a suitable flag and medal, and also as soon as convenient, one horse, harness and waggon.

That in the event hereafter of the Indians comprised within this treaty being overtaken by any pestilence, or by a general famine, the Queen, on being satisfied and certified thereof by Her Indian Agent or Agents, will grant to the Indians assistance of such character and to such extent as Her Chief Superintendent of Indian Affairs shall deem necessary and sufficient to relieve the Indians from the calamity that shall have befallen them.

That during the next three years, after two or more of the reserves hereby agreed to be set apart to the Indians shall have been agreed upon and surveyed, there shall be granted to the Indians included under the Chiefs adhering to the treaty at Carlton, each spring, the sum of one thousand dollars, to be expended for them by Her Majesty's Indian Agents, in the purchase of provisions for the use of such of the Band as are actually settled on the reserves and are engaged in cultivating the soil, to assist them in such cultivation.

That a medicine chest shall be kept at the house of each Indian Agent for the use and benefit of the Indians at the direction of such agent.

That with regard to the Indians included under the Chiefs adhering to the treaty at Fort Pitt, and to those under Chiefs within the treaty limits who may hereafter give their adhesion thereto (exclusively, however, of the Indians of the Carlton region), there shall, during three years, after two or more reserves shall have been agreed upon and surveyed be distributed each spring among the Bands cultivating the soil on such reserves, by Her Majesty's Chief Indian Agent for this treaty, in his discretion, a sum not exceeding one thousand dollars, in the purchase of provisions for the use of such members of the Band as are actually settled on the reserves and engaged in the cultivation of the soil, to assist and encourage them in such cultivation.

That in lieu of waggons, if they desire it and declare their option to that effect, there shall be given to each of the Chiefs adhering hereto at Fort Pitt or elsewhere hereafter (exclusively of those in the Carlton district), in recognition of this treaty, as soon as the same can be conveniently transported, two carts with iron bushings and tires.

And the undersigned Chiefs on their own behalf and on behalf of all other Indians inhabiting the tract within ceded, do hereby solemnly promise and engage to strictly observe this treaty, and also to conduct and behave themselves as good and loyal subjects of Her Majesty the Queen. They promise and engage that they will in all respects obey and abide by the law, and they will maintain peace and good order between each other, and also between themselves and other tribes of Indians, and between themselves and others of Her Majesty's subjects, whether Indians or whites, now inhabiting or hereafter to inhabit any part of the said ceded tracts, and that they will not molest the person or property of any inhabitant of such ceded tracts, or the property of Her Majesty the Queen, or interfere with or trouble any person passing or travelling through the

said tracts, or any part thereof, and that they will aid and assist the officers of Her Majesty in bringing to justice and punishment any Indian offending against the stipulations of this treaty, or infringing the laws in force in the country so ceded.

IN WITNESS WHEREOF, Her Majesty's said Commissioners and the said Indian Chiefs have hereunto subscribed and set their hands at or near Fort Carlton, on the days and year aforesaid, and near Fort Pitt on the day above aforesaid.

Signed by the Chiefs within named in presence of the following witnesses, the same having been first read and explained by Peter Erasmus, Peter Balleodine and the Rev. John McKay.

- Auf. JACOB, M.D.
- JAS. WALKER, N.W.M.P.
- J. H. McILLER, N.W.M.P.
- PIERRE LEVALLER, X
- ISADORE DUNOND, X
- JEAN DUNOND, X
- PETER HOBBS.
- E. GINGRAS,
- J. B. MITCHELL, Staff Constable N.W.M.P.
- E. H. PRICE, Hospital Steward N.W.M.P.
- XAVIER LEVALLER, X
- WILLIAM SINGLARS,

- ALEXANDER MOIRIS, L. G. N.W.T.
 - JAMES MCKAY, Indian Commissioner.
 - W. J. CHRYSTIE do
 - MIS-TO-WA-SIS, X
 - AU-TON-OK-KOOP, X
 - PEE-YAHN-KAH-NICHIE-SO-SIY, X
 - AN-YAH-TOS-KUN-BO-OK-AN, X
 - KEE-ZOO-WA-HAW, X
 - CHA-KAS-TA-PAY-SIN, X
 - JOHN SMITH, X
 - JAMES SMITH, X
 - CHUM-BO-WAYAN, X
 - MASS-AN, X
 - PIERRE CADUEN, X
 - KOO-TAN-TIK-WAH-PANA, X
 - MAHE-KEE-TO-TIM-AN, X
- Head Chiefs of the Carlton Indians.*
- Chiefs.*
- Councilors of the Chiefs.*

A. R. KENNEDY,
 R. I. PETROMANO,
 L. CLARK,
 W. MCILAY,
 W. D. JARVIS, Inspector, M.W.
 M.P.

SIE-SAH-KOO-MOOS, X	his mark.	} Councilors of AA-ka-k-uk-koop.
BENJAMIN, X	his mark.	
MEE-NOW-AH-CHANE-WAY, X	his mark.	
KEE-SOK-OW-AR-IS, X	his mark.	
PRE-TOOK-AH-HAN AP-EE-GEV-EW, X	his mark.	} Councilors of Tee-poh-ka-k-ush-k-oo-ki.
PEE-AY-CHAY, X	his mark.	
TAN-WAH-JUSE EE-LAPP-NOW, X	his mark.	
ANG-MOOS, X	his mark.	
PET-Y-QUA-CAY, X	his mark.	} Councilors of Kee-oo-ka-ka-oo.
JEAN BAPTISTE, X	his mark.	
ISADORE WOLFE, X	his mark.	
KEE-KOO-MOOS, X	his mark.	
DO-SAHN-US-KOO-NRE-KIE, X	his mark.	} Councilors of AA-poh-tus-kun-ik-in-in.
YAY-TAH-TOO-WAY, X	his mark.	
LOO-SOH-AM-EE-KWAER, X	his mark.	
NEES-WAH-YAK-EE-MAH-MOOS, X	his mark.	
KAH-TU-NE-KOW-ALLY, X	his mark.	} Councilors of Cha-ka-ay-ay-ay-ay.
KAH-KUN-EE-KAH-KUN-ARS-USH, X	his mark.	
NAN-PACH, X	his mark.	
MOS-ON-AH-WE-KUN-ABER, X	his mark.	

WILLIAM BADGER, ^{bis} X
 BENJAMIN JOYFUL, ^X mark.
 JOHN BADGER,
 JAMES BEAR,
 BERNAUD CONSTANT,
 HENRY SMITH, ^{bis} X
 mark.
 MA-TWA-ANG-TIN-OO-WA-CIN, ^{bis} X
 mark.
 JACOB McLEAN, ^{bis} X
 mark.
 NAA-POO-CHEE-CHEES, ^{bis} X
 mark.
 WAH-WES, ^{bis} X
 mark.
 KAH-PAN-CAN-MAH-CHESTIK-WAY, ^{bis} X
 mark.
 KEE-YEU-AM-TEAH-PEM-WANT, ^{bis} X
 mark.
 WAH-WES-PAN-OO-TAH-MAH-HOTE, ^{bis} X
 mark.
 (TOTEM,) (or MRE-CHIA-AW-ASIS),
 SEE-SEE-QUAN-ISH, ^{bis} X
 mark.
 WEE-THE-KOO-WAX-KALI-MAW-OO, ^{bis} X
 mark.
 KAH-MEE-GIS-TOO-WAY-SIT, ^{bis} X
 mark.
 KAH-TAY-YAK-WANUK-OO-KUM, ^{bis} X
 mark.
 SEE-SEE-KWAN-IS, ^{bis} X
 mark.
 KAH-NAH-LAM-SKOW-WANT, ^{bis} X
 mark.
 KAH-AH-VEE-KOO-WAN, ^{bis} X
 mark.
 KAH-NATI-MAY-CHIKW, ^{bis} X
 mark.
 MOON-ED-YAUS, ^{bis} X
 mark.
 OOH-MIX-AH-KNF, ^{bis} X
 mark.
 OOH-TUK-KOO-PAN-EAH-MAY-TON-WAY-YIT, ^{bis} X
 mark.

Councillors of
John Smith.
 Councillors of
James Smith.
 Councillors of
Ohtyes-weeyun.

Councillors.

Joint Chiefs of the Willow Indians.

Councillors of Willow Indians.

Signed by the Chiefs and Headmen of
 the Willow Indians near Fort Carlton,
 this 25th day of August, A.D. 1876, the
 same having been first read and ex-
 plained by the Hon. Jas. McKay and
 by Peter Erasmus, in the presence of
 the undersigned witnesses:

A. G. JACKES, M.D.,
 JOSEPH GENTON,
 JOHN A. KERK,
 FREDERICK LAVETILLER,
 W. D. JARVIS, Esq. N.W.M.P.

Signed by Her Majesty's Commissioners and by the Chiefs and Headmen here-
after subscribing hereto, the same having been first read and explained to the Indians
by the Honourable James McKay and Peter Erasmus, near Fort Pitt, this 2th Day
of September, A.D. 1870, in the presence of the undersigned witnesses.

A. G. JACKES, M.D.
JAS. McLEOD, Commr. N.W.M.P.
JAS. F. WALKER, Inspector N.W.M.P.
†VITAL J., Bishop St. Albert, O.M.I.
E. DALRYMPLE CLARK, Adj. N.W.M.P.
CONSTANTIN SCOLLEN, Pres., O.M.I.
JOHN McDOUGALL, Meth. Missionary.
JOHN McELVEY,
W. E. JONES,
PETER C. PATERSON,
A. R. KENNEDY,
PETER ERASMUS,
THOMAS McHAY,
JAMES SIMPSON,
ELIZA HARDISTY,
MARY McKAY.

ALEXANDER MORRIS, L.G., N.W.T.
JAMES McKAY, Indian Commr.
W. J. CHRISTIE, Indian Commr.
his
WEE-KAS-KOO-KEE-SAT-YIN, X
mark.
his
PEE-YAS-EE-YAH-EAH-WE-CHIA-KOOT, X
mark.
his
JAMES SEENUM, X
mark.
his
OO-NAN-TAH-XRE-KAH-BOOE, X
mark.
his
SES-KAH-S-KOOTCH, X
mark.
his
TUE-TUE-EE-SKWAH, X
mark.
his
PER-NAY-SIS, X
mark.
his
KEE-YE-WIN, X
mark.
Ores Chiefs
his
KIN-OO-SAY-OO, X
mark.
Chigewagan Chief.
his
SEE-WAS-EWAS, X
mark.
his
WAT-WAY-SEE-POO-WE-YIN, X
mark.
Councillors to Wac-has-tee-ko-say-yin.
his
TIP-KE-SLOW-AN-CHAH, X
mark.
his
PAT-PAY-SEE-SLE-NOO, X
mark.
his
OO-XOW-AN-EE-FAH-CHAS, X
mark.
his
MY-OR-WAY-SEES, X
mark.

Councillors to
Sec-kahs-keetah Poo-ah-ee-ee-wa-cho-koof.

QOO-CRAN-KHAN-E, his
X
mark.

NEE-TE-PEE-TAY-AS-EE-KAYEE, his
X
Dark

MAH-CHAK-DE-WIS, his
X
mark

ISAAC CARDINAL, his
X
mark.

ANTOINE XAVIER, his
X
mark.

WILLIAM BULL, his
X
mark.

WAH-KEO-SEE-XOOY, his
X
mark.

CHARLES CARDINAL, his
X
mark,
his

PIERRE WAMBOSHAN, X
mark.

KI-TAS-SE-HUN, his
X
mark.

LAH-KEE-OO-PAN-TOW, his
X
mark.

Councillors to Councillors to Councillors to Councillors to Councillors to Councillors to Councillors to
Tus-tuk-te-sh-wans. Fee-ye-ye. Kin-er-ay-wi. James Buchanan. Nes-taka-koshka. Hoo-ye-wia. Wee-hat-lou-see-say-yin.

CARE-CARE, n/s
x
mark.

KAY-DO-WIN, n/s
x
mark.

AH-SIS, n/s
x
mark.

Councillor to Councilor to
Sev-hah-h-ah-sh. James Seetam. Ot-ma-lak-mee-ma-hoos.

Recorded 24th February, 1877.
Lib. 27, Fol. 352.
L. A. CATELLIER,
Deputy Registrar-General of Canada.

ADHESION BY CREE INDIANS

We, the undersigned Chiefs and Headmen of the Cree and other Bands of Indians, having had communication of the treaty, a copy of which is printed in the report of the Minister of the Interior for the year ending 30th June, 1876, concluded at Forts Carlton and Pitt between the Indians inhabiting the country described in said treaty, and Her Majesty the Queen of Great Britain and Ireland, by Her Commissioners, the Honourable Alexander Morris, Lieutenant-Governor of Manitoba and the North-west Territories, the Honourable W.J. Christie and the Honourable James McKay, but not having been present when the negotiations were being conducted at the above mentioned places, do hereby for ourselves, and the Bands which we represent, agree to all the terms, conditions, covenants and engagements of whatever kind enumerated in the said treaty and accept the same as if we had been present, and had consented and agreed to the same when the treaty was first signed and executed.

Witness our hands at Fort Pitt, this ninth day of August, in the year of Our Lord one thousand eight hundred and seventy-seven.

Witness our hands at Fort Pitt, this ninth day of August, in the year of Our Lord one thousand eight hundred and seventy-seven.

Signed by the Chief and Headman (having been first read and explained by Peter Erasmus) in the presence of:
PETER ERASMUS,
ROBERT CAMPBELL.

M. G. DODDINGTON, Commissioner.
his
PAA-MO-TAY-AN-SOO, X
mark.
his
KAA-SHE-MOT-A-POO, X
mark.
his
AAH-PAY-SIS, X
mark.
(E-S-HI-WIN'S Headman.)

Signed at Edmonton this 21st day of August, in the year above written, by the undersigned Chiefs and Headmen, the whole having been first read and explained by Peter Erasmus, in the presence of:

RIC. HARDISTY,
H. LEUC,
PETER ERASMUS,
W. D. JARVIS,
Inspector N. W. M. P.

his
AJE-KIS, X KES-SER-CHED-CHAI, Chief.
mark.
his
OO-MU-SIK-AN-SOO-WAY-SOOR, X Headman.
mark.
his
CATCHIE-SAH-WISY-SKUM, X Chief.
mark.
his
KOO-SAH-WAN-AB-EAT-O, X Headman.
mark.
his
PAHS-PAHS-CHASE, X
mark.
his
TAM-KOOTCH, X
mark.

ADHESION BY CREE INDIANS

We, members of the Cree Tribe of Indians having had explained to us the terms of the treaty made and concluded near Carlton on the 23rd day of August, and on the 28th day of said month respectively, and near Fort Pitt on the 9th day of September, 1876, between Her Majesty the Queen, by the Commissioners duly appointed to negotiate the said treaty, and the Plain and Wood Cree and other Tribes of Indians, inhabiting the country within the limits defined in said treaty, but not having been present at the council at which the articles of the said treaty were agreed upon, do now hereby for ourselves and the Band which we represent, in consideration of the provisions of the said treaty being extended to us and the Band which we represent, transfer, surrender, and relinquish to Her Majesty the Queen, Her heirs and successors, to and for the use of the Government of the Dominion of Canada, all our right, title and interest whatsoever, which we and the said Band which we represent have held or enjoyed of, in and to the territory described, and fully set out in the said treaty, also, all our right, title and interest whatsoever to all other lands wherever situated, whether within the limits of any other treaty heretofore made, or hereafter to be made with Indians, or elsewhere in Her Majesty's territories, to have and to hold the same unto and for the use of her Majesty the Queen, Her heirs and successors forever. And we hereby agree to accept the several benefits, payments and reserves promised to the Indians under the Chiefs adhering to the said treaty at Fort Pitt; and solemnly engage to abide by, carry out and fulfill all the stipulations, obligations and conditions therein contained, on the part of the Chiefs and Indians therein named to be observed and performed, and in all things to conform to the articles of the said treaty, as if we ourselves and the Band which we represent had been originally contracting parties thereto, and been present at the councils held near Fort Pitt, and had there attached our signatures to the said treaty.

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IN WITNESS WHEREOF, Her Majesty's Lieutenant-Governor and Indian Superintendent for the North-west Territories, and the Chief and Councillors of the Band hereby giving their adhesion to the said treaty, have hereunto subscribed and set their hand at the Blackfoot Crossing of the Bow River, this twenty-fifth day of September, in the year of Our Lord one thousand eight hundred and seventy-seven.

Signed by the parties hereto, in the presence of the undersigned witnesses, the same having been first explained to the Indians by the Rev. J. McDougall.

JAMES R. McLEOD, Lieut. Col.,
Com. N.W.M.P.
CONSTANTINE SCODREN,
A. G. JAVIER, Asst. Com. N.W.M.P.
J. McDougall, Missionary.
Recorded 26th January, 1879.
Lib. 27, Folio 519.
L. A. CAVELLER,
Deputy Registrar General of Canada.

DAVID LAIRD, Lieut-Governor and
Indian Superintendent of N.W.T.
his
KIKKAQUIN, x Chief.
of BOU-TAIL, mark.
MEMINOWATAW,
his
of SOMTIMES GLAD, x Councillor.
mark.
TCHOWAN
his
of KASSINGOOND, x Councillor.
mark.

ADHESION BY CREE INDIANS

The undersigned Chiefs and Headmen of the Cree Nation having had communication of the treaty concluded between Her Majesty the Queen by Her Commissioners and certain Chiefs of the Cree Nation at Fort Pitt on the 9th day of September, 1876, agree to surrender our title to all the lands in the North-west Territories and to abide by all the promises set forth in the said treaty, on condition that all the payments, reserves of land, and promises named therein are secured to us by Her Majesty.

And the undersigned Superintendent of Indian Affairs for the North-west Territories on behalf of Her Majesty agrees that all the payments, reserves and promises named in the said treaty to be made to each Cree Chief and his Band shall be faithfully made and carried out to the Chiefs who have subscribed to this memorandum and to their people.

IN WITNESS WHEREOF, the undersigned Indian Superintendent and the undersigned Chiefs and Headmen have hereto set our hands in this nineteenth day of August, one thousand eight hundred and seventy-eight.

ADHESION BY STONY INDIANS

We, the undersigned Chief and Headmen of the Plain Stony Tribe of Indians, having had communication of the treaty made and concluded near Carlton on the twenty-third and twenty-eighth days of August respectively, and near Fort Pitt on the ninth day of September, one thousand eight hundred and seventy-six, between Her Majesty the Queen by Her Commissioners, and the Plain and Wood Crees and other Tribes of Indians, inhabitants of the country named therein, hereby for ourselves and the Band which we represent, in consideration of the provisions of the said treaty being extended to our Band, cede, transfer, surrender and relinquish to Her Majesty the Queen, Her heirs and successors, to and for the use of the Government of the Dominion of Canada, all our right, title and privileges whatsoever to all lands

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in the North-west Territories, or elsewhere in Her Majesty's dominions, to have and to hold the same unto and to the use of Her said Majesty the Queen, Her heirs and successors forever. And we hereby agree to accept the several provisions, payments and reserves of the said treaty as therein stated, and solemnly promise and engage to abide by and carry out all the stipulations and obligations therein contained, on the part of said Chiefs and Indians therein named to be observed and performed, and in all things to conform to the articles of the said treaty, as if we ourselves and our Band had originally been contracting parties thereto.

And Her Majesty the Queen, by Her representative, the Honourable David Laird, Indian Superintendent of the North-west Territories, agrees that all the payments and provisions named in the said treaty to be made to each Chief and his Band shall be faithfully made and fulfilled to the aforesaid Chief and his Band.

IN WITNESS WHEREOF, we, the said Indian Superintendent of the North-west Territories and the said Chief and Headmen of the Story Tribe of Indians, have hereto set our hands, at Battleford, this twenty-ninth day of August, one thousand eight hundred and seventy-eight.

Signed by the parties hereto in the presence of the undersigned witnesses, the same having been first explained to the Indians by Peter Brindley:
JAMES WALKER,
Inspector N.W.M.T.
P. HALLINGINE,
HAYTER REED.

DAVID LAIRD,
Indian Superintendent,
his
ST-KE-NAN, of MISKATO, X
mark.
ETA-ME-ER-TON, of USES BOTTI ARMS, X
his
mark.
NEGO-AU-ASIS, of TWO CHIPS, X
his
mark.
KA-WA-SA-SKO-TAR-PAH-TE, of LIGHTNING, X
his
mark.

ADHESION BY CREE INDIANS

We, the undersigned Chiefs and Headmen of the Wood Cree Tribe of Indians, having had communication of the treaty made and concluded near Carlton on the twenty-third and twentyeighth days of August, respectively, and near Fort Pitt on the ninth day of September, one thousand eight hundred and seventy-six, between Her Majesty the Queen, by Her Commissioners, and the Plain and Wood Cree and other Tribes of Indians, inhabitants of the country named therein, hereby for ourselves and the Bands which we represent, in consideration of the provisions of the said treaty being extended to our Bands, cede, transfer, surrender and relinquish to Her Majesty the Queen, Her heirs and successors, to and for the use of Her Government of the Dominion of Canada, all our right, title and privileges whatsoever to all lands in the North-west Territories or elsewhere in Her Majesty's Dominions, to have and to hold the same unto and to the use of Her said Majesty the Queen, Her heirs and successors forever. And we hereby agree to accept the several provisions, payments and reserves of the said treaty as therein stated, and solemnly promise and engage to abide by and carry out all the stipulations and obligations therein contained, on the part of said Chiefs and Indians therein named to be observed and performed, and in all things to conform to the articles of the said treaty, as if we ourselves and our Bands had originally been contracting parties thereto.

And Her Majesty the Queen, by Her representative, the Honourable David Laird, Indian Superintendent of the North-west Territories, agrees that all the payments and provisions named

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in the said treaty to be made to each Chief and his Band shall be faithfully made and fulfilled to the aforesaid Chiefs and their Bands.

IN WITNESS WHEREOF, we, the said Indian Superintendent of the North-west Territories and the said Chiefs and Headmen of the Wood Cree Tribe of Indians, have hereto set our hands at Carlton this third day of September, one thousand eight hundred and seventy-eight.

Signed by the Chiefs and Councillors within named, in presence of the following witnesses, the same having first been explained by Peter Ballendine:
L. CLARKE,
A. E. FROST,
P. BALLENDINE.

DAVID LAIRD, Indian Superintendent.
his
KO-PAN-A-WA-KE-XUM, x Chief.
mark.
his
BANYEL MLESTVO x Councillor.
mark.
his
JAMES (CHIEF SON) x Councillor.
mark.
his
SA-SO-WA-HOM, x
mark.
his
KENS-MO-TAY, x
mark.
his
MAS-B-WAS-CHOSE, x
mark.

ADHESION BY CREE INDIANS

We, the undersigned Indian Chief and Headmen, having had communication of the treaty made and concluded at Forts Carlton and Pitt in the summer of 1876, but not having been present at the conferences at which said treaty was negotiated, hereby agree to accept the terms and conditions of the said treaty and to abide thereby, in the same manner as if we had been present at the time the said treaty was first signed.

As witness our hands this eighteenth day of September, 1878.
Signed by the Chief and Headmen after having been read and explained by PETER BALLENDINE.

his
MICHEL CALISTHOIS, x
mark.
his
LOUIS PAY-PATSMAR-WAYO, x
mark.
his
A-COO-SER, x
mark.

ADHESION BY CREE INDIANS

Whereas, Min-a-he-quo-sis, or Little Pine, a Cree Chief, on behalf of his Band and certain other Cree Indians, comprising twenty lodges, inhabitants of the country covered by the treaty commonly known as "Treaty No. 6," made between Her Majesty the Queen, by Her Commissioners, the Honourable Alexander Morris, the Honourable James McKay and the Honourable William Joseph Christie, of the one part;

And the Plain and Wood Cree Tribes of Indians of the other part, at Carlton, on the twenty-third and twenty-eighth days of August, and near Fort Pitt on the ninth day of September, in the year of Our Lord one thousand eight hundred and seventy-six, who have not yet given in their adhesion to the said treaty, have presented themselves to Edgar Dewdney, Esquire, Indian Commissioner

for the North-west Territories, and expressed a desire to join in the said treaty. And whereas the said Commissioner has recognized the said "Little Pine" as the Headman of his Band, and the said Band of twenty lodges have selected and appointed Pap-a-way, "The Lucky Man," one of their number as the Headman of their Band, and have presented him as such to the said Commissioner, who has recognized and accepted him as such Headman;

NOW, THIS INSTRUMENT WITNESSETH that the said "Little Pine" and Pap-a-way or "the Lucky Man," for themselves and on behalf of the Bands which they represent, do transfer, surrender and relinquish to Her Majesty the Queen, Her heirs and successors, to and for the use of Her Government of the Dominion of Canada, all their right, title and interest whatsoever which they have held or enjoyed of, in and to the territory described and fully set out in the said treaty; also, all their right, title and interest whatsoever which they have held or enjoyed of, in and to the territory described and fully set out in the said treaty; also all their right, title and interest whatsoever to all other lands wherever situated, whether within the limits of any other treaty heretofore made or hereafter to be made with Indians or elsewhere in Her Majesty's territories, to have and to hold the same unto and for the use of Her Majesty, the Queen, Her heirs and successors for ever. And do hereby agree to accept the several benefits, payments and reserves promised to the Indians adhering to the said treaty at Carlton and Fort Pitt on the dates above mentioned; and further, do solemnly engage to abide by, carry out and fulfil all the stipulations, obligations and conditions contained on the part of the Indians therein named, to be observed and performed, and in all things to conform to the articles of the said treaty, as if the said "Little Pine" and Pap-a-way or "the Lucky Man," and the Bands whom they represent had been originally contracting parties thereto, and had been present at the treaty at Carlton and Fort Pitt, and had there attached their signatures to the said treaty.

IN WITNESS WHEREOF, Edgar Dewdney, Indian Commissioner for the North-west Territories, and the said "Little Pine" and Pap-a-way or "the Lucky Man," Headmen of the said Bands, hereby giving their adhesion to the said treaty, have hereunto subscribed and set their hands at Fort Walsh, in the said North-west Territories, this second day of July, in the year of Our Lord one thousand eight hundred and seventy-nine.

Signed by the parties hereto, in the presence of the undersigned witnesses, the same having been explained to the Indians by the said Edgar Dewdney, Esq., Indian Commr., through the interpreters, Edw. McKay and P. Laville.

EDGAR DEWDENEY,
Indian Commissioner.
his
"LITTLE PINE" x
mark.
his
"THE LUCKY MAN" x
mark.

JAMES F. McLEOD, Commissioner N.W.M.P.
A. G. DOYNE, Assistant Commissioner N.W.M.P.
FRANK NORMAN, Staff Constable N.W.M.P.

ADHESION BY CREE INDIANS

WHEREAS, Big Bear, a Cree Chief, on behalf of his Band, comprising thirty lodges, inhabitants of the country covered by the treaty commonly known as "Treaty Number Six," made between Her Majesty the Queen, by Her Commissioners the Honourable Alexander Morris, the Honourable James McKay and the Honourable William Joseph Christie, of the one part, and Plain and Wood Cree Tribe of Indians of the other part at Carlton, on the twenty-third and twenty-eighth days of August, and near Fort Pitt on the ninth day of September, in the year of Our Lord one thousand eight hundred and seventy-six, who have not yet given in their adhesion to the said Treaty, have presented themselves to Allan Macdonald, Esq., Indian Agent of Treaty Number Four, and

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expressed a desire to join in the same treaty; and whereas the said Indian Agent has recognized the said "Big Bear" as the Chief of their Band.

NOW THIS INSTRUMENT WITNESSETH, that the said "Big Bear," for himself and on behalf of the Band which he represents, does transfer, surrender and relinquish to Her Majesty the Queen, Her heirs and successors, to and for the use of Her Government of the Dominion of Canada, all his right, title and interest whatsoever, which he has held or enjoyed, of, in and to the territory described and fully set out in the said treaty; also all his right, title and interest whatsoever to all other lands wherever situated, whether within the limits of any other treaty heretofore made or hereafter to be made with Indians, or elsewhere in Her Majesty's territories. To have and to hold the same unto and for the use of Her Majesty the Queen, Her heirs and successors forever. And do hereby agree to accept the several benefits, payments and reserves promised to the Indians, adhering to the said treaty at Carlton and Fort Pitt on the dates above mentioned; and further, do solemnly engage to abide by, carry out and fulfil all the stipulations, obligations and conditions contained on the part of the Indians therein named, to be observed and performed, and in all things to conform to the articles of the said treaty as if the said "Big Bear" and the Band which he represents had been originally contracting parties thereto, and had been present at the treaty at Carlton and Fort Pitt, and had then attached his signature to the said treaty as Chief of the said Band.

IN WITNESS WHEREOF, Allan Macdonald, Esquire, Indian Agent, and the said "Big Bear," Chief of the said Band, hereby giving his adhesion to the said treaty, have hereunto subscribed and set their hands at Fort Walsh, in the said North-West Territories, this eighth day of December, in the year of Our Lord one thousand eight hundred and eighty-two.

Signed by the parties hereto, in the presence of the undersigned witnesses, the same having been explained to the Indians by the said Allan Macdonald, Esq., Indian Agent, through the Interpreter, Peter Hourie and Louis Lereillec.

dit
JOE x TANNER,
mark.
PETER HOURIE,
dit
LOUIS x LEREILLEC,
mark.
dit
PIE x A NOT, Chief.
mark.

A. G. YENNER, Lieut-Col., Comd. N.W.M.P.
JOHN COTTON, Superintendent and Adjutant, N.W.M.P.
AUGUSTUS JAYNE, M.B., F.S.C., Land. Surgeon, N.W.M.P.
FRANK NORMAN, Inspector, N.W.M.P.
A. SHURTLEIFF, Superintendent, N.W.M.P.
W. R. ABBOTT, Sergeant-Major, N.W.M.P.
W. ROUTLEDGE, Corporal, N.W.M.P.
ALLAN MACDONALD, Indian Agent, Treaty No. 4.
dit
BIG x BEAR, (Chief.)
mark.

ADHESION BY CREE INDIANS

We the undersigned Chiefs and Headmen, on behalf of ourselves and the other members of the Wood Cree Tribe of Indians, having had explained to us the terms of the treaty made and concluded near Carlton, on the 23rd day of August and on 28th day of said month respectively, and near Fort Pitt on the 9th day of September, 1876, between Her Majesty the Queen, by the Commissioners duly appointed to negotiate the said treaty, and the Plain and Wood Cree and other Tribes of Indians inhabiting the country within the limits defined in said treaty, but not having

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been present at the councils at which the articles of the said treaty were agreed upon, do now hereby for ourselves and the Bands which we represent, in consideration of the provisions of the said treaty being extended to us and the Bands which we represent, transfer, surrender, and relinquish to Her Majesty the Queen, Her heirs and successors, to and for the use of the Government of the Dominion of Canada, all our right, title and interest whatsoever which we and the said Bands which we represent hold and enjoy, or have held and enjoyed, of, in and to the territory included within the following limits: All and singular that portion or tract of land being the north part of the Land District of Prince Albert, as shown on the maps published by the Honourable the Minister of the Interior, dated at Ottawa on the 31st day of August, 1885; the same tract being north of the northerly limit of Treaty No.6, North-West Territory, containing 11,066 square miles, be the same more or less, and more particularly described as follows: Commencing at a point being the north-west corner of projected Township No. 70, Range 10, west of the Third Initial Meridian; thence easterly along the northern boundaries of projected Townships Nos. 70 to the north-east corner of projected Township No. 70, Range 13, west of the Second Initial Meridian; thence southerly following the east boundary of said 13th Range of projected Townships to the northern limits of Treaty No. 6. into the projected Township No. 60; thence westerly following the northerly limit of Treaty No. 6 to the south-eastern shore of Green Lake, being at the north-easterly part of projected Township No. 58, Range 10, west of the Third Initial Meridian; thence following the westerly shore of Green Lake to the main inlet thereof known as Beaver River; thence up the right bank of Beaver River to its intersection with the west boundary of projected Township No. 62, Range 10, west of the Third Initial Meridian; thence northerly following the west boundary of projected townships of Range 10, west of the Third Initial Meridian, to the point of commencement.

Also, all our right, title and interest whatsoever to all other lands wherever situated, whether within the limits of any other treaty heretofore made, or hereafter to be made with Indians, and whether the said lands are situated in the North-West Territories or elsewhere in Her Majesty's Dominion, to have and to hold the same unto and for the use of Her Majesty the Queen, Her heirs and successors forever.

And we hereby agree to accept the several benefits, payments and reserves promised to the Indians adhering to the said treaty at Fort Pitt or Carlton; with the proviso as regards the amount to be expended annually for ammunition and twine, and as respects the amount to be expended for three years annually in provisions for the use of such Indians as are settled on reserves and are engaged in cultivating the soil, to assist them in such cultivation, that the expenditure on both of these items shall bear the same proportion to the number of Indians now treated with as the amounts for those two items as mentioned in Treaty No. 6 bore to the number of Indians then treated with. And we solemnly engage to abide by, carry out and fulfil all the stipulations, obligations and conditions therein contained on the part of the Chiefs and Indians therein named to be observed and performed, and we agree in all things to conform to the articles of the said treaty, as if we ourselves and the Bands which we represent had been originally contracting parties thereto and had been present at the council held near Fort Pitt or near Carlton and had there attached our signatures to the said treaty.

IN WITNESS WHEREOF, Her Majesty's special Commissioners and the Chiefs and Councillors of the Bands hereby giving their adhesion to the said treaty have hereunto subscribed and set their hands at Montreal Lake this eleventh day of February, in the year of Our Lord one thousand eight hundred and eighty-nine.

IT WITNESSETH WHEREAS Her Majesty's special Commissioners and the Chiefs and Councillors of the Bands hereby giving their adhesion to the said treaty have hereunto subscribed and set their hands at Montreal taken this eleventh day of February, in the year of Our Lord one thousand eight hundred and eighty-nine.

Signed by the parties hereto in the presence of the undersigned witnesses, the same having been first explained to the Indians by the Honorable ARCADESON MACKAY:

A. G. BRUCE, Lt. Colonel, Commissioner.

R. GOUTER, Commissioner.

A. J. McNEILL, Indian Department.

H. J. MURPHY, C. P., H. B. Co.

H. H. ALEXANDER, Sergt. N. W. M. P.

G. V. ALLOWAY,

J. A. MACEAY, Agent of Saskatchewan.

JAMES ROBERTS, his mark.
WILLIAM CHARLES, x
AMOS CHARLES, x
JOSEPH CHARLES, x

ELIAS ROBERTS, x
JOHN COOK, x
BENJAMIN BIRD, x

ISAAC BIRD, x
PATRICK BIRD, x
MOSES BIRD, x

his mark.
his mark.
his mark.
his mark.
his mark.
his mark.
his mark.
his mark.
his mark.
his mark.

Chiefs.

Councillors of James Roberts Band.

Councillors of Williams Charles Band.

Adhesions to Treaty Number Six

WHEREAS we the undersigned Chiefs and Headmen have had communication of the treaty commonly known as Treaty Number Six made between Her Majesty Queen Victoria and certain tribes of Indians at Carlton and Fort Pitt, in the year of Our Lord one thousand eight hundred and seventy-six, and of the intention of His Most Gracious Majesty King George VI, by the Grace of God of Great Britain, Ireland and the British Dominions beyond Seas, King, Defender of the Faith, Emperor of India, to extend its provisions to us through His Commissioners, Malcolm McCrimmon and John Lothrop Grew, both of the City of Ottawa;

NOW THEREFORE we the said Chiefs and Headmen hereby for ourselves and the Indians whom we represent, in consideration of the provisions of the said treaty being extended to us and the Indians whom we represent, cede, transfer, surrender and relinquish to His Majesty the King, His heirs and successors, forever, all our right, title and privileges whatsoever to all lands in His Majesty's Dominions;

AND we hereby agree to accept the several provisions, payments and reserves of the said treaty as therein stated, and solemnly promise and engage to abide by and carry out all the stipulations and obligations therein contained, to be observed and performed by the Chiefs and Indians therein named, and in all things to conform to the articles of the said treaty, as if we ourselves and the Indians whom we represent had originally been contracting parties thereto;

AND His Majesty, the King, by His representatives, aforesaid, agrees that all the payments and provisions named in the said treaty to be made to each Chief and his Band shall be faithfully made and fulfilled to the aforesaid Chiefs and Headmen and the Indians whom they represent;

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IN WITNESS WHEREOF, His Majesty's Commissioners and the said Chiefs and Headmen have set their hands as hereinafter set forth.

Signed at Rocky Mountain House on the 25th day of May, 1944, by His Majesty's Commissioners and the Chiefs and Headmen representing the Band or group of Cree Indians comprising some families located by the Baptiste River, in the Province of Alberta, in the presence of the undersigned witnesses after having been first interpreted and explained.

Witnesses:

M. H. [Signature]
Commissioner

John R. White

J. L. Grant
Commissioner

W. A. [Signature]
W. C. [Signature]

Harry [Signature]
Rev. W. A. Mackenzie

Rev. Rob. H. Peck

J. Yellow Eyes

Signed at Rocky Mountain House on the 12th day of May 1950, by His Majesty's Commissioner and the Inayat of the Band of Chinle Indians located at Rocky Mountain House in the Province of Alberta, in the presence of the undersigned witnesses after having been first interpreted and explained.

Witnesses:

M. McMillan
Commissioner

James Taylor his mark
Thomas Taylor his mark
Simon Strawberry his mark
James Beaver his mark
Alie Whitford his mark
Frank Strawberry his mark
Andrew Strawberry his mark
Nauchandma Lou

Witnesses:

S. Kent	Joseph Bismar	his	mark
John Foreman	Wawatachin	her	mark
Joe Deschamps	Thomas Bismar	his	X mark
Edmond Bismar	Amma Bismar	his	mark
Henry Stelfox	Shakasee	her	X mark
Henry Stelfox	John Muskeg	his	X mark
Henry Stelfox	John Muskeg	his	X mark
Henry Stelfox	John Muskeg	his	X mark
John Macdonald Anderson	Suzie Strawberry	her	X mark
John Macdonald Anderson	John Strawberry	his	mark
John Macdonald Anderson	John Strawberry	his	mark

Adhesion to Treaty Number Six

WHEREAS we the undersigned Chief and Headmen have had communication of the treaty commonly known as Treaty Numbner Six made between Her Majesty Queen Victoria and certain tribes of Indians at Carlton and Fort Pitt, in the year of Our Lord one thousand eight hundred and seventy-six, and of the intention of His Most Gracious Majesty the King George VI, by the Grace of God of Great Britain, Ireland and the British Dominions beyond the Seas, King, Defender of the Faith, to extend its provisions to us through His Commissioner, James Pember Brookbank Ostrander, of the City of Regina;

NOW THEREFORE we the said Chief and Headmen hereby for ourselves and the Indians whom we represent, in consideration of the provisions of the said treaty being extended to us and the Indians whom we represent, cede, transfer, surrender and relinquish to His Majesty the King, His heirs and successors, forever, all our right, title and privileges whatsoever to all lands in His Majesty's Dominions;

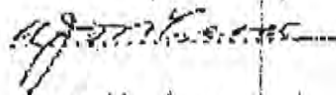
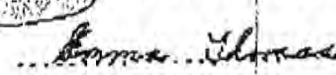
AND we hereby agree to accept the several provisions, payments and reserves of the said treaty as therein stated, and solemnly promise and engage to abide by and carry out all the stipulations and obligations therein contained, to be observed and performed by the Chiefs and Indians

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therein named, and in all things to conform to the articles of the said treaty, as if we ourselves and the Indians whom we represent had originally been contracting parties thereto; AND His Majesty the King, by his representative, aforesaid, agrees that all the payments and provisions named in the said treaty to be made to each Chief and his Band shall be faithfully made and fulfilled to the aforesaid Chief and Headmen and the Indians whom they represent; IN WITNESS WHEREOF, His Majesty's Commissioner and the said Chief and Headmen have set their hands as hereinafter set forth.

Signed at Witschekan Lake on the twenty first day of November 1950, by His Majesty's Commissioner and the Chief and Headmen representing the Band or group of Cree Indians comprising some fourteen families located on the Witschekan Lake Indian Reserve in the Province of Saskatchewan, in the presence of the undersigned witnesses after having been first interpreted and explained.

Witnesses:

	 Commissioner
	 J. T. Warden
	 J. H. ...
	 ...
	 ...
	 ...
	 ...

Adhesion to Treaty Number Six

WHEREAS we the undersigned Indians have had communication of the treaty commonly known

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as Treaty Number Six made between Her Majesty Queen Victoria and certain tribes of Indians at Carlton and Fort Pitt, in the year of Our Lord one thousand eight hundred and seventy-six, and of the intention of Her Most Gracious Majesty Queen Elizabeth the Second, by the Grace of God of the United Kingdom, Canada and Her other Realms and Territories, Queen, Head of the Commonwealth, Defender of the Faith, to extend its provisions to us through His Commissioner, Malcom McCrimmon, of the City of Ottawa;

NOW THEREFORE we the said Indians hereby in consideration of the provisions of the said treaty being extended to us cede, transfer, surrender and relinquish to Her Majesty the Queen, Her heirs and successors, forever, all our right title and privileges whatsoever to all lands in Canada;

AND we hereby agree to accept the several provisions, payments and reserves of the said treaty as therein stated, and solemnly promise and engage to abide by and carry out all the stipulations and obligations therein contained, to be observed and performed by the Chiefs and Indians therein named, and in all things to conform to the articles of the said treaty, as if we ourselves had originally been contracting parties thereto;

AND Her Majesty the Queen, by Her representative, aforesaid, agrees that all the payments and provisions named in the said treaty to be made to each Chief and his Band shall be faithfully made and fulfilled to the aforesaid Indians.

IN WITNESS WHEREOF, Her Majesty's Commissioner and the said Indians have set their hands as hereinafter set forth.

Signed at Lochin on the 18th
 day of August 1954, by Her Majesty's
 Commissioner and the Indians of the Saulteaux Band
 comprising some families located on the
 Saulteaux Indian Reserve in the Province of Saskatchewan,
 in the presence of the undersigned witnesses after having
 been first interpreted and explained.

Witnesses:

Stanley J. Bell
W. Coakburn
W. Coakburn
H. J. Bell
H. J. Bell
T. Fraser
T. Fraser
T. Fraser
T. Fraser
Alan Marshall

M. W. Brimmer
 Commissioner
Ally + Katcheech
George + Katcheech
Joe Katcheech
Joe Katcheech
Harry + Thomas
Richard + Gopher
Joe Katcheech
Bill Gopher

..... <i>[Signature]</i>	..... <i>Clara X Caplin</i>
..... <i>[Signature]</i>	..... <i>Helen X Kartalovich</i>
..... <i>[Signature]</i>	..... <i>Bill [unclear]</i>
..... <i>Alv. Howell</i>	..... <i>Joyce [unclear]</i>
..... <i>[Signature]</i>	..... <i>Alex [unclear]</i>
..... <i>[Signature]</i>	..... <i>Alb. [unclear]</i>
..... <i>[Signature]</i>	..... <i>Annex [unclear]</i>
..... <i>[Signature]</i>	..... <i>Blasquet [unclear]</i>
..... <i>[Signature]</i>	..... <i>Mary [unclear]</i>
..... <i>[Signature]</i>	..... <i>[unclear] [unclear]</i>
..... <i>[Signature]</i>	..... <i>Archie [unclear]</i>

Signed at Cochin on the 15th day
of May 1956, by the following members

PETER GRANT & ASSOCIATES

Barristers & Solicitors
900 - 777 Hornby Street
Vancouver, BC V6Z 1S4

Telephone: (604) 685-1229

Facsimile: (604) 685-0244

FACSIMILE TRANSMISSION MESSAGE

DATE: August 31, 2012

FAX NO: 1-877-288-8803

NAME: Joint Review Panel
FIRM: Enbridge Northern Gateway Project
FROM: Beaver Lake Cree Nation
RE: Enbridge Northern Gateway Project

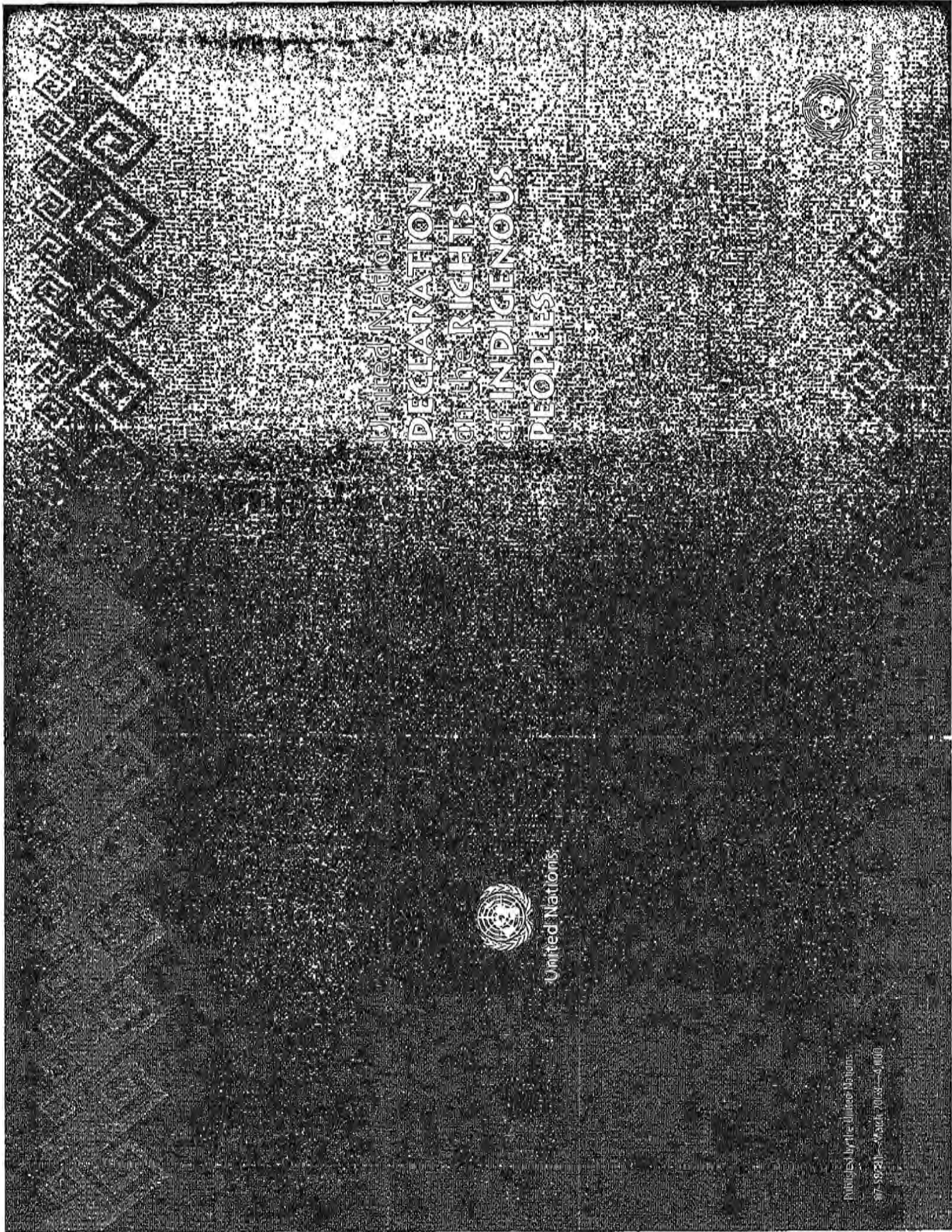
TOTAL NUMBER OF PAGES: 16 (INCLUDING COVER PAGE)
ORIGINAL BEING SENT BY MAIL - NO.

Please see attached the United Nations Declaration of the Rights of Indigenous Peoples.

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United Nations
DECLARATION
on the RIGHTS
of INDIGENOUS
PEOPLES



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07-59231 - March 2008 - 4,000

MAIL ROOM
SALLE DE COURIER

2012 SEP -4 A 8:38

NEB/ONE

United Nations Declaration
on the Rights of Indigenous Peoples



Resolution adopted by the General Assembly

[without reference to a Main Committee (A/61/L.67 and Add.1)]

61/295. United Nations Declaration on the Rights of Indigenous Peoples

The General Assembly,

Taking note of the recommendation of the Human Rights Council contained in its resolution 1/2 of 29 June 2006,¹ by which the Council adopted the text of the United Nations Declaration on the Rights of Indigenous Peoples,

Recalling its resolution 61/178 of 20 December 2006, by which it decided to defer consideration of and action on the Declaration to allow time for further consultations thereon, and also decided to conclude its consideration before the end of the sixty-first session of the General Assembly,

Adopts the United Nations Declaration on the Rights of Indigenous Peoples as contained in the annex to the present resolution.

*107th plenary meeting
13 September 2007*

Annex

United Nations Declaration on the Rights of Indigenous Peoples

The General Assembly,

Guided by the purposes and principles of the Charter of the United Nations, and good faith in the fulfilment of the obligations assumed by States in accordance with the Charter,

Affirming that indigenous peoples are equal to all other peoples, while recognizing the right of all peoples to be different, to consider themselves different, and to be respected as such,

¹ See *Official Records of the General Assembly, Sixty-first Session, Supplement No. 53 (A/61/53)*, part one, chap. II, sect. A.

Affirming also that all peoples contribute to the diversity and richness of civilizations and cultures, which constitute the common heritage of humankind,

Affirming further that all doctrines, policies and practices based on or advocating superiority of peoples or individuals on the basis of national origin or racial, religious, ethnic or cultural differences are racist, scientifically false, legally invalid, morally condemnable and socially unjust,

Reaffirming that indigenous peoples, in the exercise of their rights, should be free from discrimination of any kind,

Concerned that indigenous peoples have suffered from historic injustices as a result of, inter alia, their colonization and dispossession of their lands, territories and resources, thus preventing them from exercising, in particular, their right to development in accordance with their own needs and interests,

Recognizing the urgent need to respect and promote the inherent rights of indigenous peoples which derive from their political, economic and social structures and from their cultures, spiritual traditions, histories and philosophies, especially their rights to their lands, territories and resources,

Recognizing also the urgent need to respect and promote the rights of indigenous peoples affirmed in treaties, agreements and other constructive arrangements with States,

Welcoming the fact that indigenous peoples are organizing themselves for political, economic, social and cultural enhancement and in order to bring to an end all forms of discrimination and oppression wherever they occur,

Convinced that control by indigenous peoples over developments affecting them and their lands, territories and resources will enable them to maintain and strengthen their institutions, cultures and traditions, and to promote their development in accordance with their aspirations and needs,

Recognizing that respect for indigenous knowledge, cultures and traditional practices contributes to sustainable and equitable development and proper management of the environment,

Emphasizing the contribution of the demilitarization of the lands and territories of indigenous peoples to peace, economic and social

progress and development, understanding and friendly relations among nations and peoples of the world,

Recognizing in particular the right of indigenous families and communities to retain shared responsibility for the upbringing, training, education and well-being of their children, consistent with the rights of the child,

Considering that the rights affirmed in treaties, agreements and other constructive arrangements between States and indigenous peoples are, in some situations, matters of international concern, interest, responsibility and character,

Considering also that treaties, agreements and other constructive arrangements, and the relationship they represent, are the basis for a strengthened partnership between indigenous peoples and States,

Acknowledging that the Charter of the United Nations, the International Covenant on Economic, Social and Cultural Rights² and the International Covenant on Civil and Political Rights,² as well as the Vienna Declaration and Programme of Action,³ affirm the fundamental importance of the right to self-determination of all peoples, by virtue of which they freely determine their political status and freely pursue their economic, social and cultural development,

Bearing in mind that nothing in this Declaration may be used to deny any peoples their right to self-determination, exercised in conformity with international law,

Convinced that the recognition of the rights of indigenous peoples in this Declaration will enhance harmonious and cooperative relations between the State and indigenous peoples, based on principles of justice, democracy, respect for human rights, non-discrimination and good faith,

Encouraging States to comply with and effectively implement all their obligations as they apply to indigenous peoples under international instruments, in particular those related to human rights, in consultation and cooperation with the peoples concerned,

Emphasizing that the United Nations has an important and continuing role to play in promoting and protecting the rights of indigenous peoples,

²See resolution 2200 A (XXI) annex.

³A/CONF.157/24 (Part I), chap. III.

Believing that this Declaration is a further important step forward for the recognition, promotion and protection of the rights and freedoms of indigenous peoples and in the development of relevant activities of the United Nations system in this field,

Recognizing and reaffirming that indigenous individuals are entitled without discrimination to all human rights recognized in international law, and that indigenous peoples possess collective rights which are indispensable for their existence, well-being and integral development as peoples,

Recognizing that the situation of indigenous peoples varies from region to region and from country to country and that the significance of national and regional particularities and various historical and cultural backgrounds should be taken into consideration,

Solemnly proclaims the following United Nations Declaration on the Rights of Indigenous Peoples as a standard of achievement to be pursued in a spirit of partnership and mutual respect:

Article 1

Indigenous peoples have the right to the full enjoyment, as a collective or as individuals, of all human rights and fundamental freedoms as recognized in the Charter of the United Nations, the Universal Declaration of Human Rights⁴ and international human rights law.

Article 2

Indigenous peoples and individuals are free and equal to all other peoples and individuals and have the right to be free from any kind of discrimination, in the exercise of their rights, in particular that based on their indigenous origin or identity.

Article 3

Indigenous peoples have the right to self-determination. By virtue of that right they freely determine their political status and freely pursue their economic, social and cultural development.

Article 4

Indigenous peoples, in exercising their right to self-determination, have the right to autonomy or self-government in matters relating to

⁴ Resolution 217 A (III).

their internal and local affairs, as well as ways and means for financing their autonomous functions.

Article 5

Indigenous peoples have the right to maintain and strengthen their distinct political, legal, economic, social and cultural institutions, while retaining their right to participate fully, if they so choose, in the political, economic, social and cultural life of the State.

Article 6

Every indigenous individual has the right to a nationality.

Article 7

1. Indigenous individuals have the rights to life, physical and mental integrity, liberty and security of person.
2. Indigenous peoples have the collective right to live in freedom, peace and security as distinct peoples and shall not be subjected to any act of genocide or any other act of violence, including forcibly removing children of the group to another group.

Article 8

1. Indigenous peoples and individuals have the right not to be subjected to forced assimilation or destruction of their culture.
2. States shall provide effective mechanisms for prevention of, and redress for:
 - (a) Any action which has the aim or effect of depriving them of their integrity as distinct peoples, or of their cultural values or ethnic identities;
 - (b) Any action which has the aim or effect of dispossessing them of their lands, territories or resources;
 - (c) Any form of forced population transfer which has the aim or effect of violating or undermining any of their rights;
 - (d) Any form of forced assimilation or integration;
 - (e) Any form of propaganda designed to promote or incite racial or ethnic discrimination directed against them.

Article 9

Indigenous peoples and individuals have the right to belong to an indigenous community or nation, in accordance with the traditions and customs of the community or nation concerned. No discrimination of any kind may arise from the exercise of such a right.

Article 10

Indigenous peoples shall not be forcibly removed from their lands or territories. No relocation shall take place without the free, prior and informed consent of the indigenous peoples concerned and after agreement on just and fair compensation and, where possible, with the option of return.

Article 11

1. Indigenous peoples have the right to practise and revitalize their cultural traditions and customs. This includes the right to maintain, protect and develop the past, present and future manifestations of their cultures, such as archaeological and historical sites, artefacts, designs, ceremonies, technologies and visual and performing arts and literature.

2. States shall provide redress through effective mechanisms, which may include restitution, developed in conjunction with indigenous peoples, with respect to their cultural, intellectual, religious and spiritual property taken without their free, prior and informed consent or in violation of their laws, traditions and customs.

Article 12

1. Indigenous peoples have the right to manifest, practise, develop and teach their spiritual and religious traditions, customs and ceremonies; the right to maintain, protect, and have access in privacy to their religious and cultural sites; the right to the use and control of their ceremonial objects; and the right to the repatriation of their human remains.

2. States shall seek to enable the access and/or repatriation of ceremonial objects and human remains in their possession through fair, transparent and effective mechanisms developed in conjunction with indigenous peoples concerned.

Article 13

1. Indigenous peoples have the right to revitalize, use, develop and transmit to future generations their histories, languages, oral traditions, philosophies, writing systems and literatures, and to designate and retain their own names for communities, places and persons.
2. States shall take effective measures to ensure that this right is protected and also to ensure that indigenous peoples can understand and be understood in political, legal and administrative proceedings, where necessary through the provision of interpretation or by other appropriate means.

Article 14

1. Indigenous peoples have the right to establish and control their educational systems and institutions providing education in their own languages, in a manner appropriate to their cultural methods of teaching and learning.
2. Indigenous individuals, particularly children, have the right to all levels and forms of education of the State without discrimination.
3. States shall, in conjunction with indigenous peoples, take effective measures, in order for indigenous individuals, particularly children, including those living outside their communities, to have access, when possible, to an education in their own culture and provided in their own language.

Article 15

1. Indigenous peoples have the right to the dignity and diversity of their cultures, traditions, histories and aspirations which shall be appropriately reflected in education and public information.
2. States shall take effective measures, in consultation and cooperation with the indigenous peoples concerned, to combat prejudice and eliminate discrimination and to promote tolerance, understanding and good relations among indigenous peoples and all other segments of society.

Article 16

1. Indigenous peoples have the right to establish their own media in their own languages and to have access to all forms of non-indigenous media without discrimination.

2. States shall take effective measures to ensure that State-owned media duly reflect indigenous cultural diversity. States, without prejudice to ensuring full freedom of expression, should encourage privately owned media to adequately reflect indigenous cultural diversity.

Article 17

1. Indigenous individuals and peoples have the right to enjoy fully all rights established under applicable international and domestic labour law.

2. States shall in consultation and cooperation with indigenous peoples take specific measures to protect indigenous children from economic exploitation and from performing any work that is likely to be hazardous or to interfere with the child's education, or to be harmful to the child's health or physical, mental, spiritual, moral or social development, taking into account their special vulnerability and the importance of education for their empowerment.

3. Indigenous individuals have the right not to be subjected to any discriminatory conditions of labour and, inter alia, employment or salary.

Article 18

Indigenous peoples have the right to participate in decision-making in matters which would affect their rights, through representatives chosen by themselves in accordance with their own procedures, as well as to maintain and develop their own indigenous decision-making institutions.

Article 19

States shall consult and cooperate in good faith with the indigenous peoples concerned through their own representative institutions in order to obtain their free, prior and informed consent before adopting and implementing legislative or administrative measures that may affect them.

Article 20

1. Indigenous peoples have the right to maintain and develop their political, economic and social systems or institutions, to be secure in the enjoyment of their own means of subsistence and development, and to engage freely in all their traditional and other economic activities.

2. Indigenous peoples deprived of their means of subsistence and development are entitled to just and fair redress.

Article 21

1. Indigenous peoples have the right, without discrimination, to the improvement of their economic and social conditions, including, inter alia, in the areas of education, employment, vocational training and retraining, housing, sanitation, health and social security.
2. States shall take effective measures and, where appropriate, special measures to ensure continuing improvement of their economic and social conditions. Particular attention shall be paid to the rights and special needs of indigenous elders, women, youth, children and persons with disabilities.

Article 22

1. Particular attention shall be paid to the rights and special needs of indigenous elders, women, youth, children and persons with disabilities in the implementation of this Declaration.
2. States shall take measures, in conjunction with indigenous peoples, to ensure that indigenous women and children enjoy the full protection and guarantees against all forms of violence and discrimination.

Article 23

Indigenous peoples have the right to determine and develop priorities and strategies for exercising their right to development. In particular, indigenous peoples have the right to be actively involved in developing and determining health, housing and other economic and social programmes affecting them and, as far as possible, to administer such programmes through their own institutions.

Article 24

1. Indigenous peoples have the right to their traditional medicines and to maintain their health practices, including the conservation of their vital medicinal plants, animals and minerals. Indigenous individuals also have the right to access, without any discrimination, to all social and health services.
2. Indigenous individuals have an equal right to the enjoyment of the highest attainable standard of physical and mental health. States shall take the necessary steps with a view to achieving progressively the full realization of this right.

Article 25

Indigenous peoples have the right to maintain and strengthen their distinctive spiritual relationship with their traditionally owned or otherwise occupied and used lands, territories, waters and coastal seas and other resources and to uphold their responsibilities to future generations in this regard.

Article 26

1. Indigenous peoples have the right to the lands, territories and resources which they have traditionally owned, occupied or otherwise used or acquired.
2. Indigenous peoples have the right to own, use, develop and control the lands, territories and resources that they possess by reason of traditional ownership or other traditional occupation or use, as well as those which they have otherwise acquired.
3. States shall give legal recognition and protection to these lands, territories and resources. Such recognition shall be conducted with due respect to the customs, traditions and land tenure systems of the indigenous peoples concerned.

Article 27

States shall establish and implement, in conjunction with indigenous peoples concerned, a fair, independent, impartial, open and transparent process, giving due recognition to indigenous peoples' laws, traditions, customs and land tenure systems, to recognize and adjudicate the rights of indigenous peoples pertaining to their lands, territories and resources, including those which were traditionally owned or otherwise occupied or used. Indigenous peoples shall have the right to participate in this process.

Article 28

1. Indigenous peoples have the right to redress, by means that can include restitution or, when this is not possible, just, fair and equitable compensation, for the lands, territories and resources which they have traditionally owned or otherwise occupied or used, and which have been confiscated, taken, occupied, used or damaged without their free, prior and informed consent.
2. Unless otherwise freely agreed upon by the peoples concerned, compensation shall take the form of lands, territories and resources

equal in quality, size and legal status or of monetary compensation or other appropriate redress.

Article 29

1. Indigenous peoples have the right to the conservation and protection of the environment and the productive capacity of their lands or territories and resources. States shall establish and implement assistance programmes for indigenous peoples for such conservation and protection, without discrimination.
2. States shall take effective measures to ensure that no storage or disposal of hazardous materials shall take place in the lands or territories of indigenous peoples without their free, prior and informed consent.
3. States shall also take effective measures to ensure, as needed, that programmes for monitoring, maintaining and restoring the health of indigenous peoples, as developed and implemented by the peoples affected by such materials, are duly implemented.

Article 30

1. Military activities shall not take place in the lands or territories of indigenous peoples, unless justified by a relevant public interest or otherwise freely agreed with or requested by the indigenous peoples concerned.
2. States shall undertake effective consultations with the indigenous peoples concerned, through appropriate procedures and in particular through their representative institutions, prior to using their lands or territories for military activities.

Article 31

1. Indigenous peoples have the right to maintain, control, protect and develop their cultural heritage, traditional knowledge and traditional cultural expressions, as well as the manifestations of their sciences, technologies and cultures, including human and genetic resources, seeds, medicines, knowledge of the properties of fauna and flora, oral traditions, literatures, designs, sports and traditional games and visual and performing arts. They also have the right to maintain, control, protect and develop their intellectual property over such cultural heritage, traditional knowledge, and traditional cultural expressions.

2. In conjunction with indigenous peoples, States shall take effective measures to recognize and protect the exercise of these rights.

Article 32

1. Indigenous peoples have the right to determine and develop priorities and strategies for the development or use of their lands or territories and other resources.

2. States shall consult and cooperate in good faith with the indigenous peoples concerned through their own representative institutions in order to obtain their free and informed consent prior to the approval of any project affecting their lands or territories and other resources, particularly in connection with the development, utilization or exploitation of mineral, water or other resources.

3. States shall provide effective mechanisms for just and fair redress for any such activities, and appropriate measures shall be taken to mitigate adverse environmental, economic, social, cultural or spiritual impact.

Article 33

1. Indigenous peoples have the right to determine their own identity or membership in accordance with their customs and traditions. This does not impair the right of indigenous individuals to obtain citizenship of the States in which they live.

2. Indigenous peoples have the right to determine the structures and to select the membership of their institutions in accordance with their own procedures.

Article 34

Indigenous peoples have the right to promote, develop and maintain their institutional structures and their distinctive customs, spirituality, traditions, procedures, practices and, in the cases where they exist, juridical systems or customs, in accordance with international human rights standards.

Article 35

Indigenous peoples have the right to determine the responsibilities of individuals to their communities.

Article 36

1. Indigenous peoples, in particular those divided by international borders, have the right to maintain and develop contacts, relations and cooperation, including activities for spiritual, cultural, political, economic and social purposes, with their own members as well as other peoples across borders.

2. States, in consultation and cooperation with indigenous peoples, shall take effective measures to facilitate the exercise and ensure the implementation of this right.

Article 37

1. Indigenous peoples have the right to the recognition, observance and enforcement of treaties, agreements and other constructive arrangements concluded with States or their successors and to have States honour and respect such treaties, agreements and other constructive arrangements.

2. Nothing in this Declaration may be interpreted as diminishing or eliminating the rights of indigenous peoples contained in treaties, agreements and other constructive arrangements.

Article 38

States, in consultation and cooperation with indigenous peoples, shall take the appropriate measures, including legislative measures, to achieve the ends of this Declaration.

Article 39

Indigenous peoples have the right to have access to financial and technical assistance from States and through international cooperation, for the enjoyment of the rights contained in this Declaration.

Article 40

Indigenous peoples have the right to access to and prompt decision through just and fair procedures for the resolution of conflicts and disputes with States or other parties, as well as to effective remedies for all infringements of their individual and collective rights. Such a decision shall give due consideration to the customs, traditions, rules and legal systems of the indigenous peoples concerned and international human rights.

Article 41

The organs and specialized agencies of the United Nations system and other intergovernmental organizations shall contribute to the full realization of the provisions of this Declaration through the mobilization, inter alia, of financial cooperation and technical assistance. Ways and means of ensuring participation of indigenous peoples on issues affecting them shall be established.

Article 42

The United Nations, its bodies, including the Permanent Forum on Indigenous Issues, and specialized agencies, including at the country level, and States shall promote respect for and full application of the provisions of this Declaration and follow up the effectiveness of this Declaration.

Article 43

The rights recognized herein constitute the minimum standards for the survival, dignity and well-being of the indigenous peoples of the world.

Article 44

All the rights and freedoms recognized herein are equally guaranteed to male and female indigenous individuals.

Article 45

Nothing in this Declaration may be construed as diminishing or extinguishing the rights indigenous peoples have now or may acquire in the future.

Article 46

1. Nothing in this Declaration may be interpreted as implying for any State, people, group or person any right to engage in any activity or to perform any act contrary to the Charter of the United Nations or construed as authorizing or encouraging any action which would dismember or impair, totally or in part, the territorial integrity or political unity of sovereign and independent States.

2. In the exercise of the rights enunciated in the present Declaration, human rights and fundamental freedoms of all shall be respected. The exercise of the rights set forth in this Declaration shall be subject only to such limitations as are determined by law

and in accordance with international human rights obligations. Any such limitations shall be non-discriminatory and strictly necessary solely for the purpose of securing due recognition and respect for the rights and freedoms of others and for meeting the just and most compelling requirements of a democratic society.

3. The provisions set forth in this Declaration shall be interpreted in accordance with the principles of justice, democracy, respect for human rights, equality, non-discrimination, good governance and good faith.