Northwest Territories Environment and Natural Resources

MAY 3 1 2010

Mr. Grant Pryznyk
Interim Chair
Wek'èezhìi Renewable Resources Board
Yellowknife Office
102A - 4504 49TH Ave.
Yellowknife, NT X1A 1A7

Dear Mr. Pryznyk:

WRRB Public Hearings Adjournment - Revised
Joint Proposal on Caribou Management Actions in the Wek'èezhìi

The Tłı̨chǫ Government and the Department of Environment and Natural Resources (ENR) would like to thank the Wek'èezhìi Renewable Resources Board (WRRB) for the opportunity provided at the March 22-26, 2010 public hearing to revise the Bathurst caribou management joint proposal.

Please find attached the:

- *Revised Joint Proposal on Caribou Management Actions in the Wek'èezhìi*; Tłı̨chǫ Government, Department of Environment and Natural Resources, May 31, 2010.

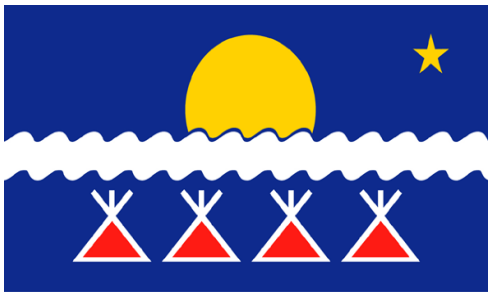
If you have any additional questions regarding this information please contact Mr. Jason McNeill, Senior Policy Advisor, Aboriginal Relations, ENR at (867) 920-3298 or Mr. Eddie Erasmus, Lands Protection Director, Tłı̨chǫ Government at (867) 392-6381 (ext. 300).

Sincerely,

Gary A. Bohnet
Deputy Minister

Grand Chief Joe Rabesca
Tłı̨chǫ Government

Attachment



REVISED JOINT PROPOSAL ON CARIBOU MANAGEMENT ACTIONS IN WEK'ÈEZHÌI

Submitted to:

Wek'èezhìi Renewable Resource Board

Submitted by:

Tłı̨chǫ Government

Behchokǫ̀, NT.

And

Department of Environment and Natural Resources,

Government of the Northwest Territories

Yellowknife, NT.

31 May 2010

EXECUTIVE SUMMARY

1. A population survey in 2009 of the Bathurst caribou herd provided an estimate of 31,900 ± 5,300 caribou, and showed that the herd's decline had accelerated after 2006 when it still numbered over 100,000. This accelerated decline has been the reason for developing co-management actions to halt the decline and give the herd an opportunity to recover.

2. In July 2009 the Wek'èezhìi Renewable Resources Board (WRRB) asked the Tłı̨chǫ Government (TG) and the Department of Environment and Natural Resources, Government of the Northwest Territories (ENR-GNWT) to develop a joint management proposal for the Bathurst caribou herd and the neighbouring Bluenose-East herd. A joint proposal was submitted to the WRRB in early November 2009. TG and ENR-GNWT agreed on a number of management and monitoring actions, but provided separate recommendations on Aboriginal harvest of Bathurst caribou.

3. In March 2010, the WRRB held a 5-day hearing on the joint management proposal, with presentations from TG, ENR-GNWT, intervenors with an interest in the Bathurst herd, and members of the public. On the last day of the hearing the WRRB granted an adjournment of the hearing requested by the TG (with ENR-GNWT support), to enable the two parties to resume collaborative work on the management proposal, and specifically to seek agreement on the key issue of Aboriginal harvest of Bathurst and Bluenose-East caribou, and to consider other related issues. A revised proposal was requested by May 31, 2010. This document is the revised joint management proposal.

4. Although the main focus of the original and revised proposals remains on actions to stabilize declining caribou herds, TG and ENR-GNWT through their joint meetings reviewed and recognized the importance of the long-standing cultural and social relationship between caribou and Tłı̨chǫ and other northern Aboriginal peoples. Management of the Aboriginal harvest must happen in ways that re-build traditional respect for caribou, other wildlife, and the land itself, and in a manner that empowers Tłı̨chǫ communities to implement the Tłı̨chǫ Agreement through self-regulating and monitoring their collective hunting behaviour.

5. Overall, the approach in the revised proposal is to focus in the short-term (next two years) on reducing death rates (mortality) of Bathurst caribou by reducing the two factors that most directly affect caribou death rates: hunter harvest and wolf predation. TG and ENR-GNWT recognize that caribou numbers are also affected by several other factors (weather during all seasons, fire on the winter range, industrial development) and these are to be monitored generally in the short term and will need to be more fully considered in a longer-term planning context.

6. TG and ENR-GNWT have agreed that the annual harvest of Bathurst caribou inside and outside of Wek'èezhìi should be 300 caribou ± 10% in total from this herd, with at least 80% of this harvest being bulls. Allocation of this harvest will require further discussion between TG, ENR-GNWT, and other Aboriginal groups. This proposal does not preclude the right to harvest for other Aboriginal groups, and it does not diminish the GNWT's requirement to consult with other Aboriginal groups. The herd should be able to stabilize with this harvest if calf productivity stays high. The proposal is for a harvesting target rather than a Total Allowable Harvest, as this seems most appropriate in light of confidence levels for current herd population and harvest data, and as the means considered most supportive of innovative and effective implementation of proposed hunting targets. These proposed hunting targets are in the range of Aboriginal harvesting of the Bathurst herd during fall and winter hunting seasons in 2009-2010, although TG and ENR-GNWT recognize that this is a very substantial

reduction in harvest levels from previous years. Reducing harvest to this level will require temporary elimination of resident, non-resident, and commercial caribou harvest from the Bathurst herd.

7. For the Bluenose-East herd, an interim harvest management is recommended, with the expectation that ENR-GNWT will carry out caribou surveys in 2010 to provide an updated population estimate. Harvest management for this herd must involve Nunavut, Sahtu and Inuvialuit governments, boards and communities, and consideration of an on-going management planning process for the Bluenose-West, Cape Bathurst and Bluenose-East herds. As an interim recommendation, TG and ENR-GNWT propose that total harvest of this herd should target $\leq$ 4% (1920 caribou) of an estimated herd size of ca. 48,000, which would be the herd's size if its annual rate of decline from 2000 to 2006 (7.5%) had continued to 2010. The harvest should also consist of at least 80% bulls. This would amount to about a 45% reduction from the estimated 2009-2010 harvest of this herd (ca. 3500, with about 2/3 of the harvest being cows).

8. Although the Ahiak herd occurs rarely in Wek'èezhìi, ENR-GNWT's reconnaissance surveys on the Ahiak calving ground show a decline of 60% in numbers of cows 2006-2009. There is limited evidence that some cows from the Beverly herd now share ranges with Ahiak caribou, and numbers of caribou calving on the Beverly calving ground have dropped to very low levels. TG and ENR-GNWT propose that NWT communities respect recommendations from the Beverly and Qamanirjuaq Caribou Management Board aimed at reducing Ahiak/Beverly caribou harvest and shifting that harvest to at least 80% bulls. NWT communities should not replace harvest of Bathurst caribou by increased harvest of Ahiak and/or Beverly caribou.

9. In addition to these recommendations on caribou harvest, TG and ENR-GNWT are proposing one additional management action designed to reduce caribou mortality: increased harvest of wolves by hunters and trappers in the Bathurst range. This action is proposed in recognition of the herd's very rapid decline from 2006 to 2009, as a further way to reduce caribou death rates and increase the likelihood for the herd to stabilize and recover.

10. TG and ENR-GNWT took the opportunity in developing a revised proposal to review and revise other management aspects that would be needed to effectively implement caribou management. In particular, managing the caribou harvest has to be done in ways that will be acceptable to Tłı̨chǫ and other Aboriginal elders, hunters, and communities. Resumption of past practices of shifting to other country foods like fish, moose and muskrats would be consistent with past times of caribou scarcity. The revised proposal contains recommendations to maintain or increase access to wood bison as an alternative meat source, and to increase support for fish camps.

11. Effective implementation of the management proposed will require an increased capacity on the part of TG to fully participate in monitoring and management of caribou. Implementation should be built around methods that will promote community ownership of the programs; one example would be Community Caribou Committees in each Tłı̨chǫ community that would meet regularly to review the most recent caribou information and be part of decision-making in their communities. TG and ENR-GNWT suggest a number of ways that could be used to implement these management proposals, while recognizing that a detailed implementation plan will require further discussion and may need to incorporate WRRB's recommendations.

12. Monitoring actions listed in the original joint management proposal were reviewed and incorporated into an adaptive management cycle that would include periodic review through the year of the most recent information, with the opportunity to re-consider management actions. Monitoring

caribou harvest would be part of this cycle, which would also include results of caribou surveys, wolf harvest efforts, and information gathered by community monitors on caribou condition and environmental trends. As a result, this proposal is designed to begin a much more collaborative and adaptive co-management system than existed previously, which the parties believe will be more effective for assessing herd population and health, gathering reliable harvesting data, and enlisting Aboriginal harvesters and communities in effective implementation.

13. Although the primary focus in this proposal is on the short-term future and stabilization of the Bathurst herd, TG and ENR-GNWT recognize the need for long-term management plans for each of the three herds (Bathurst, Bluenose-East and Ahiak/Beverly) where harvest, habitat, and other factors affecting barren-ground caribou herds are considered carefully.

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1.0 THE CARIBOU ISSUE, PREVIOUS PROPOSAL AND REVISED APPROACH

The Bathurst caribou herd declined rapidly between 2006 and 2009 from over 100,000 to about 32,000. The TG and Environment and Natural Resources, Government of the Northwest Territories (ENR-GNWT) submitted a joint proposal on caribou management to the Wek'èezhìi Renewable Resources Board (WRRB) in early November 2009. Management actions were proposed primarily for the Bathurst herd, but consideration was also given to its western and eastern neighbours, the Bluenose-East and Ahiak herds. TG and ENR-GNWT agreed on several management actions but were not able to agree on management of the Aboriginal harvest in Wek'èezhìi.

The WRRB held a public hearing in late March 2010 to review the proposal, and related reports and materials. Presentations were given by TG, ENR-GNWT, intervenors with an interest in Bathurst caribou, and the general public. On the last day of the hearing, TG with the support of ENR-GNWT requested an adjournment of the hearing to allow the two governments to complete work on the joint proposal, and specifically to seek agreement on management of the Aboriginal harvest of caribou in Wek'èezhìi. WRRB granted an adjournment, with a requirement for the revised proposal to be submitted by May 31, 2010. WRRB also requested a progress report on April 30, 2010, which was submitted by TG and ENR-GNWT and accepted by WRRB as sufficient evidence of progress.

Management actions 1, 2 and 3 in the original proposal were confirmed – cease all hunting by residents, guide/outfitter hunts for non-residents and commercial harvesters. On the key issue of management of the Aboriginal harvest of Bathurst caribou, TG and ENR-GNWT came to agreement, and the shared recommendations on harvest of the Bathurst, Bluenose-East and Ahiak herds are in section 5 (Recommended Management Actions). These recommendations refer to actions 4 and 5 in the original proposal. Submissions made at the March 2010 WRRB hearing were considered by TG and ENR-GNWT in developing the revised recommendations. There were also several monitoring actions in the original proposal. These were reviewed and rearranged as section 6, and are now presented as part of an annual cycle of monitoring, information review, and adaptive management.

In addition to these updates on key sections of the original proposal, TG and ENR-GNWT considered other management aspects that will be needed to effectively implement the management proposed. Section 4 provides a brief overview of how TG and ENR-GNWT worked together on the revised proposal. Section 7 includes a number of approaches that were discussed as methods of implementing harvest regulation; the two parties recognize that further discussion of these methods will be needed and that implementation will depend in part on WRRB recommendations. Section 8 suggests ways to improve community engagement in caribou management, and to increase TG capacity for full participation. Section 9 identifies the need for longer-term planning for the three caribou herds, and the need to protect habitat and manage development in caribou ranges. Section 10 describes actions to increase access to bison as an alternative country food, with some comments on monitoring and management of other potential country food alternatives.

Above all, TG and ENR-GNWT recognize the long-standing cultural and social relationship between caribou and Tłı̨chǫ and other northern Aboriginal peoples. Throughout the proposal we have sought to emphasize the need for a respectful relationship between people and caribou.

Technical details on population modeling, surveys and other research were kept to a minimum in this proposal. Readers seeking greater detail should refer to the Bathurst technical report, reports on population modeling, and other reports and submissions on the WRRB public registry.

2.0 BACKGROUND AND RATIONALE

The status of barren-ground caribou herds with seasonal ranges that occur within Wek'èezhìi (Tłı̨chǫ Land Claim area) is briefly reviewed below (Figure 1). Barren-ground caribou herds are known to vary widely in numbers over time; all herds monitored by ENR-GNWT declined in the early 2000s, and most caribou and reindeer populations globally were in decline in 2009.

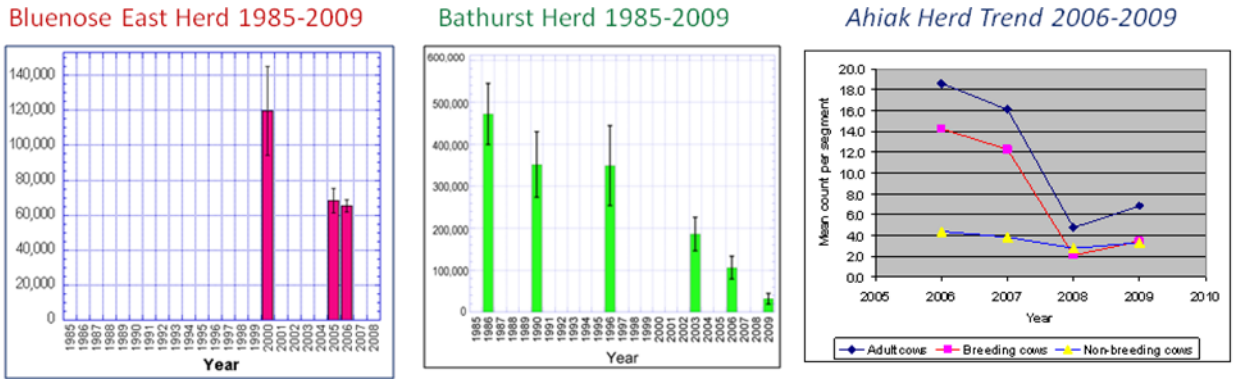

Figure 1. Population trend in the Bluenose-East, Bathurst and Ahiak caribou herds.

Bathurst Herd

In June 2009, ENR-GNWT staff conducted a calving ground photographic survey of cows on the Bathurst herd's calving ground, using the same methods that have been used since the 1980s. In 2009, the overall herd size was estimated at 31,900 ± 5,300, compared to more than 100,000 in 2006. The accelerated decline established by the survey results clearly showed that management actions would have to be taken immediately to stabilize the rapidly declining herd and work towards its recovery. The next Bathurst calving ground photographic survey is scheduled for June 2012.

Bluenose-East Herd

Reliable population estimates for the Bluenose-East herd are not available prior to 2000, when this herd was estimated at 120,000. Post-calving photographic surveys were conducted in 2005 and 2006 and results revealed that this herd had declined substantially since 2000. In 2006, the herd estimate was estimated at 66,700.

A photo census was attempted in July of 2009 on the post-calving range of the Bluenose-East herd in order to obtain a new population estimate. The survey was unsuccessful due to cool wet weather, which meant that the caribou did not aggregate tightly enough for photos. Despite the failure to conduct the photo census in 2009, biologists reported seeing fewer animals during post-calving than observed in 2006. This is a concern and suggests caution in evaluating management options. ENR-GNWT will be conducting a June 2010 calving photographic survey and a July 2010 post-calving photographic survey for the Bluenose-East herd, with support and participation of the GN (Government of Nunavut). This should ensure that a new population estimate is available this summer. If both surveys are successful, a comparison of the two methods will also be possible.

Ahiak Herd

For the Ahiak herd, longer-term information such as population size and trend and seasonal range use and movements has been limited. Neither a calving ground nor post-calving photographic survey has been completed for the Ahiak herd, although the population was estimated at approximately

200,000 animals in 1996 based on a crude extrapolation of a systematic reconnaissance survey on the calving grounds. Much of the detailed radio-collar information and surveys of the calving grounds in the Queen Maud Gulf region is from 2006 to present.

From 2006 to 2009, ENR-GNWT completed systematic reconnaissance surveys of the annual calving ground of the Ahiak herd. Preliminary trend analysis of the average number of cows seen per survey transect segment suggests that the numbers of caribou cows on the Ahiak calving ground in 2009 had declined by ca. 60% compared to data from 2006. Although knowledge of these caribou is improving over time, the observed decline is a real issue for management and conservation of this herd. In addition, limited radio-collar information from 2006 to 2010 indicates that some cows that formerly calved on the Beverly calving ground switched to the Ahiak calving ground during these years. Outside of the calving period, these radio-collared Beverly cows appeared to share ranges entirely with cows calving on the Ahiak calving ground. Numbers of cows calving on the traditional Beverly calving ground in 2007, 2008 and 2009 were extremely low. Exactly what happened to the Beverly herd may never be fully known, and interpretations of the limited data vary. Nevertheless, conservation of the few cows still using the Beverly calving ground is now linked to conservation of the Ahiak herd, thus harvest and management of the Ahiak herd must be mindful of the exceptionally low numbers of Beverly caribou.

ENR-GNWT will be conducting a systematic reconnaissance survey of the Ahiak and Beverly calving grounds in June 2010, in collaboration with the Government of Nunavut (GN). The GN is planning a calving ground photographic survey of the Ahiak herd and systematic survey of the Beverly herd calving ground for June of 2011 with collaboration of ENR-GNWT.

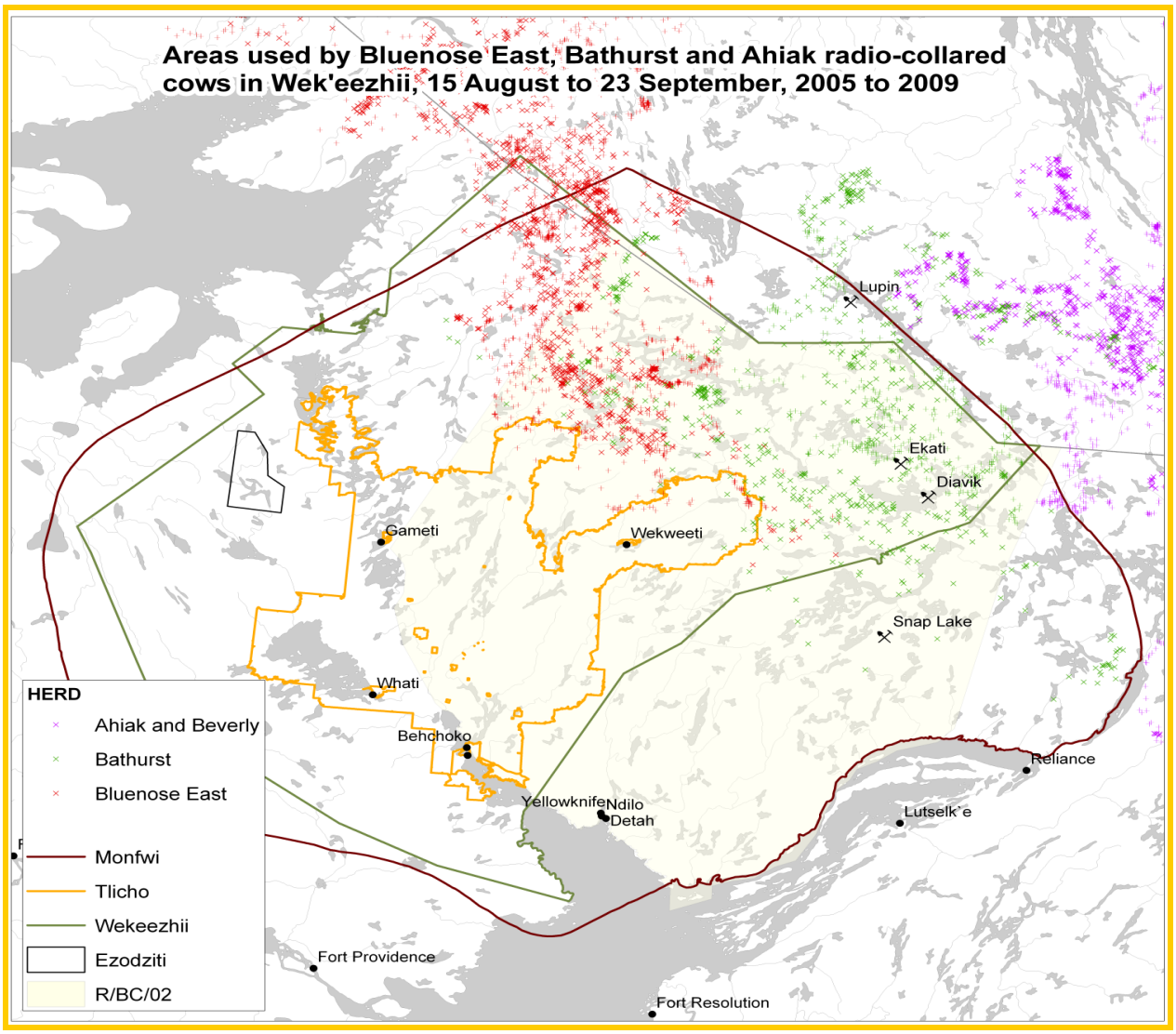

Figure 2. Areas used in the fall (Aug. 15 to Sept. 23) by radio-collared Bluenose-East (red), Bathurst (green) and Ahiak (purple) caribou cows from 2005 to 2009. Mapped by A. D'Hont, ENR-GNWT. The numbers of locations do not reflect herd size, rather they reflect numbers of radio-collars on the 3 herds (most on Bluenose-East caribou, least on Bathurst caribou).

Figure 2 shows the areas used in recent years by caribou from the three neighbouring herds during the fall hunting season (August to September), based on radio-collar locations of cows over the last 5 years (2005-2009). Ahiak caribou have rarely occurred in Wek'èezhìi during this period, but there has been extensive use of northern Wek'èezhìi by Bluenose-East and Bathurst caribou in the fall, with some overlap between the two herds.

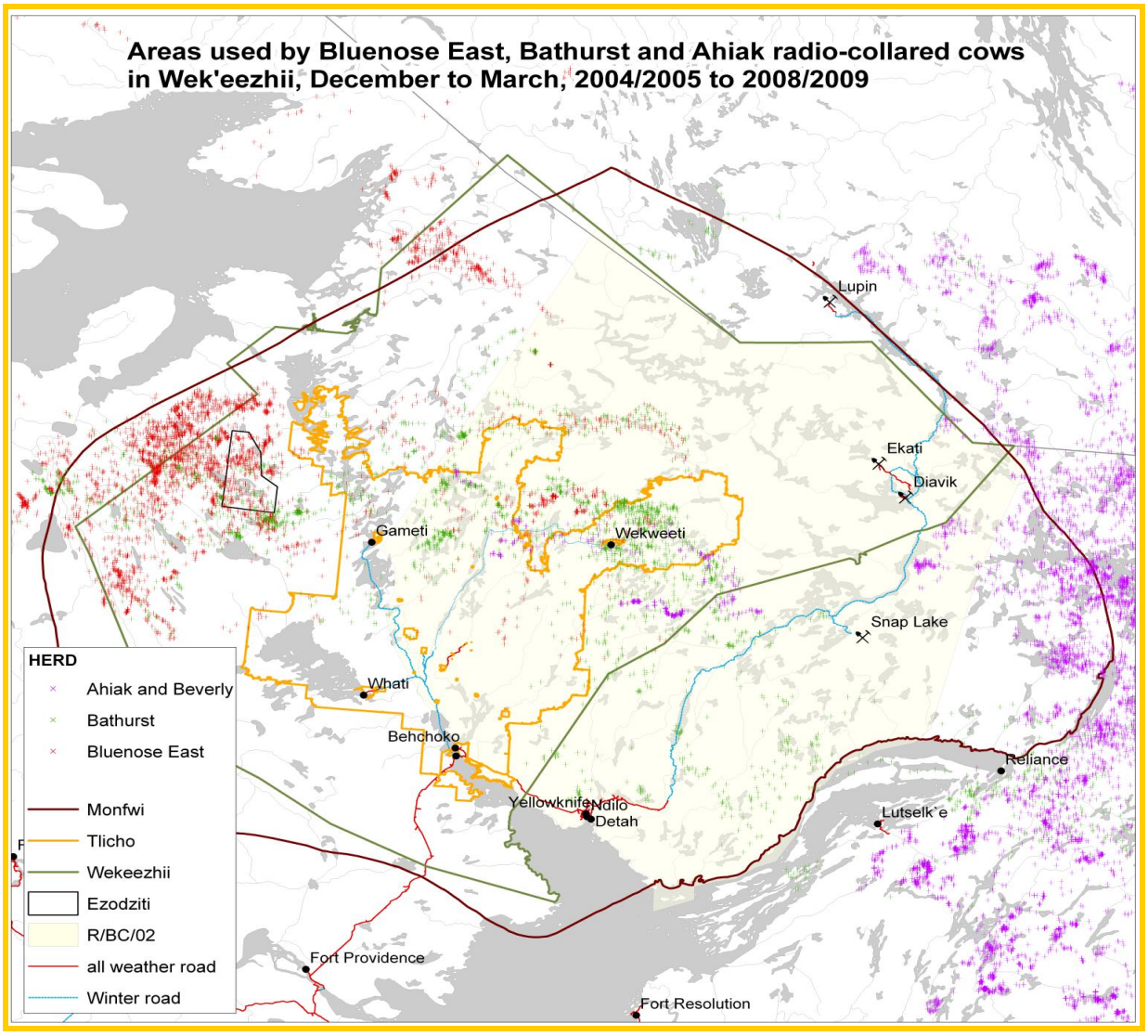

Figure 3. Areas used in the winter (December to March) by radio-collared Bluenose-East (red), Bathurst (green) and Ahiak (purple) caribou cows from 2004/2005 to 2008/2009. Mapped by A. D'Hont, ENR-GNWT. The numbers of locations do not reflect herd size, rather they reflect numbers of radio-collars on the 3 herds (most on Bluenose-East caribou, least on Bathurst caribou).

Figure 3 shows the areas used in recent years by caribou from the three neighbouring herds during the winter hunting season (December to March), based on radio-collar locations of cows over the last 5 winters (2004/2005 to 2008/2009). Ahiak caribou have rarely occurred in Wek'èezhìi during this period. There has been extensive use of northeastern Wek'èezhìi by Bluenose-East caribou. Central Wek'èezhìi has had primarily Bathurst caribou, with some overlap between the two herds. This spatial information indicates that most of the winter harvest in Wek'èezhìi in recent winters was from the Bathurst herd. Hunting Bluenose-East caribou would have required lengthier snowmachine travel (e.g. to Hottah Lake) due to the lack of winter roads north of Gamètì and Wekweètì.

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2.1 Recent Management Issues and Actions

- *Joint management proposal to WRRB (November 2009)*

In 2009, the WRRB requested that TG and GNWT ENR-GNWT work together and develop a joint management proposal to address the rapid decline of the Bathurst caribou herd, and submit a proposal by October 31, 2009. Following this request, the Tłı̨chǫ Government formed a caribou working group to meet with ENR-GNWT to develop a document on recovery options for the Bathurst herd and neighboring herds. One of the requirements of the Tłı̨chǫ process was to hold a regional workshop in Gamètì to get input from elders on the draft joint proposal prior to the Tłı̨chǫ assembly to make a final decision.

Representatives of the two governments met periodically through the fall to draft the proposal. On November 5, 2009, TG and ENR-GNWT submitted a joint proposal on caribou management and monitoring actions within Wek'èezhìi to the WRRB. Five main management actions were proposed for the Bathurst herd with further recommendations for limiting harvest of caribou from its western and eastern neighbours, the Bluenose-East and Ahiak herds (Table 1).

The two governments agreed on a number of management actions, including elimination of all commercial harvesting, non-resident (outfitted hunts) and resident hunting, and mandatory harvest reporting. However, there was no agreement between TG and ENR-GNWT on proposed management of Aboriginal harvest. ENR-GNWT recommended that all hunting of female caribou in the Bathurst herd be eliminated, and a limited bull-only hunt (Table 1). TG recommended no restriction on Aboriginal cow or bull harvest. The proposal thus had separate recommendations from the two governments, for cow and bull harvest by Aboriginal hunters.

Table 1. Summary of main management actions from November 2009 proposal

Proposed Management Action	Recommended Action for Bathurst Herd in Wek'èezhìi	Recommended Actions for Adjacent Herds (Bluenose-East and Ahiak)
1	Eliminate all commercial meat tags	
2	Eliminate all tags for outfitting	
3	Eliminate all resident hunter harvest	
4	ENR-GNWT Recommendation Eliminate all harvest (including Aboriginal hunting) of Bathurst caribou females Tłı̨chǫ Government Recommendation No restriction on female harvest	Limited female harvest may be possible for experienced hunters on the Bluenose East and Ahiak herds and assisted through a joint partnership with ENR/ITI. Numbers harvested to be discussed further and subject to approval by SRRB, BQCMB and Nunavut for recovery actions outside Wek'èezhìi.
5	ENR-GNWT Recommendation Allow a limited bull-only harvest for Aboriginal hunters Tłı̨chǫ Government Recommendation No restriction on male harvest	Bull harvest only on all herds for Aboriginal harvesters. Recommendation is to harvest Bluenose East and Ahiak caribou males in the fall and subject to approval by SRRB, BQCMB and Nunavut for recovery actions outside Wek'èezhìi.

- *No hunting ban in Bathurst winter range (January 2010)*

On December 17, 2009, the GNWT ENR-GNWT Minister announced interim emergency measures to protect the Bathurst herd. This included elimination of resident and commercial harvesting and establishment of a no-hunting zone based on the main Bathurst caribou winter range. On January 1, 2010 the new measures were implemented unilaterally by ENR-GNWT, to provide an interim period of protection from hunter harvest while a co-management solution to harvest management was developed. The ban affected all caribou hunters, including the Tłı̨chǫ, Yellowknives Dene, NWT Metis Nation, residents and outfitters. This action was outside the scope of the joint management proposal to the WRRB and is not considered further in this proposal. The ban is expected to remain in place temporarily, until the WRRB makes recommendations on harvest management for the Bathurst herd, with a view to replacing the interim emergency measures by jointly agreed measures that would be implemented through the proposed management plan.

- *WRRB hearing (22-26 March 2010) and adjournment request*

In March 2010 the WRRB held a public hearing in Behchokö to review the joint management proposal from TG and ENR-GNWT, and to consider all available technical information and Traditional Knowledge. Interveners and the general public had opportunities to comment on the available information and joint management proposal. On the last day of the 5-day hearing, the Tłı̨chǫ Government (with ENR-GNWT support) requested an adjournment in order to resume working together to resolve differences that existed in the original proposal, and to specifically address proposed management actions 4 and 5 from the November 2009 proposal. The request for adjournment was granted by the WRRB under the condition that the two governments would provide an interim progress report by April 30, 2010 and a completed proposal by May 31, 2010. An interim progress report was provided to the WRRB by TG and ENR-GNWT, and accepted as adequate proof of progress.

2.2 Ekwo (caribou) and Tłı̨chǫ culture, language and way of life

The inter-dependence of the Tłı̨chǫ people with Ekwo could be considered the fundamental pillar of Tłı̨chǫ culture (see Appendix 1). The Tłı̨chǫ and other Aboriginal people in the North have depended upon caribou for their physical, mental and spiritual needs since time immemorial. Since the time of Yamozah, the Tłı̨chǫ have lived in co-existence with the caribou, with laws of respect and appreciation defining the relationship between the Tłı̨chǫ and the caribou. The Tłı̨chǫ culture and way of life is based on the caribou and its migration paths. The caribou provided shelter, clothing, bedding and food and are the basis of Tłı̨chǫ traditional knowledge and legends, traditions and practices. Tłı̨chǫ traditional trails follow the paths of the caribou towards the barren-lands with camp-sites, grave-sites and places of spiritual significance all described by place-names along the way. These place-names are dependent upon the soil and landscape, determining the harvest methods and telling the story about the place.

The relationship between the Tłı̨chǫ and caribou has changed over time, with the outside influences of the global economy and trade leading to altered ways of valuing this sacred animal. This has led to a change in Tłı̨chǫ and outsider dependence on the animal. As early as 1700 the European desire for beaver pelt hats and other furs brought trappers and traders to the North, increasing the need for caribou as a trade item. This was the beginning of the change from hunting for subsistence to hunting for commercial trade, thereby altering the relationship between man and animal.

Following the introduction of the snowmobile in the 1970's, access to the seasonal range of Bathurst caribou began to expand. In 1972, the modern airplane was introduced to the community hunt as was the community freezer. Caribou were no longer only available for certain periods in the season, but it became available almost all year round whether the caribou were close to communities or not. The need to depend on other species at periods of time throughout the year now became a choice, not a necessity.

The last major change in this relationship has occurred in the last 15 years, where we have seen diamond mines, ice roads, all season roads, big game outfitting, resident and commercial hunting, high powered rifles, snowmachines and four-wheel drive trucks and trailers come onto the scene. This has altered the relationship between man and caribou and increased the pressures and stress on the animals, potentially more than in the last 150 years together.

The relationship between Tłı̨chǫ and caribou is maintained by traditional laws governing human behaviour towards caribou. When these laws are not respected, it is believed that caribou populations will become smaller and their migration patterns will change. There have been times of scarcity and times of abundance, which have been influenced by both natural cycles of wildlife abundance and human influence. The Elders have always believed that when the caribou became scarce they would go away to be left alone - to recover and replenish themselves. They would then come back to offer themselves to the Tłı̨chǫ - there was a mutual respect between man and animal.

There have been previous times of caribou scarcity. The most recent Tłı̨chǫ memory of low caribou numbers was in the 1960s. At this time, the community of Wekweètì had to be evacuated to

Behchokö and Gamètì, because of a scarcity of caribou and other game. This move led to significant changes in the political and social fabric of Tłı̨chǫ society.

A recovery and management plan for the Bathurst caribou cannot focus only on the numbers (i.e., estimates of population parameters and vital rates) and wildlife ecology from a scientific perspective. The relationship between humans and caribou is complex and dynamic. In order to address the decline in the Bathurst herd, this broader dynamic system must be taken into account, with an appreciation that restrictions of harvest are only a small part of the long term sustainable approach to this issue. By looking at the system as a whole and its interconnectedness (Figure 4), the solutions will be found in many different places, places that science alone cannot define or resolve.

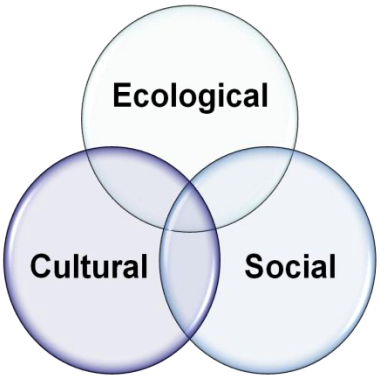


Figure 4: Tłı̨chǫ Perspective on Ekwo Management

Tłı̨chǫ elders have always taught that becoming and being knowledgeable is the way that respect is shown to caribou. They believe that a person becomes knowledgeable by listening, watching and experiencing, and that there is a relationship between one's personal knowledge and ability to respect the land. As this knowledge is lost, the laws are no longer abided by and respect for the caribou is diminished. With modernization, changing lifestyles and expectations, this knowledge gap has increased, causing both the Tłı̨chǫ and other northerners to lose knowledge and respect for caribou.

To re-establish the connection between people and the caribou, the Tłı̨chǫ must revitalize the traditional ways in which they relate to the caribou - through cultural hunts and relearning of Tłı̨chǫ laws that guide their behaviour towards this animal. Through cultural hunts following their whaèhdôõ æetô (ancestral trails) they will have an opportunity to listen, observe and monitor the land; to learn the nàowo (laws) and stories, and they will have an opportunity to learn the place-names and ways of their ancestors. They will begin hunting by canoe and returning again to the sacred area of Mesa Lake, where peace was made between Edzo and Akaitcho. They will reemphasize and support the hunting and trapping of alternate species when caribou are scarce.

This proposal is not only about recovering the Bathurst caribou herd. It is equally about the recovery of Tłı̨chǫ language, culture and way of life that are dependent upon the Bathurst caribou.

3.0 DEVELOPING A SHARED PERSPECTIVE

The Tłı̨chǫ Government and the Government of the Northwest Territories worked together in April and May 2010 to revise and complete this Joint Caribou Management Proposal.

Through their collaborative work, the TG and ENR-GNWT have come to a shared consensus that Bathurst caribou are in real and serious decline and that decisive management actions are imperative to conserve and recover the herd. It was understood that Tłı̨chǫ elders recognize that caribou cycle naturally and that the current decline was not caused solely by hunting, but when caribou numbers become this low, hunting and predation affect the ability of caribou to recover. If the status quo levels of hunting were allowed to continue, the Bathurst caribou herd might not be able to recover. All data analyses and modeling completed to date indicate that a harvest of the size estimated for 2008-2009 for the Bathurst herd (3000-5000 cows and 1000-2000 bulls) can only lead to further rapid decline, regardless of calf productivity. TG and ENR-GNWT recognize that the Bathurst herd is shared with communities, governments and hunters outside Wek'èezhìi, whose interests must also be considered and respected.

Although the focus of the two governments has been on management actions within Wek'èezhìi that are required for recovery of the Bathurst herd, there is also a shared understanding that management actions are also required for the Bluenose-East and Ahiak herds, which are both in decline. Both governments recognize that harvest pressure should not be transferred from the Bathurst herd to neighbouring herds, because that would potentially contribute to further declines in those herds.

Although the WRRB specifically requested that the revised joint proposal focus on the harvest management actions within Wek'èezhìi that had not been agreed on in the original proposal, TG and ENR-GNWT took the opportunity to review all aspects of the proposal. In particular, there was a need to recognize the longstanding relationship of Tłı̨chǫ people with caribou and the fundamental importance of this relationship for developing and implementing meaningful management changes in the future. Based on their collaborative work over the past two months, the two governments agreed to the following three core themes and associated principles, which provide the foundation for developing the revised proposal and a shared commitment to working together to recover and conserve healthy caribou populations, and ensure that the relationship between caribou and people is resilient and continues to thrive in the future.

1) **Tłı̨chǫ language, culture and way of life:** Tłı̨chǫ culture is based upon a deep and respectful relationship with barren-ground caribou; therefore the population health, sustainability, and resilience of Bathurst caribou is profoundly important to Tłı̨chǫ (Appendix 1). A key principle that arises from this is that effective management and monitoring of caribou requires engagement, education, participation, and feedback from Tłı̨chǫ people, along with acknowledgement and use of Tłı̨chǫ knowledge and practices. In short, implementation of management actions for recovering caribou in Wek’èezhìi needs to be done in the broader context of strengthening Tłı̨chǫ culture, language and way of life. In addition, because of the fundamental importance of the relationship between people and caribou, the precautionary principle must guide management recommendations and decisions, as required by the Tłı̨chǫ Agreement, to prevent and avoid irreversible harm to caribou populations or habitats, especially in circumstances where there is uncertainty in knowledge. TG and ENR-GNWT recognize that other Aboriginal groups likewise have longstanding cultural and social linkages to caribou over countless generations.

2) **Adaptive co-management:** Adaptive co-management is an approach to resource and wildlife management that combines two key aspects – adaptive management and co-management. Adaptive management refers to the capability to learn and adapt to changing circumstances and uncertain conditions. Co-management refers to sharing of power and responsibility between governments, resource users and resource-based communities. Adaptive co-management requires commitment to the principles of "shared decision-making" and "learning by doing". In the context of this joint caribou management proposal, adaptive co-management also reflects a commitment to a) implement the spirit and intent of the Tłı̨chǫ Agreement, and b) develop efficient and sustainable models of governance to ensure collaboration and decision making that involves the TG and ENR-GNWT, as well as Tłı̨chǫ community governments and Tłı̨chǫ citizens (i.e., youth, hunters, and elders). In this context, implementation of management recommendations will require development of increased capacity for the TG, in order for Tłı̨chǫ people to participate fully in monitoring and co-management of caribou.

3) **Managing barren-ground caribou as populations or herds**: Within North America, migratory barren-ground caribou herds are defined and managed as distinct herds or populations, because studies have shown that this is how they have adapted to the large landscapes they live in. Migratory herds are defined based on the strong instinct of caribou cows to return every spring to a traditional calving ground. Research shows that usually about 95% or more of pregnant cows return annually to the same traditional calving ground. Based upon this body of knowledge as well as comprehensive archaeological studies, the main factors that likely drive abundance of barren-ground caribou within defined populations are rates of birth and death. Research with many herds has shown that rates of immigration and emigration are relatively minor, and usually occur at low rates between neighbouring herds. Appendix 2 contains a brief summary on basic population ecology of barren-ground caribou. Since birth rates are not amenable to active management, the emphasis of wildlife managers is to evaluate and manage death rates of caribou, which are tied to hunting and natural predation. In simplest terms, most caribou that have died recently in the Bathurst herd were either killed by predators or by hunters, so reducing these death rates is most likely to have direct and positive effects on the herd's population trend.

4.0 GOALS AND OBJECTIVES

4.1 Scope and Time-frame

The management actions in this proposal are primarily directed at the next 2 years of caribou monitoring and management.

For the Bathurst herd, a population survey is planned for June 2012, just over 2 years from the date of this revised proposal (end of May 2010), and once the results are known, management actions will likely be re-visited and amended. Actions proposed here are aimed primarily at the next two years (June 2010-June 2012) in Wek'èezhìi.

For the Bluenose-East herd, recommendations in this proposal are on an interim basis for Wek'èezhìi and will need to be re-visited in late summer 2010 once an estimate of population size has been determined from calving-ground or post-calving photographic surveys - this will provide both population size and trend since 2006. As an interim recommendation, a precautionary conservative approach to harvest management is proposed. TG and ENR-GNWT support the on-going management planning for this herd and its western neighbours, the Bluenose West and Cape Bathurst herds. TG and ENR-GNWT recognize that this herd is shared with Nunavut, Sahtu and Inuvialuit governments, boards and communities.

The Ahiak herd scarcely occurs in Wek'èezhìi and harvest by Tłı̨chǫ hunters from this herd has likely been very limited. Recommendations in this proposal are precautionary and stem largely from the strong downward trend in numbers of caribou on the Ahiak annual calving ground. The focus is on supporting the Beverly and Qamanirjuaq Caribou Management Board`s (BQCMB) efforts to limit harvest of Ahiak/Beverly caribou and to promote bull harvest, and to ensuring that reduced harvest of Bathurst caribou does not translate into increased harvest of Ahiak/Beverly caribou by NWT communities.

For all three herds, TG and ENR-GNWT recognize the need for longer-term management planning that includes harvest management as well as management of habitat and industrial development, as described in section 9. An overall management planning process is in place for the Bluenose-East herd. TG and ENR-GNWT support longer-term co-management planning processes for the Bathurst and Ahiak/Beverly herds.

4.2 Goals

For the Bathurst herd, the short-term goal is to shift from a declining trend (2006-2009) to a stable trend from 2010 to 2012, by maximizing survival of cows and calves. TG and ENR-GNWT recognize that some factors affecting caribou numbers are not readily subject to management control. In the longer-term, the goal is to promote the herd's recovery to a size and trend where sustainable harvesting sufficient to meet all interests is again possible.

For the Bluenose-East herd, the goal in the short-term is to reduce harvest to a level that is unlikely to contribute to further decline in this herd. Once population size and trend are known, the goal could be revised to stabilizing the herd and promoting recovery in the longer-term.

For the Ahiak/Beverly herd, the goal short-term goal is to support the BQCMB's efforts to monitor and manage harvest (including a shift to at least 80% bulls) so as to minimize the contribution of harvest to a declining trend.

4.3 Objectives

For the Bathurst herd:
1. A stable trend in numbers of breeding cows on the calving grounds 2010-2012, based on annual reconnaissance surveys in 2010, 2011 and 2012, and a population photo-survey in 2012.
2. An average late winter (March-April) calf:cow ratio between 2010 and 2012 of at least 40 calves: 100 cows[1].
3. A total hunter harvest target of 300 ± 10% in any year, with at least 80% bulls, for the entire herd.[2]
4. A total wolf kill of 80-100/year in the Bathurst range.

For the Bluenose-East herd:
1. A stable trend in numbers of cows on the calving grounds, based on annual reconnaissance surveys in 2010, 2011, and 2012, and a population photo-survey in 2010 (and 2012).
2. An average late winter (March-April) calf:cow ratio between 2010 and 2012 of at least 30-40 calves: 100 cows, consistent with a stable herd.
3. A total hunter harvest of ca. 1900 caribou in any year, with at least 80% bulls (interim recommendation only; to be reviewed later in 2010).

Specific objectives are not detailed for the Ahiak herd as it scarcely occurs in Wek'èezhìi, but TG and ENR-GNWT support the BQCMB's efforts to reduce total harvest and promote at least 80% bull harvest.

[1] Late winter calf:cow ratios often show a saw-tooth pattern (higher one year, lower the next, then higher again), thus the objective is for an average calf:cow ratio over 3 years (2010, 2011, 2012).
[2] A target of 300 ± 10% is used here to indicate that a harvest slightly lower or higher than 300 is acceptable. Some emphasis in this proposal is placed on harvest monitoring and management that has widespread acceptance in the communities, which may result in a total harvest not meeting the target exactly.

5.0 RECOMMENDED MANAGEMENT ACTIONS

The revised joint proposal has maintained the original recommendations (November 2009) on proposed management actions 1 – 3, which include suspension of commercial, outfitter, and resident harvest (Table 2). These actions were reviewed. However, the new proposed harvest levels are well below past usage patterns for the Tłı̨chǫ and other Aboriginal hunters, who have priority for allocation under the Tłı̨chǫ Agreement. TG and ENR-GNWT also recognized that predator management (primarily wolves) should also be considered to increase survival of caribou cows, calves and bulls. As noted earlier, most Bathurst caribou in recent years were killed wither by hunters or by wolves, thus reducing those death rates is likely to have the most immediate and substantive effects on caribou population trend.

Refinements to management actions 4 and 5 in the Nov. 2009 proposal are described below. At this point, methods for implementing hunting management actions such as the use of hunting zones and seasons, use of tags, a no-hunting corridor on winter roads, use of check-stations, community-based monitoring and other mechanisms for implementing harvest targets, are still under discussion (see Section 7.0). It is anticipated that the Community Caribou Committees (described further on in this document) may also have a role in determining and implementing the most effective means for tracking and managing the caribou hunting from their communities. TG and ENR-GNWT also recognize that the WRRB may have recommendations for achieving targets for hunting. Additional work between TG and ENR-GNWT is recommended to develop the specific implementation plan for the WRRB's final recommendations on harvest management. Management actions in this proposal do not preclude the right to harvest for other Aboriginal groups, and it does not diminish the GNWT's requirement to consult with other Aboriginal groups. The interests of other interests, including Aboriginal governments, Nunavut and affected communities outside Wek'èezhìi, continue to be recognized.

5.1 Bathurst Herd

With respect to the Bathurst herd, this revised proposal specifically expands on the following recommended management actions from the joint proposal submitted in early November 2009 to the WRRB:

- confirm acceptance of management actions 1, 2, and 3 (Appendix A of Nov 2009 proposal), which includes suspension of commercial, outfitter, and resident harvest; and
- revise management actions 4 and 5 (Appendix A of November 2009 proposal) to a recommendation for a total hunter harvest of 300 ± 10% caribou for the herd, with a minimum of 80% bulls.

Modeling summarized in Appendix 3 provides a rationale for the proposed hunter harvest. Even if all harvest is stopped, there is no guarantee that the Bathurst herd will stabilize and begin to grow. The overall picture for the world's caribou and reindeer is not promising; most populations are in decline. Modeling for the Bathurst herd suggests that harvest of more than about 500 caribou (all bulls or 80% bulls) is associated with a substantial risk of further slow decline under most levels of calf productivity. A harvest at this level would be sustainable if there is continued high calf productivity. In view of the herd's rapid decline from 2006 to 2009, the uncertainties around survey information and modeling results, and the overall trend for the world's caribou and reindeer, a limited harvest of 300 caribou ± 10%, 80% or all bulls, was considered an appropriate management option to help stabilize the herd.

With respect to the Bathurst herd, this revised proposal recommends one additional population management action:

- A targeted increase of wolf mortality using a phased approach that combines increased hunting and trapping effort and wolf removal programs. This recommendation expands on the actions identified in ENR-GNWT's presentation and the WRRB technical expert's review at the March 2010 public hearing. It is consistent with reducing total mortality of Bathurst caribou. The target is to increase wolf harvest in the Bathurst range twofold from about 40 to 80-100/year (Table 1).

TG and ENR-GNWT have refined proposed actions 4 and 5 from the November proposal, to recommend an annual harvest level within the range of 300 ± 10% caribou from the entire Bathurst herd with at least 80% bulls. It was recognized that the target of 300 ± 10% Bathurst caribou would need to be shared between the Tłı̨chǫ and other Aboriginal groups and that the broader issues of allocation inside and outside Wek'èezhìi would be subject to further consultations. The harvest level of 300 ± 10% Bathurst caribou was established as a balance between a) allowing for a limited subsistence hunt for Tłı̨chǫ communities, in particular for Wekweetì, which has very limited access to other caribou herds, and b) a need to seriously reduce the level of hunting of Bathurst caribou to increase adult survival (especially in cows), to halt the declining trend, and to allow for long-term recovery.

Among the Tłı̨chǫ communities, continued yet reduced hunting of Bathurst caribou by Wekweetì was considered an important priority both for basic needs of the community, to support the Tłı̨chǫ way of life, and to maintain and enhance a respectful relationship between people and caribou. Subject to discussion and confirmation from Tłı̨chǫ communities, it is suggested that the entire allocation of available Bathurst caribou to the Tłı̨chǫ be provided to Wekweetì, because the other Tłı̨chǫ communities are better able to access the Bluenose-East herd.

The addition of options to increase wolf harvest expands on ENR-GNWT's presentation at the WRRB hearing in March 2010, and on suggestions from intervenors. It is known from previous studies that wolves have the capacity to increase rapidly. Increasing the harvest of wolves for a few years will allow more calves, cows and bulls to survive and will not jeopardize the long term survival of wolves in the North Slave region. The joint proposal recommends that actions be taken over the next 2 years to substantially increase, i.e., double, the number of wolves taken and to maximize economic benefits to hunters and trappers, as summarized in Table 1.

There was discussion at joint Tłı̨chǫ and ENR-GNWT meetings on the role of grizzly bears and whether to reduce their numbers as part of increasing Bathurst caribou survival rates. Grizzly bears are known to kill some caribou calves on calving grounds, and to take calf and adult caribou opportunistically in the summer and fall. However, in view of the low reproductive rate and low density of grizzly bears, and their status as Special Concern by COSEWIC (Committee on the Status of Endangered Wildlife in Canada), no management actions for grizzly bears are recommended at this time.

Table 2. Summary of wolf management actions for May 2010 revised joint proposal

Wolf Management Action – in order of priority	**Mechanism and Authority**	**Assess effectiveness**
a) Provide incentives to trappers to increase harvest of wolf in early winter when pelts are prime. This group of harvesters traditionally hunt the majority of wolves.	In fall 2010, provide training to hunters in Gamètì and Wekweètì to set snares and handle wolf pelts (ENR-GNWT/ITI). Increase value of pelt under Genuine Mackenzie Valley Fur Program to $400 per pelt (ITI) if pelt brought in by end of January Increase price per carcass to $200 (ENR-GNWT) Support hunters to get to where wintering caribou and wolves are.	Reduce wolves near communities – Gamètì, Wekweètì Increase harvest to pre 2008 levels. Increase total wolf kill by trappers and hunters from 40 to 80-100.[3]
b) Increase outfitters and resident harvest of wolves	Increase price per carcass to $200 (ENR-GNWT)	Increase harvest to over 40 wolves
c) Remove problem wolves around communities	ENR-GNWT to hire trappers to snare wolves around communities in early winter	Assessment by Gamètì, Wekweètì hunters and monitors
d) Wolf cull - focus wolf removals and associated monitoring in areas of winter range occupied by collared Bathurst cows - removals at den sites[4]	Use a phased approach, and implement this action if wolf hunting and trapping efforts have not met annual targets and Bathurst herd declining further. Coordinated removal of wolves on Bathurst winter range should be a feasible option by January 2011. Option for removal at den sites should be evaluated and considered in spring/summer 2011.	Develop survey and monitoring methodology, and experimental design for removals of wolves on winter range and at den sites by fall 2010.

5.2 Bluenose-East Herd

TG and ENR-GNWT recognize that most of the recent hunting by Behchokö, Whatì and Gamètì has occurred on the Bluenose-East herd and recommend an interim strategy for managing the hunt of Bluenose-East caribou by Tłı̨chǫ communities, to help stabilize this herd. The recommendation is to reduce the overall Bluenose-East caribou harvest by Tłı̨chǫ communities, to emphasize selection of bulls, and to reduce the number of cows being hunted (i.e. at least 80% males). The recommendation to reduce the Bluenose-East harvest is based on the precautionary principle. The rationale for reducing the overall hunt is based upon the most recent trend data on the Bluenose-East herd between 2000 and 2006, whereby population surveys indicated that the herd had declined by ca. 7.5% per year. Although population surveys for the Bluenose-East herd are scheduled for June and July 2010, until those surveys are completed and the population data

[3] ENR-GNWT information from den surveys and recent aerial surveys suggests that wolf numbers have declined rapidly in the last 5 years. As part of adaptive co-management, the target of 80-100 will need to be re-evaluated annually based on wolf harvest, as well as ongoing and additional information on trends in wolf abundance.

[4] TG and ENR-GNWT are aware that more intensive wolf removal programs are likely to be very controversial. The two parties emphasize that these measures would be considered only if other efforts to recover the Bathurst herd are not working, and the herd continues to decline.

evaluated, the interim recommendation of TG and ENR-GNWT is to reduce the Tłı̨chǫ harvest of Bluenose-East caribou by up to 45% of the estimated 2009/2010 (Appendix 4) harvest in Wek'èezhìi [5]. This approximate harvest target is meant to provide an interim qualitative benchmark to emphasise the need for a substantial potential reduction in future hunting of Bluenose-East caribou by Tłı̨chǫ and other hunters compared to the 2009/2010 hunting season. It is recognized that consideration of the 2010 Bluenose-East surveys and their implications to hunting management are subject to further discussion with Nunavut, Sahtu Renewable Resources Board (SRRB), and the Wildlife Management Advisory Council (WMAC-NWTR) and affected communities.

5.3 Ahiak Herd

TG and ENR-GNWT recognize that there has been no formal population estimate for the Ahiak caribou herd and that knowledge of these caribou is still evolving. However, systematic reconnaissance surveys of the Ahiak calving ground from 2006 to 2009 indicate a 60% decline of the average number of cows seen over the three-year period. This is a real issue for management and conservation of the Ahiak herd and suggests that harvest should be reduced. Similarly, based on available information, TG and ENR-GNWT recognize that that the numbers of caribou cows calving on the traditional Beverly calving ground have declined dramatically and that this herd's seasonal ranges and distribution at calving may now overlap in whole or in part with the Ahiak herd's. Any additional increase in hunting the Ahiak herd may have unintended yet serious implications to the recovery of the Beverly herd, as noted by the BQCMB's submission to WRRB. Consequently, TG and ENR-GNWT recommend that harvest pressure that was focused on the Bathurst herd not be transferred to either of the neighbouring herds that are declining. Furthermore, TG and ENR-GNWT suggest that any current hunting of Ahiak caribou within Wek'èezhìi should emphasize selection of males over females, and that these harvest suggestions would be subject to further consultation and implementation through other partners including the BQCMB, Nunavut Wildlife Management Board (NWMB), Saskatchewan, Nunavut, and other communities in the Ahiak and Beverly ranges.

[5] Between the 2000 and 2006 population estimates of Bluenose-East caribou, the herd had declined by ca. 7.5% per year. By assuming this rate of decline has continued to the 2006 estimate of ca. 66,000 caribou, we extrapolated that the herd would be ca. 48,000 caribou in 2010. In 2006, the Sahtu Renewable Resources Board recommended a voluntary Total Allowable Harvest of no more than 4% of the Bluenose-East herd. Thus, based on this approach 4% percent of 48,000 is 1920, compared to an estimated 3466 caribou hunted from the Bluenose-East caribou herd in 2009/2010. Reducing the harvest estimate of 3466 by 45% results in a harvest of 1906 caribou.

Table 3. Summary of management actions for May 2010 revised joint proposal

Proposed Management Action	Recommended Action for Bathurst Herd in Wek'èezhìi	Recommended Actions for Adjacent Herds (Bluenose-East and Ahiak)
1	Eliminate all commercial meat tags	Eliminate all commercial meat tags
2	Eliminate all tags for outfitting	Eliminate all tags for outfitting
3	Eliminate all resident hunter harvest	Eliminate all resident hunter harvest
4	TG and ENR-GNWT Recommendation Bull Harvest: Use management tools (see implementation section) to limit to 300 ± 10% Bathurst caribou of which a maximum of 20% (i.e., 60 animals) would be female. Allocation of Bathurst caribou among Tłı̨chǫ communities to be discussed by communities, but preference to Wekweètì is recommended. Allocation within and outside Wek'eezhii to be discussed further with other Aboriginal groups.	Interim recommendation to reduce 2010/2011 harvest of Bluenose-East herd by up to 45% of estimated 2009/2010 harvest within Wek'eezhii; (see implementation section for possible tools). The actual target will need to be developed collaboratively following June and July 2010 survey results, analysis of data and discussions with SRRB, WRRB, Nunavut and other user communities. Recommendation not to increase access of Ahiak (and Beverly) caribou by Tłı̨chǫ communities. Harvesters should be encouraged to select bulls and reduce the proportion of cows in the harvest. Further consultation with BQMB, Saskatchewan and Nunavut is required.
5	TG and ENR-GNWT Recommendation Cow Harvest: Cows should comprise ≤ 20% of the targeted caribou hunt as described above.	Interim recommendation to reduce 2010/2011 harvest of Bluenose-East herd to be updated and developed collaboratively following June and July 2010 survey results. Recommendation not to increase hunting of Ahiak (and Beverly) caribou by Tłı̨chǫ communities. Harvesters should be encouraged to hunt primarily (80%) bulls, and to be consistent with BQCMB objectives and recommendations . Further consultation with BQCMB, Saskatchewan and Nunavut is required.
6	TG and ENR-GNWT Recommendation Predator management - Increase removal of wolves through hunter and trapper incentives, and focus on Bathurst winter range in early winter. - Develop and implement coordinated wolf removal programs on winter range to ensure that wolf hunting targets are achieved.	There may be a benefit to Bluenose-East caribou from increased wolf harvest in Bathurst winter range, due to extensive overlap in some years on winter range of Bathurst and Bluenose-East caribou.

6.0 RECOMMENDED MONITORING ACTIONS WITHIN AN ADAPTIVE CO-MANAGEMENT CYCLE

Recommended monitoring actions 1-8 in Appendix B of the November 2009 proposal will be incorporated into an adaptive co-management framework. Figure 5 shows an example of how an annual cycle of monitoring caribou, reviewing information, and possible changes to management action might work. The Bathurst herd is the most immediate focus of this monitoring, but a similar approach could be taken for other herds.

Shown in the middle of Figure 5 are some of the key periods in the year for caribou. Calves are born on the calving ground in June, caribou grow and gain weight in the summer, they begin to move south in the fall (September-October), the rut or breeding season is in late October, and from December to April the caribou are on their wintering grounds. In late April and May the cows migrate northward to their calving grounds again.

Information review and consideration of changes to management (red letters) could occur in August, December and April. In this way, the most up-to-date information on the herd's status can allow re-consideration of management actions without lengthy delays. Key management actions (fall and winter hunts, wolf trapping) are shown in purple.

Monitoring would include caribou surveys in June, October, and late March. The highest priority would be given to annual reconnaissance surveys on the calving grounds and spring composition surveys. For the herd to recover, numbers of breeding cows must increase, and the reconnaissance surveys would provide a measure of trend in breeding cow numbers. Herd stabilization and recovery will also require good calf productivity and survival, which can be monitored by the late winter recruitment surveys. The October survey would provide information on adult sex ratio (bulls:100 cows).

Results of the fall and winter hunts, and wolf trapping would also be closely tracked as integral elements of the monitoring/adaptive management cycle. Wolf harvest and caribou harvest could be tracked on a weekly basis or as community hunts are completed. Details of tracking harvest (e.g. use of tags) remain to be developed, but the two governments recognize that accurate tracking of harvest as it happens would be critical to the success of the program.

Table 4 contains details on the management actions, monitoring and some possible approaches to adaptive management, for the Bathurst herd. A similar table could be developed for the Bluenose-East herd.

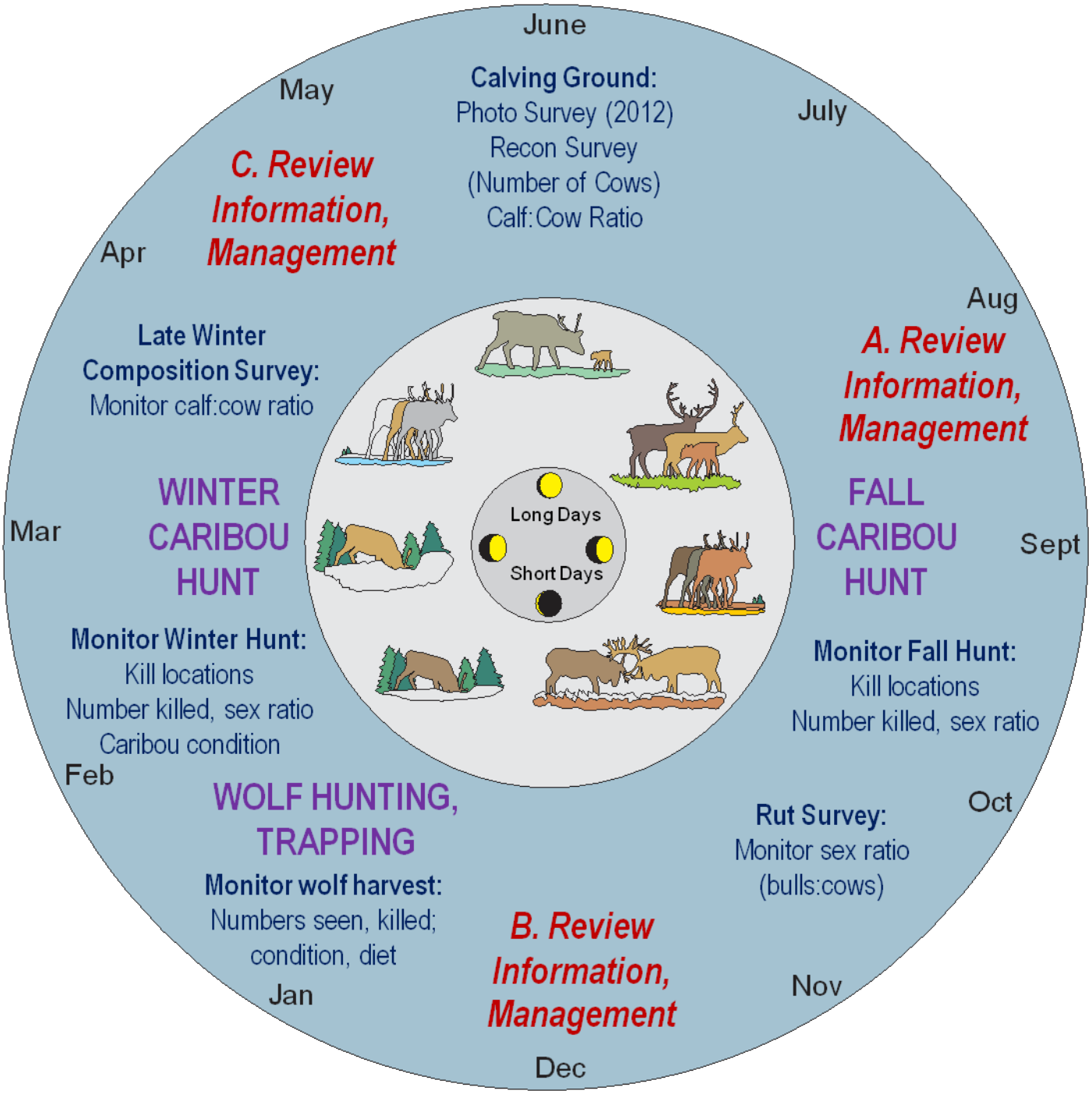


Figure 5. Annual cycle of monitoring Bathurst caribou and hunting, combined with information review and development of adaptive co-management actions.

Table 4. Summary of monitoring actions and adaptive management options for Bathurst caribou herd.

Action	Indicator(s)	Priority	Rationale	Desired Response	Adaptive Management Options	How Often	Notes
1. Reduce cow harvest to <60	1. Numbers (density) of 1+ year old caribou on annual calving grounds reconnaissance surveys	1	Cow survival in Bathurst herd 67-68% in 2009; need at least 85-88% for herd to stabilize/recover. Trend in breeding females correlated to abundance of 1+ year-olds on annual calving ground.	Stable/Increasing trend in numbers of 1+ year old caribou on annual calving ground	If trend in 1+ year old caribou is stable/increasing, continue as before; if trend negative, consider closing harvest and intensifying wolf kill effort	Annual	Further review of best approach to analysing trend from calving reconnaissance surveys to occur with statistician; could use modeling to integrate other data.
	2. Estimate of breeding cows from calving ground photo survey	1	Most reliable estimate for abundance of breeding cows & can be extrapolated to herd size based on pregnancy rate and sex ratio.	Stable/Increasing trend in numbers of breeding cows	If trend in breeding cows stable/increasing, continue as before; if trend negative, consider closing harvest, intensifying wolf kill effort	Every 3 years	Last survey 2009, next 2012. Trend in breeding females is most important; total herd size is best understood by public.
	3. Calf:cow ratio in late winter (March-April); composition survey	1	Herd can only grow if enough calves are born and survive to one year	>40 calves:100 cows on average	If average calf:cow ratio ≥ 40:100, continue as before; if average ratio ≤ 20:100, herd likely declining; re-evaluate management	Annual	Calf productivity & survival vary widely year-to-year, affected by several other variables, including weather.
	4. Fall sex ratio; composition survey	2	Tracks bull:cow ratio; Bathurst ratio has been relatively low (31-38 bulls/100 cows); prime bulls key for genetic health, migration	Maintain bull:cow ratio above 30:100	If bull:cow ratio below target, reduce/eliminate bull harvest	Every second year?	Needed for June calving photo survey – extrapolation to herd size
	5. Cow productivity; composition survey on calving ground in spring (June)	2	Relatively low calf:cow ratio in June 2009 – many very young cows not yet breeding; affects recruitment	High calf:cow ratio (80-90 calves:100 cows)	Low ratio may indicate nutritional problems and possibly low recruitment following March; spring recruitment survey integrates initial productivity and calf survival	Every 3 years?	Essential component of June calving ground photographic survey. Could also be done during systematic survey years if required.
	6. Caribou condition assessment/pregnancy rate	1	Condition assessment provides overall index of nutrition/environmental conditions, estimate of pregnancy rate	High hunter condition scores (average 2.5-3.5 out of 4)	Poor condition or low pregnancy rate may indicate poor environmental conditions, possible decline	Annual	Annual participation of hunters required. Sex & age of animals important to confirm. Key component of cultural hunts.
2. Track caribou harvest accurately	7. Numbers of cows and bulls taken by all hunters	1	Cannot assess effectiveness of management if harvest is poorly tracked; harvest well over target could lead to further decline	Accurate harvest reporting & numbers within target limits	If harvest reports accurate and within target limits, continue as before; if harvest not tracked well or well over limit, review/revise harvest reporting and management immediately	Annual	Location of hunter's kill sites used to assign caribou to herds. ENR-GNWT grid-based hunter survey method to be developed in collaboration with hunters.
3. Reduce wolf predation on adult and calf caribou	8. Numbers of wolves killed/year	1	Wolves are main non-human predator on caribou; natural cow and calf survival rates should increase	Stable/increasing no. of breeding caribou cows. Annual wolf harvest increased from 40 to 80-100.	If cow numbers stable/increasing, continue as before; if trend negative, consider closing harvest, intensifying wolf kill effort	Annual	Difficult to assess effectiveness on caribou survival. Monitoring will also depend on methods used to increase wolf mortality.
	9. Numbers of wolves seen on den surveys	2	Index of relative wolf numbers and productivity, tracked since 1996	Declining trend in wolf numbers & productivity		Annual	Develop standardized aerial survey methods for estimating wolf numbers
	10. Wolf numbers from hunter reports	2	Hunters may report areas of higher wolf numbers; additional measure of trend in wolf numbers	Declining trend in wolf numbers	Areas with more wolves could be targeted for wolf trapping/hunting efforts	Annual	Need to develop hunter interview methodology to collect data.

7.0 IMPLEMENTATION PLAN

A collaborative implementation plan between TG and ENR-GNWT, and consistent with WRRB recommendations, is an integral and complementary component to the recommended co-management actions and monitoring program. Some aspects of monitoring would require prior consideration and agreement on specific implementation options. From a practical point of view, feasibility of implementing management actions in partnership with Tłı̨chǫ communities may also have some bearing on the likelihood of successfully achieving broader management objectives such as support and participation in hunt monitoring. For example, a hunting management target may be successfully achieved through implementation of community-based monitoring within a self-regulatory process consistent with the Tłı̨chǫ Agreement, versus a top-down imposition of a hunting quota that is reliant on enforcement officers to achieve compliance. A community-based approach would promote stewardship and respect by all citizens for caribou.

Therefore, in addition to developing the recommendations for hunting and predator management actions in Section 5.0, and associated monitoring in Section 6.0, TG and ENR-GNWT have initiated discussion on developing a coordinated implementation plan that is based on meaningful participation of Tłı̨chǫ communities and would align the establishment of any new Territorial regulations and Tłı̨chǫ laws. The two governments have been discussing and developing implementation protocols pursuant to their joint recommendations for management actions and monitoring, but more work is required to develop specific implementation options for the proposed plan. Furthermore, the implementation plan may also change according to the final recommendations made by the WRRB, but it is anticipated that development of a detailed implementation plan will be required by TG and ENR-GNWT following the reconvening of the WRRB's hearing and its final decision(s).

Although specific details have yet to finalized, components of an implementation plan for the recommendation to establish a hunting target of 300 ± 10% for the Bathurst herd are outlined below. This is provided as additional context for the recommended actions, and to indicate that progress has been made on implementing actions to stabilize the Bathurst herd. Additional work is required, and in particular the recommendations from WRRB will be central to implementation.

7.1 Development and implementation of a rules-based approach to achieve numerical hunting targets

Hunting practices today are based upon extensive access to caribou throughout much of the herd's annual range due to the use of motorized vehicles – including aircraft, snowmachines, and four-wheel drive trucks. Increased access combined with acceptance of ongoing technological advances in transportation (vehicles), navigation (Global Positioning Systems) and animal tracking (satellite collars) have increased hunters' collective efficiency to the point where hunting may accelerate declines when caribou herds become small. Management of hunting requires more than establishing numerical targets or thresholds. It also requires development and implementation of rules (i.e., regulations, laws, or best practices) that will strengthen Tłı̨chǫ traditions, define acceptable hunting methods and behaviour of hunters, and access to the wildlife resource over time and space. Within this context, the two governments have developed some initial objectives and considerations for implementing a numerical hunting target for the Bathurst herd in Wekeezhii. These are listed in Table 5.

Table 5. Approaches to rules-based hunting of Bathurst caribou discussed by TG and ENR-GNWT.

	General Rule	Considerations
Fall Hunt	Designate a fall hunt which would establish a priority for the community of Wekweètì	A hunting zone and season could be defined to reflect the distribution of Bathurst caribou during fall when they are most accessible to Wekweètì
	Organize and conduct a traditional cultural fall hunt of caribou in the Mesa Lake area (see Appendix 1)	Traditional fall hunts were done by boat. Reduce and re-allocate CHAP money that had been used in the past to provide aircraft support to fall hunts, and develop hunting related educational programs for Tłı̨chǫ.
	Reduce harvest of female caribou	Emphasize hunting of young bulls because of their good condition and quality of meat in fall.
	Encourage harvesting of other animals and fish that were relied on in the past when caribou were scarce	Support fish camps, encourage harvesting of bison, moose and small game.
Winter Hunt	Designate a winter hunt which would reflect the distribution of the Bathurst herd	Define a winter hunting zone based upon recent satellite telemetry data from Bathurst cows. Define a relatively large area as a conservative way of allowing for some shifts in distribution within winter range.
	Monitor hunting of Bathurst caribou	Develop community-based monitoring program in collaboration with Community Caribou Committees. Establish designated check stations at key points along traditional transportation routes. Confirm herd identity for hunted caribou by comparing kill locations to locations of satellite collared Bathurst caribou. Develop a project to test whether new genetic markers could establish herd identity of shot caribou based on tissue samples.
	Manage access to caribou	Define a winter road conservation zone on Tłı̨chǫ lands to encourage people to hunt caribou away from the roads.
	Reduce harvest of female caribou	Emphasize bulls only, but accept up to 20% cows in the harvest.
Community-based Monitoring	Establish Community Caribou Committees to administer and monitor hunting	Use tags to allocate, administer, and monitor hunting effort by community
		Designate monitors within each community as point of contact for hunters and to interview hunters.
		Develop strategy and distribute meat to elders and other community members
	Develop education programs within Tłı̨chǫ communities on “relearning knowledge and respect for caribou” (see Appendix 1).	Solicit feedback and direction from Community Caribou Committees on most appropriate ways of implementing education program, and coordinate with Traditional Knowledge Monitoring Study (proposal developed by A. Legat, WRRB).

7.2 Assessment of Tłı̨chǫ community country food needs, and impacts of caribou scarcity on Tłı̨chǫ communities

During the joint meetings between TG and ENR-GNWT in April and May 2010, it became apparent that population size, needs for caribou meat and access to alternative country foods (moose, fish, bison, muskrat, etc) varied among the four Tłı̨chǫ communities. As noted elsewhere (see Section 5), Wekweètì has more limited access to Bluenose-East caribou during winter, hence allocation of the limited Bathurst caribou harvest was suggested to favour Wekweètì. Although there was insufficient time to carry out a detailed assessment of each community's needs and alternative options, these assessments could be carried out as part of implementing the overall program, once the WRRB has made its recommendations.

In addition, discussions primarily among TG staff suggested that there might be ways in which the effects of scarce caribou meat and loss of hunting opportunities on Tłı̨chǫ communities could be monitored. Studies elsewhere have shown that loss of hunting opportunities can have cultural, economic, health-related and social impacts on cultures and communities for whom hunting is a way of life. Tłı̨chǫ communities have experienced the effects of caribou scarcity most recently in the 1960s; Wekweètì was evacuated at that time to the community now called Behchokǫ̀, with considerable impacts on the families affected by this evacuation. Some initial suggestions on monitoring the effects of low caribou meat availability and reduced hunting on Tłı̨chǫ communities are provided in Appendix 5. These kinds of assessments would be developed further as part of implementing the overall caribou management plan.

Phillip Zoe (Photograph by A. Legat, 2000)

Jimmy Martin (Photograph by A. Legat, 2000)

8.0 ENGAGING COMMUNITIES, DEVELOPING CAPACITY, AND WORKING RELATIONSHIPS

The role of Tłı̨chǫ communities as meaningful partners with TG and ENR-GNWT in the refinement and implementation of management recommendations is fundamental to successful adaptive co-management of caribou in Wek'èezhìi. This section outlines a preliminary working model that starts to address many of the practical challenges for engaging communities, building capacity and developing strong working relationships for governance.

8.1 Engaging communities, capacity and governance

In the context of true collaboration, and in the spirit and intent of implementing the Tłı̨chǫ Agreement, the Tłı̨chǫ Government and the Tłı̨chǫ people must play a significant role in the recovery and long term management of the Bathurst Caribou herd. Thus, in addition to development of management actions focused on management of hunting and predators, an important aspect of this revised management proposal was to consider new ways of implementing and improving the decision-making process. The following section develops and describes a means of developing capacity within communities and the Tłı̨chǫ Government, as well as defining potentially effective working relationships between Tłı̨chǫ communities, TG, ENR-GNWT, and the WRRB. It is provided as an initial exploration of an important aspect of co-management and is not meant to preclude or constrain involvement of any other Aboriginal groups or stakeholders.

Community Caribou Committees and Tłı̨chǫ Ekwò Working Group

Community-based monitoring will play a key role in the future management of the Bathurst Caribou herd. In order to ensure community acceptance and implementation of hunting management changes recommended in this proposal, the Tłı̨chǫ people must be key players in monitoring and local decision making. Within each Tłı̨chǫ community, creation of a Community Caribou Committee (CCC) would involve representatives from elders, active hunters and youth. This committee would work with the coordination and facilitation of the community lands department officer(s) and the Lands Protection Department to determine the needs of each community in relation to caribou, alternative food sources and also education and information needs (Figure 6).

At this early stage of considering community-based monitoring, it is proposed that the CCC will monitor the land and the relationship between the Tłı̨chǫ and the caribou. They will also be provided with opportunities to further develop their understanding of the biological information needs of the ENR-GNWT biologists and to also participate in a traditional knowledge monitoring program[6]. This integrated approach will develop the communities' capacity to define and address community concerns and information needs regarding the land, resources and caribou. The CCC will meet every 4 months in accordance with the seasonal monitoring and adaptive management cycle (see Figure 5) to discuss:

- Recent issues/successes/challenges in each community
- Education and planning for individual community needs
- Monitoring results and how to implement into decision making process
- Mutual sharing and learning.

[6] The WRRB is currently developing a Traditional Knowledge (TK) Monitoring Program that will be implemented in Tlicho communities (A. Legat pers. comm.). There are likely strong opportunities for synergy and collaboration between the communities and Tlicho Government as the TK Monitoring Program proceeds to implementation.

It is anticipated that these community-based committees would work with and report to the Lands Protection Department which would form a Tłı̨chǫ Ekwò Working Group, which would in turn communicate with the Chiefs and Executitve Council (CEC) and Tłı̨chǫ assembly. Representatives from the CCC's will also play a key role in the proposed Tłı̨chǫ /ENR-GNWT Technical Working Group (see Figure 6) and contribute to development and implementation of management options.

Tłı̨chǫ /ENR-GNWT Technical Working Group

This technical working group will continue the joint working group which has collaborated to develop this joint proposal. It will compile and review any new monitoring information that has been collected, and develop management options. These options will be consensus-based proposals whenever possible, for consideration of the Tłı̨chǫ Government and ENR-GNWT, which would determine final collaborative management decisions, after review by WRRB. This technical working group would likely meet according to the time frame suggested by the annual monitoring and adaptive management cycle (Figure 5). The technical working group would consist of representatives from a) the Tłı̨chǫ Ekwo working group to ensure the community perspective, concerns and monitoring is brought into the decision making process; b) ENR-GNWT to ensure that the scientific indicators are brought into the decision making process; and c) observers from WRRB as the overall instrument of wildlife management in Wek'èezhìi. WRRB would also be invited to periodically attend meetings of the community groups and other groups suggested in this proposal, and to advise, as appropriate, on objectives, methods and decision-making (Figure 7).

Once these decisions have been made, they would be incorporated into the adaptive co-management cycle, with the Tłı̨chǫ Government, the CCC's and ENR-GNWT working together to inform the public and implement management decisions.

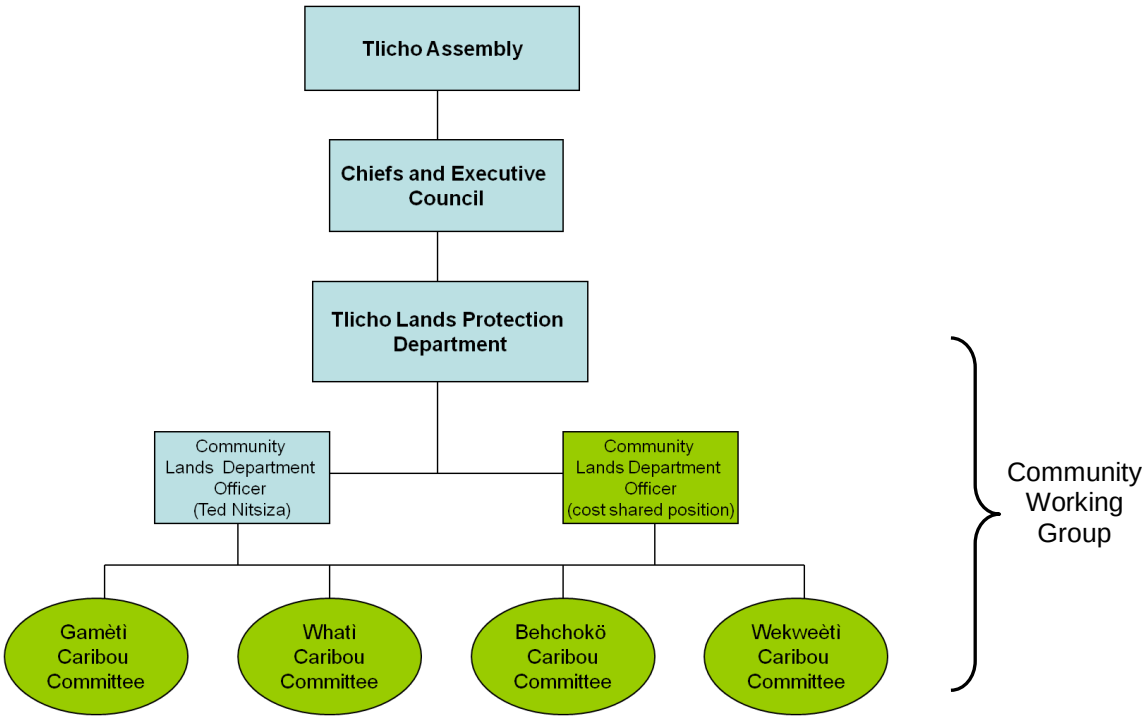


Figure 6: Tłı̨chǫ Government governance and capacity considerations for Bathurst Caribou co-management (note: the blue shaded boxes represent positions currently in place, the green shaded polygons represent positions yet to be defined and filled).

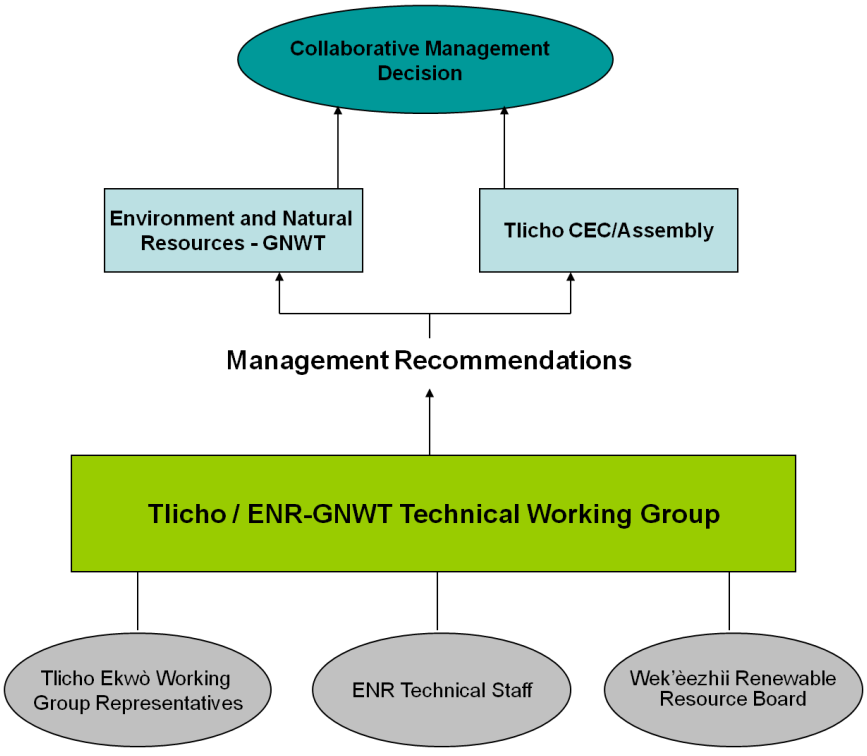


Figure 7: Adaptive Co-Management Decision-Making Process

9.0 MANAGEMENT PLANNING FOR CARIBOU HERDS (SHORT AND LONG TERM)

The main focus of this proposal is on the next 2 years, particularly for the Bathurst herd, as the next population survey (*i.e.,* calving-ground photographic survey) will be in June 2012. Recommendations for the Bluenose-East herd are interim until a new population estimate is established (likely later in 2010), and recommendations for the Ahiak herd will also need to be revised when a population survey is completed in 2011. TG and ENR-GNWT both recognize there is a need to establish longer-term planning processes for all three herds, which may include harvest management plans similar to the co-management plan developed by the Porcupine Caribou Management Board. These processes will likely involve multiple co-management boards, territorial, provincial and Aboriginal governments, and communities, and will take time to develop. The current management proposal includes recommendations for these longer-term planning processes.

9.1 Caribou herd management plans

Of the three caribou herds that have habitat within Wek'èezhìi, none has a formally adopted and current management plan in place as of May 2010.

A multi-jurisdictional co-management planning committee worked to develop a management plan for the Bathurst herd, which was finalized in 2004. However, the plan was not formally ratified by the participating governments and other groups, but it has formed the basis of monitoring of the Bathurst herd has been carried out by the GNWT-ENR.

A planning process for the Cape Bathurst, Bluenose West and Bluenose-East herds was initiated in 2008, and is in progress in mid-May 2010. This process is led by wildlife co-management boards established uner the Inuvialuit, Gwich'in, Sahtu and Wek'èezhìi land claim agreements along with a number of additional partners such as the Nunavut Wildlife Management Board. Recommendations for Bluenose-East harvest or other recommendations for this herd would need to be reviewed by these boards.

Currently, there is no management plan or planning initiative in place for the Ahiak and Beverly herds. The Beverly and Qamanirjuaq Caribou Management Board has a management plan for the Beverly herd, but action plans need to be developed to implement the plan. The BQCMB held a stakeholder community workshop in Saskatoon in February 2010, and participants recognized that there was a need to monitor and manage the Ahiak herd due to its rapidly declining trend. There is also serious concern about the status of the Beverly herd, and recognition that there is a high degree of overlap in seasonal range use between the Ahiak and Beverly herds. These declines and shared seasonal ranges have major implications for recovery of the remnant Beverly herd.

The primary focus of this joint proposal is on the management and recovery of the Bathurst herd. The TG and ENR-GNWT clearly recognize that an overall reduction in hunting of the Bathurst herd should not result in an unintended shift in hunting effort to adjacent caribou herds. Monitoring and recovery options suggested in this revised proposals are the results of direct consultation between the two governments and reflect a precautionary approach for management and recovery of the Bathurst and adjacent herds. As outlined in this proposal, there is a need for longer-term management plans for each barren-ground caribou herd, with precautionary provisions for harvest management in the interim.

- *Parallel process with other Aboriginal groups*

Because the Bathurst caribou range covers lands within and outside Wek'èezhìi, GNWT has been communicating with the Yellowknives Dene First Nation and other Aboriginal groups outside of Wek'èezhìi, to establish processes to discuss co-management of the Bathurst herd. No agreements have been reached at this time (May 31, 2010). This proposal to the WRRB does not preclude the right to harvest for other Aboriginal groups, and it does not diminish the GNWT's requirement to consult with other Aboriginal groups.

9.2 Cumulative effects and landscape management strategies for caribou herds

Although the main focus of this proposal is on reducing mortality rates of Bathurst caribou in the next 2 years, TG and ENR-GNWT recognize that other factors like fire on the winter range and industrial development, including new roads and increased access, can have significant cumulative effects on caribou and compromise the herd's resilience to environmental changes. Habitat conservation is an essential and complementary aspect to population management objectives to enhance recovery of Bathurst caribou over the short and long term. Indeed, recovery of Bathurst caribou, even over the short term, could be compromised in the absence of long-term management plans that ensure long-term habitat conservation and management of cumulative effects.

Consequently, work should be initiated over the short term to ensure consistent development of landscape management strategies across the annual range of the Bathurst caribou and evaluate the potential tradeoffs between industrial development, resource extraction and improved access, relative to goals for sustainable hunting and persistence of healthy caribou populations. Within Wek'èezhìi, the draft Tłı̨chǫ Land Use Plan (April 2010) provides important and relevant context. Similarly, the draft West Kitikmeot Land Use Plan also provides the relevant perspective for land use strategies in Nunavut. A review of these respective draft land use plans would be a useful short term step to develop coordinated strategies for industrial land use and habitat conservation across the Bathurst range.

During the next two years, as concerns or new information develop about habitat-related issues, those will be discussed by the *Tłı̨chǫ /ENR-GNWT Technical Working Group*, in order to develop short-term actions for review by WRRB that may become necessary to support the objectives of this proposal, relating to stabilization and recovery of the caribou herds whose habitat includes Wek'èezhìi. At a strategic level, the *Technical Working Group* should develop recommendations on longer-term planning for each of the three herds, and these plans should include guidelines on protection of key caribou winter ranges, coordination among land management agencies as well as limits to development on caribou ranges, with highest priority to protection of calving grounds for all three herds, recognizing that these are located in Nunavut.

10.0 USE OF ALTERNATIVE COUNTRY FOODS AND ACCESS TO OTHER WILDLIFE SPECIES

Tłı̨chǫ have experienced previous times of scarcity and abundance in caribou. Elders have always believed that when caribou became scarce they would go away to be left alone and recover. During previous times of caribou scarcity, the Tłı̨chǫ and other Aboriginal peoples relied more heavily on other sources of country food including moose, beaver, muskrat and fish. The elders knew to always leave 'seed on the land' in order to ensure that the species they were hunting or trapping would be able to recover. Thus, out of necessity and respect for the wildlife, Tłı̨chǫ had a strategy to adapt their use of wildlife according to prevailing seasonal and natural long term cycles in abundance of caribou.

Given the decline and low abundance of the Bathurst herd, the Tłı̨chǫ recognize the need to both reduce their consumption and hunting of caribou and to expand their harvesting to other species. Large ungulates such as wood bison and moose may be able to provide additional meat for consumption but added harvest pressure also places an onus on additional monitoring to ensure that the hunting is sustainable.

10.1 Increased access to wood bison in Wek'èezhìi to reduce hunting pressure on barren-ground caribou

Wood bison have expanded into the North Slave region in the last 15 years from the herd established at Fort Providence in 1964. With the re-alignment of Highway 3 between Behchokǫ̀ and Yellowknife, wood bison expand to within 30 kilometers west of Yellowknife using the road right-of-way as a movement corridor. This section of the highway is on Canadian Shield, which has limited prime wood bison habitat. In the Slave River Lowlands, the wood bison population is bounded by the Canadian Shield to the east. The Mackenzie bison herd was estimated at 1600 animals in 2008. Less that 400 bison are resident in the North Slave region, with less than 100 between Behchokǫ̀ and Yellowknife.

Wood bison are listed as a "threatened species" under the federal *Species at Risk Act*. A national recovery strategy is being drafted. Targets for size of recovery herds vary between 500 and 1,000.

Wood bison damage property in Behchokǫ̀ and Edzo and approximately 20-30 are killed on the highway annually in the North Slave Region. To date, no human lives have been lost due to vehicle accidents in the North Slave Region. Most collisions occur in the fall when days become shorter. Semi-trucks have killed as many as 7 buffalo in one collision.

The draft NWT Wood Bison Management Strategy identified a number of immediate actions to maximize benefits and reducing bison/human conflicts in communities and along highways. Wood bison in the North Slave region may provide an alternative country food source to barren-ground caribou. The Interim Emergency Measures implemented by ENR-GNWT in January 2010 included establishing two wood bison management zones in the North Slave Region (as in Table 6).

Table 6. Changes to bison management in Tłı̨chǫ land claim area

Management Zone	Regulations	Management Objectives
R/WB/01 – west of Behchokǫ̀ to Dehcho boundary (Birch Creek)	45 tags issued (25 to Tłı̨chǫ Government, 10 to YKDFN, 10 to Metis groups) Any sex Season Jan 1 to Mar 15 May be issued to GHLs, resident or outfitted hunter	Maintain Mackenzie herd at over 1,000 wood bison. Reduce wood bison conflicts in communities and along highway. Maintain wood bison in this area. Provide alternative country food source to barren-ground caribou. Provide opportunities to outfit for wood bison in North Slave region Provide opportunity for Tłı̨chǫ to learn about hunting and eating wood bison.
R/WB/02 – east of Edzo	GHL only, no limit Must report kill within 72 hours Season Jan 1 to Apr 15	Eliminate wood bison from this area, which is not prime wood bison habitat

ENR-GNWT recommends that the wood bison management zones be continued as noted in the table above. However, the season in both zones should be expanded to be consistent with subsistence harvest in Dehcho for this herd. The season would begin September 1 and continue to April 15.

10.2 Monitoring actions for other harvested species

As part of their commitment to responsible wildlife management, TG and ENR-GNWT recognize the importance of conducting additional monitoring of species that may incur increased hunting pressure. However, specific discussion and agreement on additional surveys and monitoring programs has not occurred for species such as moose or boreal caribou. Baseline surveys to document abundance and distribution of moose and woodland caribou have been conducted in the last 5 years.

APPENDIX 1. The relationship between Ekwo (caribou) and Tłı̨chǫ culture, language and way of life

The inter-dependence of the Tłı̨chǫ people with Ekwo could be considered the fundamental pillar or essence of Tłı̨chǫ culture. The Tłı̨chǫ and other Aboriginal people in the North have depended upon caribou for their physical, mental and spiritual needs since time immemorial. Since the time of Yamozah, the Tłı̨chǫ have lived in co-existence with the caribou, with rules and laws of respect and appreciation defining the relationship between the Tłı̨chǫ and the caribou. The caribou provide the Tłı̨chǫ with their life, their spirit and their inspiration. The connection they have is not only about the physical contribution the caribou makes to Tłı̨chǫ food, clothing, bedding and shelter. The caribou are the source of their legends and beliefs; the basis of their lifestyle, traditions and practices and the foundation of their value system. Tłı̨chǫ traditional trails follow the paths of the caribou towards the barrenlands with campsites, gravesites and places of spiritual significance all being described by placenames along the way. These placenames are dependent upon the soil substance and landscape, determining the harvest methods and telling the story about the place it describes.

Tłı̨chǫ history with Bathurst Herd

The relationship between the Tłı̨chǫ and caribou has changed over time, with the outside influences of the global market economy and trade leading to altered ways of valuing this sacred animal. This has led to a change in Tłı̨chǫ and outsider dependence on the animal. As early as 1700 the European desire for beaver pelt hats and other furs brought trappers and traders to the North, increasing the need for caribou as a trade item. This was the beginning of the change from hunting for subsistence to hunting for trade, thereby altering the relationship between man and animal.

The establishment of Old Fort Rae in 1852 further increased the market value of caribou. The Fort was set up not for trade but as a provisional post. It would buy caribou from the locals to trade and distribute to posts along the river. The Tłı̨chǫ would sell their caribou to the post, only to end up purchasing it back later at times. Caribou had now truly become a product to be bought and sold.

The last major change in this relationship has occurred in the last 15 years, where we have seen diamond mines, ice roads, all season roads, big game outfitting, resident and commercial hunting, high powered rifles, skidoos and trucks and trailers come onto the scene. This has altered the relationship between man and caribou and increased the pressures and stress on the animals, potentially more than in the last 150 years together.

Times of Scarcity

The relationship between Tłı̨chǫ and caribou is maintained by laws governing human behaviour towards the caribou. When these laws are not respected, it is believed that caribou populations will become smaller and their migration patterns will change. There have been times of scarcity and times of abundance, which have been influenced by both natural cycles of wildlife abundance and human influence. Elders have always believed that when the caribou became scarce they would go away to be left alone - to recover and replenish themselves. They would then come back to offer themselves to the Tłı̨chǫ; thus, the relationship between Tłı̨chǫ and Ekwo was one of mutual respect between man and animal.

During those times, the caribou were not as easily accessible as they are today. There was no mechanised transport such as skidoos, airplanes and 4x4 trucks. During previous times of scarcity,

the Tłı̨chǫ and other Aboriginal peoples turned to other sources of food – moose, beaver, muskrat, ducks, geese, or fish. The elders knew to always leave 'seed on the land' in order to ensure that the species they were hunting or trapping would be able to recover.

The most recent Tłı̨chǫ memory of a time of caribou scarcity was in the 1960s. At this time, the community of Wekweètì had to be evacuated to Behchokö and Gamètì, because of a scarcity of caribou and other game. This move led to significant changes in the political and social fabric of Tłı̨chǫ society. Due to an influx of people and lack of infrastructure in Rae, the community of Edzo was developed by the GNWT. During this period, Tłı̨chǫ children were encouraged to go into the residential school system, in exchange for relief from the government. The caribou decline indirectly led to changes in Tłı̨chǫ culture and lifestyle as the school system and amenities such as a hospital further influenced the Tłı̨chǫ to live in communities and to begin to leave their bush life behind.

From scarcity to abundance – so it seems

The last major periods of scarcity of the caribou that impacted the Tłı̨chǫ significantly preceded the advent and introduction of skidoos, trucks and airplanes to the hunt for caribou. Prior to the 1970s, both Aboriginal and non-Aboriginal hunters used dog sled teams and went only as far as they could carry food and supplies to survive on the barren lands when they went hunting. The Tłı̨chǫ did not control the land, but the land controlled the people and their actions.

Following the introduction of the snowmobile in the 1970's, access by hunters across the seasonal range of Bathurst caribou began to expand. In 1972, the modern airplane was introduced to the community hunt. The GNWT began at this time to contribute airplanes for greater access to caribou and programs to assist communities with money for fuel. Community freezers were introduced. Caribou was no longer only available for certain periods in the season, but it became available all year round whether the caribou were readily available and close to communities or not. The need to depend on other species at periods of time throughout the year now became a choice, not a necessity.

The changing role of caribou in the Tłı̨chǫ way of life and the gradually altered expectations over time has brought us to the present. The North is increasingly accessible by airplanes, skidoos, winter roads with trucks and trailers and high powered rifles. Tłı̨chǫ and other peoples in the North have developed expectations and have been conditioned over time to believe that they have a right to access and have caribou available at all times, without question or consequence. The steep decline in the Bathurst herd tells us all that this is no longer the case and we must change our ways. With declining caribou numbers and maintaining or increasing the same level of harvest, the caribou face a significant challenge in recovering that needs to be addressed. The future children of the North have a right to enjoy the caribou as others previously have, and it is the responsibility of the Tłı̨chǫ, other Aboriginal groups, ENR-GNWT and all other stakeholders to begin to change our collective thinking and expectations, and to give the herd an opportunity to recover.

A way forward

A recovery and management plan for the Bathurst caribou cannot focus only on the ecological issues at hand. The relationship between humans and caribou is complex and dynamic, and is of fundamental importance. In order to address the decline in the Bathurst herd, this complex system must be taken into account, with an appreciation that restrictions of harvest are only a small part of the long term sustainable approach to this issue. By looking at the system as a whole and its

interconnectedness, the solutions will be found in many different places, places that science alone can not define.

As this management proposal will show, the Tłı̨chǫ Government and ENR-GNWT have worked together to develop a holistic, realistic and adaptive co-management plan. Through adaptive co-management, capacity building, education and cooperation, we believe that the Bathurst caribou herd's future may in fact not be so dire and that this species will be here to teach and share with our children and their children thereafter.

Education – Relearning knowledge and respect – Nǫ́owo governing Caribou

Tłı̨chǫ elders have always taught that becoming and being knowledgeable is the way that respect is shown to the caribou. They believe that a person becomes knowledgeable by listening, watching and experiencing, and that there is a relationship between one's personal knowledge and their ability to respect the land. Being knowledgeable is necessary for a person's success and in order to survive, individuals must have different types of knowledge (men's, women's and non Aboriginal) accumulated over time. Tłı̨chǫ elders believe that if the young people were unable to become knowledgeable in the past, they were unable to survive and the same applies today.

The Tłı̨chǫ have many laws governing their behaviour towards the caribou
- Laws governing treatment of caribou
- Laws governing Use and Need
- Laws Governing 'what is not used'
- Laws Governing the Responsibility of Leaders and Elders
- Laws Governing Parents' and other family Members' behaviour
- Laws Governing Female Behaviour
- Laws Governing Hunters
- Rules Governing Following and Meeting Caribou
- Rules Governing the Respectful 'Cutting Up' of Caribou

If these laws are not abided by, this is a sign that the person lacks knowledge and is emotionally unwell. It is a sign that they are disrespecting the land and the caribou.

This lack of knowledge which guides human behaviour: "demonstrates disrespect of oneself, the de, and the caribou. This can lead to a decline in caribou population, changes to caribou distribution, and a dysfunctional society" (Legat, Chocolate and Chocolate: 40)."

As this knowledge is lost, the laws are no longer followed and respect for the caribou is further diminished. With modernization and changing lifestyles, this knowledge gap has increased over time causing both the Tłı̨chǫ and others to lose knowledge and respect for the caribou.

This knowledge must be relearned, if the Bathurst caribou are to recover. Through education and reconnection with the traditional practices and understanding that the Tłı̨chǫ once had, this knowledge and respect can be regained by:
- Education on Tłı̨chǫ Geography and Placenames
- Knowledge sharing from the elders
- Laws governing behaviour towards caribou
- Legends and Stories

- Hide tanning workshops
- Workshops on meat cutting and butchering
- Drum making and traditional craft making workshops

Tłı̨chǫ re-initiated some of these traditional practices this past winter (2009-2010) by bringing back and using caribou hides from community hunts carried out by Whatì and Behchokǫ̀.

Cultural Hunts

In order to renew and strengthen the connection between people and the caribou, the Tłı̨chǫ must revitalize the traditional ways in which they related to the caribou - through cultural hunts. By reestablishing the concept of cultural hunts - following the whaèhdǫǫ́ ʔetǫ (ancestor trails) - the Tłı̨chǫ will have an opportunity to travel the way their ancestors did in days passed. By following their ancestral trails they will have an opportunity to listen, observe and monitor the land; to learn the nàowo (laws) and stories, and they will have an opportunity to learn the placenames and ways of their ancestors. They will begin hunting by canoe and returning again to the sacred area of Mesa Lake, where peace was made between Edzo and Akaitcho. They will reemphasize and support the hunting and trapping of alternate species when caribou are simply not accessible.

Cooperation and working together is a Tłı̨chǫ Nàowo that has traditionally been highly valued. The community hunt and the communal nature that surrounds it will contribute to bringing back this valuable law of the Tłı̨chǫ.

This management proposal is not only about recovering the Bathurst caribou herd. It is equally about the recovery of Tłı̨chǫ language, culture and way of life that is dependent upon the Bathurst caribou.

APPENDIX 2. Barren-ground caribou herd management

Changes in animal populations over time are driven by four factors: births, deaths, immigration, and emigration. Births and immigration increase the numbers of animals in a population, whereas deaths and emigration decrease animal abundance. Thus, population trend is a result of the balance between these four factors.

Within North America, migratory barren-ground caribou herds are defined and managed as distinct herds or populations, because studies have shown that this is how they have adapted to the large landscapes they live in. Herds are defined based on the strong instinct of caribou cows to return every spring to a traditional calving ground. Studies show that usually about 95% or more of pregnant cows return annually to the same traditional calving ground.

Figure 2-1 shows the calving grounds of the Bathurst herd since 1996 in orange, with the summer range in green and the winter range in blue. Radio-collared cows from other herds have their own calving grounds east and west of the Bathurst calving ground. Although there is often overlap between herds on the winter range, at calving the cows move out to their separate traditional calving grounds. Over many years of study with various herds, immigration and emigration between neighboring caribou herds have generally been shown to be low and to occur in both directions about equally (2-5% in cows).

Once a caribou herd is defined, trend in herd size depends almost entirely on the balance between births and survival of calves to one year (additions), and deaths of bulls, cows and calves (losses). Radio-collar studies of many herds show that rates of caribou switching between neighbouring herds are generally low and occur in both directions. If there are many more deaths than calves added to the herd, the herd will decrease. If the number of calves added to the herd is greater than the numbers that die, the herd will increase. If births are matched by death rates in the population, the herd will be stable.

The rates at which animals die over one year are mortality rates, whereas survival is the opposite of mortality. For example, if 15 cows in a herd with 100 cows die in one year, then the cow mortality rate is 15%, and the cow survival rate is 85%.

Studies of various barren-ground caribou herds have shown that the highest mortality rates usually occur in calves less than a year old, from predation and other causes. Often 2/3 to 3/4 of the calves born in any year will die before they are one year old. After that, mortality rates of year-old caribou are quite similar to those of adults. The number of calves born depends on the pregnancy rate of the cows. If the cows are in poor condition in the fall, they may not become pregnant. Barren-ground caribou herds usually have pregnancy rates of 70-90%.

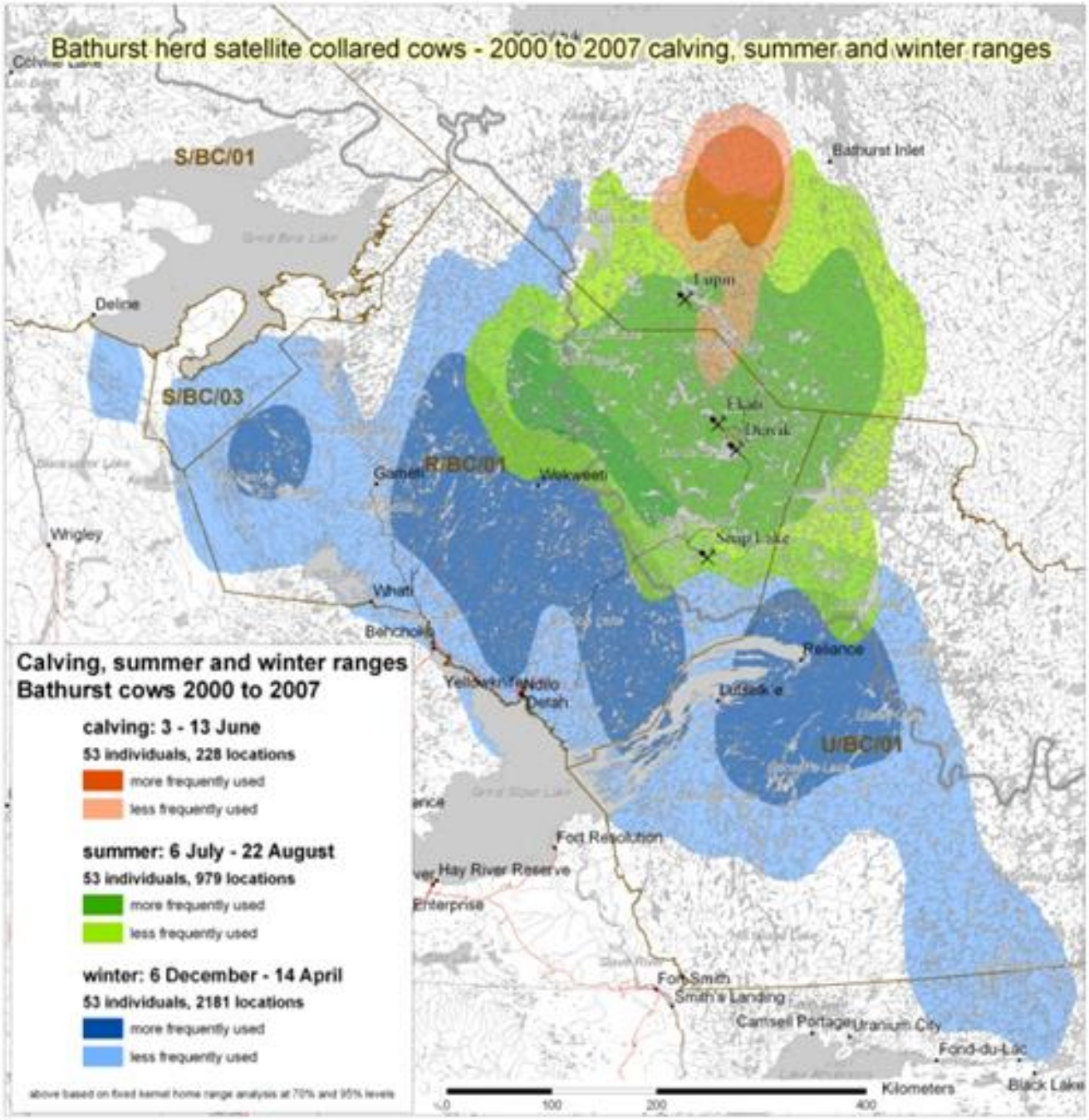


Figure 2-1. Seasonal ranges of Bathurst caribou based upon locations of satellite collared cows from 2000 to 2007.

Bulls almost always die at higher rates than cows, and annual mortality rates of 30-32% are common (with survival rates being 68-70%). As a result, the ratio of bulls to cows in a herd is often 50 bulls:100 cows or less. Since one bull can mate with several cows, variation in bull survival rates has limited effects on pregnancy rates.

Cows usually die at lower rates than bulls or calves, and annual mortality rates are usually 10-20% (thus survival rates are 80-90%). Studies of several caribou herds have shown that small changes in the survival rate of cows have a strong effect on population trend, in part because this is the largest

part of the herd and also because the loss of a pregnant cow means the loss of the cow, the calf she is carrying, and all the calves she may produce in later years.

Population trend in caribou also depends on the rate at which calves are born and the rate at which they die in their first year. Calf:cow ratios in late winter provide an index of the herd's productivity (pregnancy rate and first-year survival). These ratios often change quite a bit from year to year. In the Bathurst herd these ratios have varied from less than 10 calves:100 cows to over 50 calves: 100 cows. Ratios below 30 calves:100 cows are generally indicative of declining herds.

Barren-ground caribou herds go through large changes in numbers over time; this knowledge has come from elders in several aboriginal cultures. For example, knowledge of Tłı̨chǫ elders has confirmed that large fluctuations in numbers of Bathurst caribou have occurred in the past, and likely many times over thousands of years. Figure 2-2 shows estimated changes in numbers of the George River herd in Quebec/Labrador over a 200-year period. Surveys were done from the 1950s on, and the earlier estimates of numbers were based on a variety of sources, including knowledge of Innu and Inuit people.

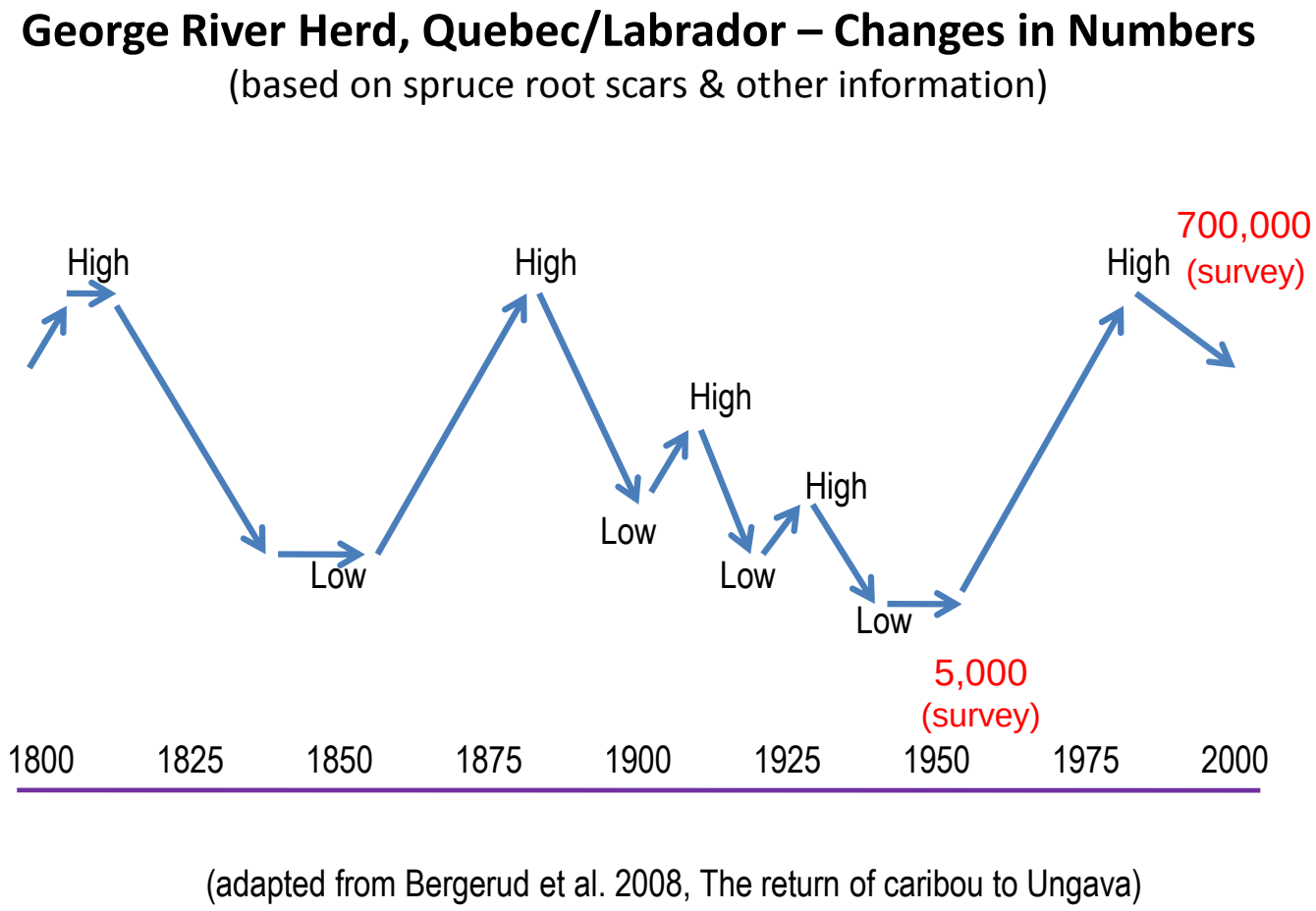
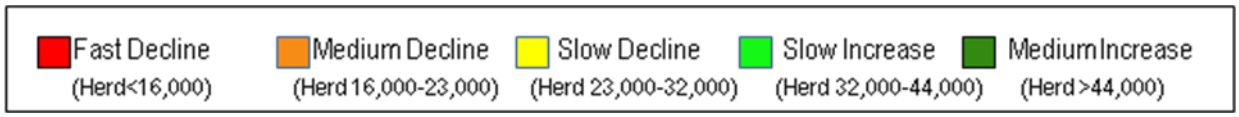


Figure 2-2. Historical trend in George River caribou herd based upon spruce root scars and other information, adapted from Bergerud et al. 2008.

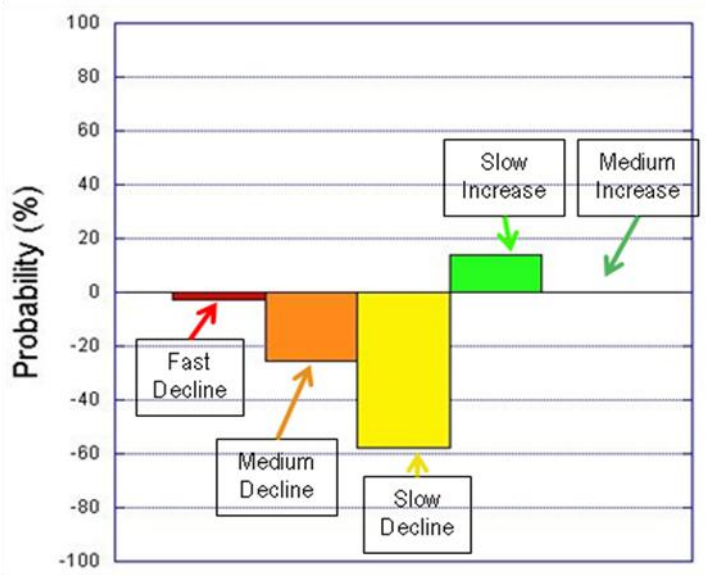
APPENDIX 3. Population demography and summary of modeling for determining hunting objectives for Bathurst herd.

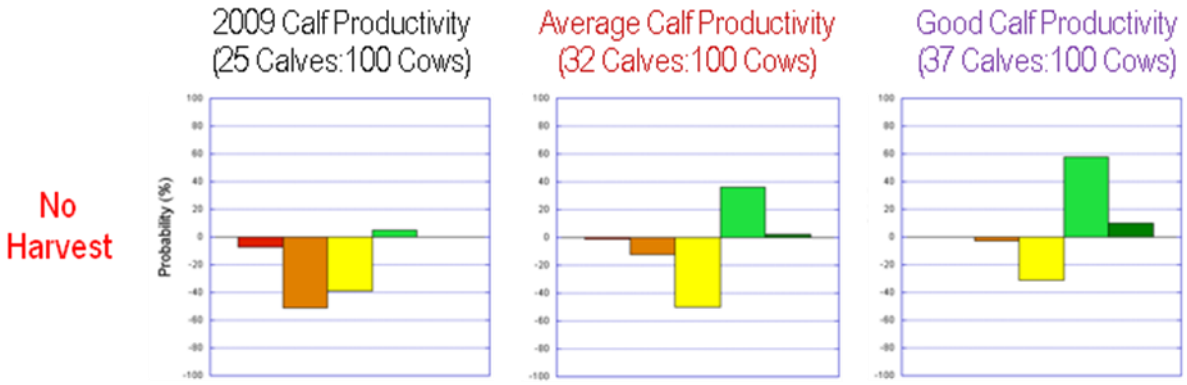
Defining a sustainable harvest from a caribou herd or other wildlife population depends on the herd's trend and size, and on the sex ratio of the harvest. There is, by definition, no sustainable harvest from a declining herd, as hunting mortality can only add to the natural mortality that is already exceeding replacement by young of the year. A harvest from a declining population may still be allowed for social or economic reasons, but there is a risk of increasing the extent and rate of decline. The model outcomes summarized here are based on reports submitted to the WRRB prior to the March hearing in Behchokǫ̀.

Population models can be used to understand how birth and death rates affect a caribou herd, and how harvest is likely to affect a herd's future trend. ENR-GNWT has used two population modeling approaches to assess the herd's likely future trend with harvest rates varying from 0 to 5000 cows and 2000 bulls/year. Supporting documents from J. Boulanger or by J. Adamczewski (based on Boulanger's modeling) describe how one of these modeling approaches was developed. A few examples are presented here to illustrate the range of likely outcomes, depending on calf productivity and harvest. The modeling was set up to allow calf survival, cow survival and pregnancy rate to vary from year to year, within the range of values known for the Bathurst herd. The model was then run hundreds of times for each set of conditions. Because of the many model runs with varying birth and death rates, there were also hundreds of outcomes for each set of conditions. The outcomes were grouped in 5 classes of likely trend as follows (6-year projections), assuming a starting population of 32,000:

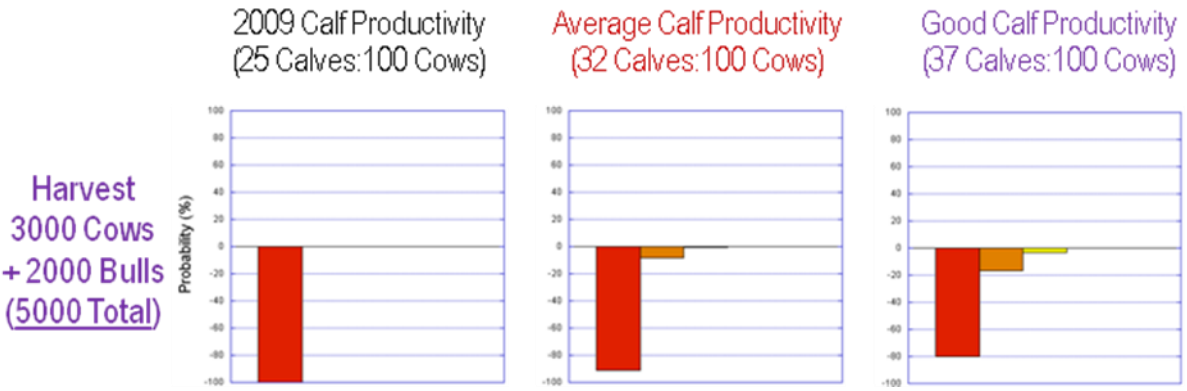


For each set of conditions, the range of results was graphed as a bar graph where the size of the bar represented the most likely outcome. In the example below, of the hundreds of model runs, almost 60% resulted in a slow decline where the herd was likely to be between 23,000 and 32,000 after 6 years. The second most likely outcome was a medium decline resulting in a herd between 16,000 and 23,000 after 6 years.

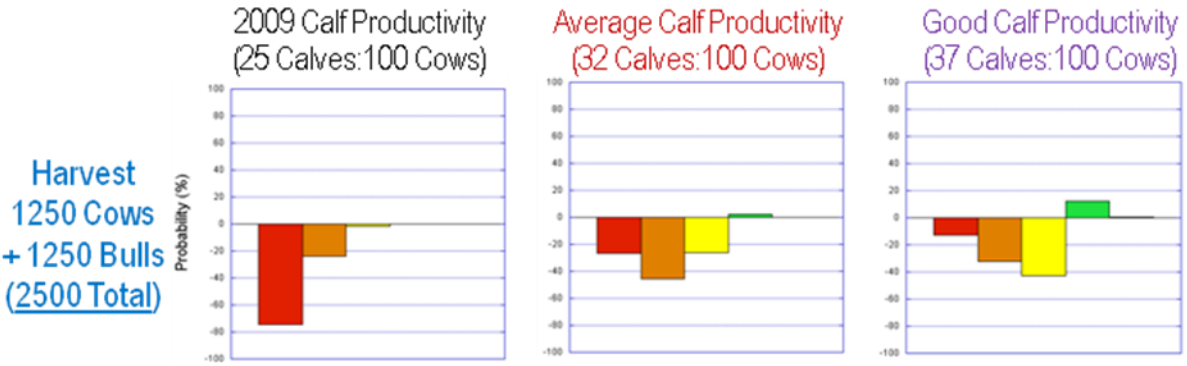




The three graphs above (all 6-year projections) show likely outcomes for the Bathurst herd with no harvest after 2008-2009, and with calf productivity varying from relatively low (2009 or the average for 2000-2009) to average for the herd (1985-2009) to good (Bathurst herd before 1995). Calf productivity is shown as expected late-winter calf:cow ratio. With no harvest, the herd could decline further, stabilize, or begin to increase, depending on calf productivity.

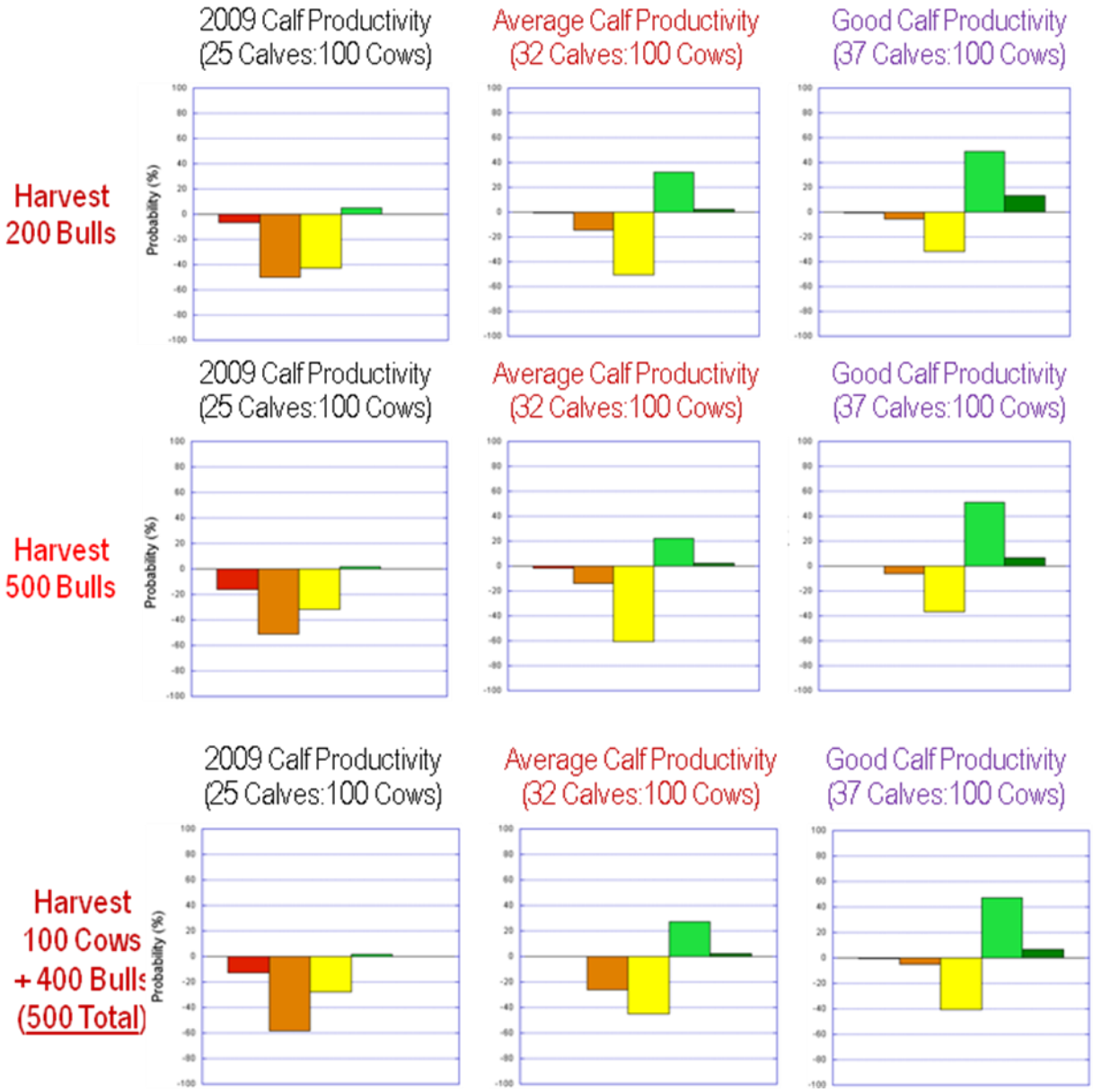


The series of graphs above (again 6-year projections) illustrate likely population trend if harvest had continued at a level of 3000 cows and 2000 bulls/year, numbers within the harvest range estimated for the Bathurst herd in 2008-2009. Under these conditions, the herd could only decline rapidly, as there is no level of calf productivity that can offset this level of cow mortality. If this harvest is cut in half to 1250 cows and 1250 bulls/year (graphs below), continued decline is still the only possible outcome, although at good calf productivity the decline would be somewhat slower.

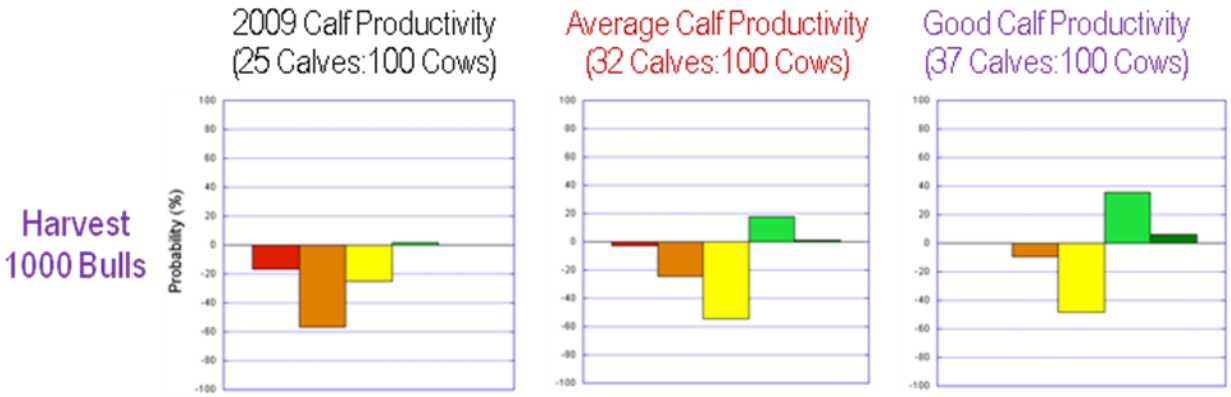


The next three series of graphs below shows the herd's probable trend with a harvest of 200 bulls, 500 bulls, and 400 bulls and 100 cows/year. The outcomes for a harvest of 200 bulls were similar to the outcomes for no harvest, suggesting that this level of bull harvest would have relatively little impact on the herd's future trend,

and herd trend would depend primarily on calf productivity. The outcomes for a harvest of 400 bulls and 100 cows were similar to a bull harvest of 500. At average calf productivity, 2/3 of the model runs still resulted in further decline.



Larger harvest levels of 1000 or more caribou (next series of graphs) were associated with a high risk of continued decline. Overall, this modeling suggested that a harvest of 200-500 caribou, mostly or all bulls, might be associated with further decline at a slow rate, or could become sustainable if calf productivity stayed at a consistently high level. Bull harvest had less effect on overall herd trend than cow harvest. The Bathurst herd has had lower fall bull:cow ratios (31-38 bulls:100 cows) than other barren-ground caribou herds monitored by GNWT.



It is important to recognize that the results from this modeling and other population models like the Caribou Calculator depend on the numbers and assumptions used. The model outcomes can be used as a guide to likely consequences of particular harvest management and to provide a sense of the likely range of outcomes possible. Management should be flexible as further monitoring results are acquired.

APPENDIX 4. Summary of estimated caribou harvest from the Bathurst, Bluenose-East and Ahiak herds in 2009/2010.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
2	**Community**		**Bluenose East Herd**		**Bathurst Herd**		**Ahiak & Beverly Herds**		**Estimated sex ratio in the harvest (Females/Males)**		**Comments**			
3														
4	Behchoko		565		0		0		65/35		All winter harvest for the Tli Cho communities and the YKDFN			
5											were conducted jointly with ENR and numbers of caribou were monitored			
6	Wha Ti		360		0		0		65/35		either by biologists, wildlife officers and/or community wildlife monitors.			
7														
8	Gameti		250		0		0		65/35					
9														
10	Wekweeti		0		100		0		65/35					
11														
12	YKDFN		0		100		130		65/35					
13														
14	Lutsel Ke		0		0		700		10/90		Reported by the Lutsel Ke wildlife officer			
15														
16	Fort Smith and Fort Resolution		0		0		140		?					
17														
18	Sahtu		900		0		0		95/5		500 caribou taken between November 2009 and February 2010 by Deline residents. Locations of harvest unknown.			
19											In addition 150 caribou harvested east of the Johnny Hoe River Area plus 50 from Hottah Lake and 100 more for a hand game event			
20	Deh Cho		100		0		0		?					
21														
22	Tli Cho individual hunt		235		0		0		?					
23														
24	**Total winter harvest**		**2410**		**200**		**970**							
25														
26	Nunavut (summer)		500		0		0		?		Estimate from Nunavut government			
27														
28	Non-Resident		123		100		0		0/100		Non-resident harvest reporting is mandatory and results and compiled at the end of the season.			
29														
30	Aboriginal fall harvest		433		0		60		0/100		Aboriginal harvest in 2010 was not monitored but estimate came from the 2007 fall reported harvest by			
31											the Tli Cho Government and the assumption that fall harvest number is consistent from year to year.			
32	**Total Fall Harvest**		**1056**		**100**		**60**							
34	**Total estimated harvest by herd in 2009/2010 Season**		**3466**		**300**		**1030**							

APPENDIX 5. Assessment of Tłı̨chǫ communities' country food needs, and assessment of effects of caribou scarcity on community well-being

Discussions during the joint TG and ENR-GNWT meetings in April and May 2010 indicated that each of the four Tłı̨chǫ communities would have different needs for caribou meat and that access to alternate country foods (moose, bison, muskox, woodland caribou, fish, muskrat, etc.) would also vary for each community. As part of an implementation plan, TG and ENR-GNWT suggest that an assessment of needs for caribou and access to alternate meat sources be carried out for each community, most likely by TG, with potential assistance from the community-specific caribou committees. Preliminary discussion by Tlicho Lands Protection Department staff, has identified strong potential for collaboration with the Tlicho Community Services Agency as well as the Tlicho Department of Language, Culture and Communications.

Due to the strong connections between the population health of caribou and the traditional food system of Tłı̨chǫ people, it is important to consider the potential effects of reduced caribou on a variety of social, cultural, and health/nutritional indicators in the communities (see Figure 5-1 below as an example). Table 5-1 below summarizes initial concepts for information needs that could be addressed as part of an assessment of each community's situation (section A) and also lists potential impacts of caribou scarcity on Tlicho (section B). There are established methods for assessing these kinds of impacts, and this could be a useful way of assessing how Tłı̨chǫ communities respond to a period of reduced caribou availability.

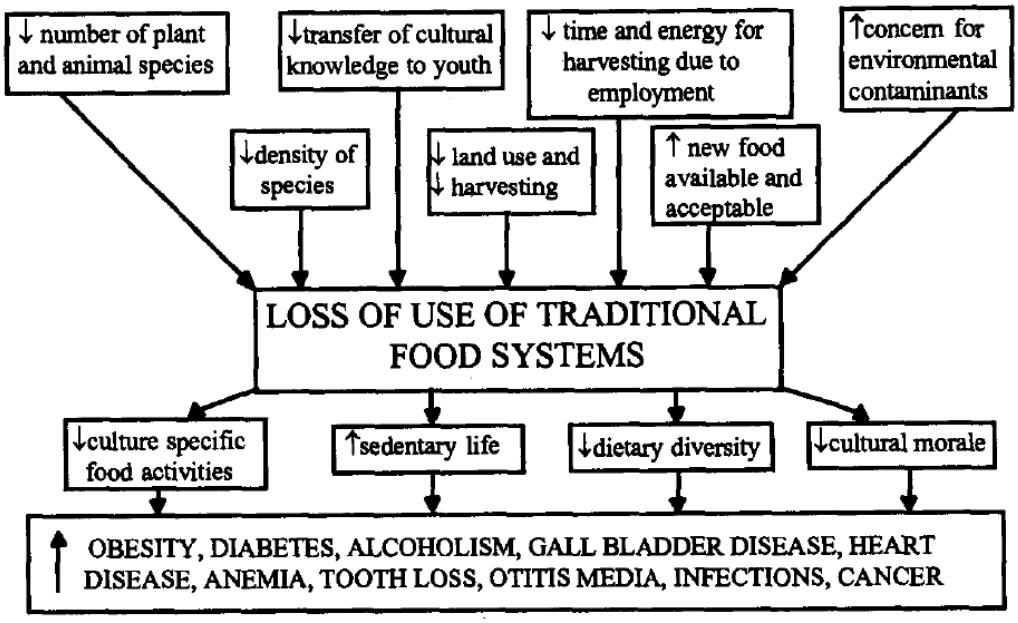


Figure 5-1. Factors influence dietary change and consequences of change for indigenous peoples (Kuhnlein, H.V., and O. Receveur. 1996. Annual Review of Nutrition. 16: 417-442)

Table 5-1. Assessment of community needs for caribou or alternate foods, and assessment of the effects of caribou scarcity on Tłı̨chǫ communities.

A. Assessment of each community's needs and access to alternate foods	Conduct a needs assessment for caribou and other country foods for each community: Wekweètì , Gamètì, Whatì and Behchokǫ̀ • For caribou harvest in 2010, determine the overall number of people who received fuel for the winter hunt. • Assessment of traditional uses of alternate food • Assessment of current access and use of alternate food source • Assessment of what community members need in order to access alternate species – knowledge, gas money, materials • Baseline data on alternate species

B. Assessment of effects of low caribou numbers on Tłı̨chǫ communities	Identify and evaluate the potential effects of reduced caribou hunting on a variety of social, cultural, and health/nutritional indicators in the communities
Cultural	• Limited hides for craft production – limited availability of traditional items for sale and personal use; impacts on self identity and loss of knowledge of how to produce crafts • Loss of cultural identity - ritual and spiritual practices restricted and lost over time.
Economic	• Increased pressure on household budgets; increased purchase of store-bought foods • Loss of income from sale of traditional crafts
Health	• Change in diet leading to increased store-bought food and increased diabetes, obesity and heart disease • Health related issues due to not getting out on the land • Impacts on elders
Social	Reduced hunting and on-the-land activities could lead to • Increased drinking and gambling • Increased domestic abuse and violence • Children getting into more trouble at school and with authorities