

## **Sahtu Renewable Resources Board**

### **Response to Information Request Environment and Natural Resources, GNWT November 5, 2007**

**1. Please describe, in detail, all management actions that ENR considered as options for assisting the Bluenose-West Caribou Herd to recover.**

ENR staff in the Sahtu and Inuvik Regions presented scientific data on the Bluenose-West herd after the 2005 and 2006 aerial photographic census to the co-management boards and at community meetings. Included in those presentations were possible reasons for the decline and input was sought from the communities, the boards, and the Bluenose Caribou Advisory Committee into the options that ENR should consider.

The decline documented for the Bluenose-West and other barren-ground caribou herds across the NWT is the result of many factors working together and include, or could include:

- it is just part of a natural cycle
- changes to snow condition during winter making traveling more difficult for caribou and/or severe weather events (icings), which could contribute to increased predation, reduced body condition (even starvation), and reduced calf productivity and survival
- changes in habitat
- changes in timing of green-up could contribute to reduced calf survival
- increased disturbance on all seasonal ranges as a result of increases in aircraft use, activities association with oil, gas, and mineral exploration, and increased use of snowmobiles
- increased predation on calves, adults, or both
- disease, reduced calf production and survival, or decreased body condition as a result of known or new viruses, bacteria, and parasites
- human harvest where total harvest is mostly unregulated and largely unknown (except within the Sahtu Settlement Areas for 1998-2005, the Inuvialuit Settlement Region for 1988 to 1998 and the Gwich'in Settlement Area for 1995 to 2004) and the sex ratio of harvest is close to, or above, 50 cows per 50 bulls

From this list, which may not be all-inclusive, there are limited management options that would lead to herd recovery:

- change harvest numbers, sex ratio, or both
- reduce numbers of predators where harvesters consider predation to be a concern
- reduce aircraft and other disturbances on all seasonal ranges
- limit or restrict linear disturbances that provide increased access into areas of caribou occupancy

ENR reviewed available scientific information on the Bluenose-West and other barren-ground caribou herds censused in 2005 and 2006 to provide suggestions during community and co-management board meetings to discuss the results of

those herd counts. To address the above list of limited management options, the following options were considered:

- stop all resident, non-resident, non-resident alien and commercial harvest
- adjust the barren-ground caribou management zones to better reflect the recent movements of the herds
- reduce subsistence harvest to a suggested 3% of 2006 herd estimates and reduce harvest of females to as close to zero as possible, then re-evaluate after the 2009 census
- participate in the development and finalization of the Sahtu Land Use Plan and work with communities, Land Corporations, and other interested stakeholders in identifying candidate areas under the NWT Protected Areas Strategy and assist with advancing those areas through the PAS process
- encourage subsistence hunters to harvest increased numbers of wolves or grizzly and black bears where they feel that predation is a factor for caribou, while also recognizing that in some areas of the Bluenose-West range grizzly bears are harvested under quota

ENR, at joint meetings held with the co-management boards, provided these suggestions and discussed options with RRCs, HTC's, and interested members of the public, including upper grade students in the Sahtu's five schools. A wide variety of management options, including all the above, were suggested to assist the Bluenose-West herd to recover. All these options were recorded during community consultations in 2005 and 2006. For the Sahtu, the comments were presented for review and consideration by SRRB members at a meeting in Deline in February 2006.

In December 2006 a joint management meeting was held in Inuvik where representatives from the co-management boards signatory to the Bluenose Management Agreement and government representatives met to discuss options for the management of the shared herds.

In addition, the following research actions were considered and recommended by ENR:

- increase frequency of surveys to determine calving ground distribution and composition (focus on productivity), fall composition (focus on adult sex ratio and calf survival to fall), and spring composition (focus on overwinter calf survival and recruitment)
- use radiocollar information to determine estimates of adult survival (particularly adult females)
- continue monitoring seasonal movements via satellite tracking but to hold back the release of current locations
- monitor health and condition through collection of samples from harvested and captured animals

These data would be required to input into population growth models similar to those done for the Porcupine and Bathurst herds.

The NWT Barren-ground Caribou Summit held in Inuvik (January 2007) led to a large number of additional recommendations to ENR, including:

- eliminate posting of location data from satellite-tracked radiocollars on the ENR website
- continue to implement recommendations from wildlife co-management boards on harvest levels and seasons

- protection of calving grounds in NWT and Nunavut
- reduction of all harvest levels
- implement mandatory reporting of all harvest
- expand and improve public education on the status of herds and hunting ethics
- develop management plans for all herds

**2. ENR biologists indicated that the current harvest levels, particularly adult females, are not sustainable and recommends harvest should not exceed 3% of 2006 herd size. What is ENR's rationale for the 3% level? If the recommended level is incorporated, what is the timeframe for the slow or reverse in decline in the herd? If the recommended level is not incorporated, in your view, what are the impacts to the herd?**

It should first be emphasized that the 3% figure was not derived from detailed assessment of population demographics of the Bluenose-West herd, nor should it be considered a "sustainable" harvest level. By definition a "sustainable" harvest level is one that will not result in a decline in herd size. When a herd is in decline from a combination of factors, then using that definition, the "sustainable" harvest on the herd is zero.

That the Sahtu Dene and Metis, Inuvialuit, and Gwich'in depend upon barren-ground caribou was clearly indicated by the results from the Harvest Studies. To recommend a total ban on caribou harvesting would result in incredible hardship for people that rely on the herd as a main source of food. It was felt that a harvest strategy should be suggested during community and co-management board meetings that would allow people to continue to harvest from the herd while still providing opportunity for the herd to recover.

The rationale for proposing that the harvest not exceed 3% was an application of the 'precautionary principle' whereby the absence of complete information is not a reason for postponing reasonable conservation measures (Beverly and Qamanirjuaq Caribou Management Board 2005). As it is not possible to set a sustainable harvest level, ENR - in collaboration with the co-management boards - attempted to identify a harvest level that presented an acceptable level of risk to a declining population.

After an ENR presentation to the co-management boards following the 2006 Bluenose-West census, the Wildlife Management Advisory Council (NWT) proposed the 3% male only harvest to the communities. After consultation with Inuvialuit communities and the Inuvialuit Game Council, the WMAC (NWT) recommended that the total allowable harvest for the herd be set at 4% of the 2006 herd size, with a target female harvest of no more than 20% until another survey is conducted in 2009.

It should be recognized that the 4% harvest level, along with the proposed 20% cow harvest, may extend the period required for herd recovery. The 2001-2006 Harvest Plan within the Recovery Plan for the Fortymile Caribou Herd suggested a 2% total harvest with an average of 24% cows to ensure accelerated growth of that herd. Similarly, management guidelines for woodland caribou developed by the Caribou Management Team of the Yukon Territorial Government (1996) suggest that the annual allowable harvest for a "relatively stable naturally regulated" population should be 2-3% of adults.

3. **Please provide a life table, or other accepted population modeling technique, using the proposed total allowable harvest and standard demographic parameters such as cohort based natality and mortality (either known or estimated) to predict possible future growth rates of the Bluenose-West Caribou Herd and when the herd size could be expected to return to 2000 levels.**

Modeling was not done for the Bluenose-West Herd. However, recent modeling of the Bathurst Caribou Herd (the herd in the NWT for which the most demographic data are available) indicates that the Bathurst herd has declined because of a trend toward reduced calf productivity, survival, or both and also likely because of reduced survival of adult females. The model concluded that although a reduction in hunting will improve adult survival and may slow the rate of decline, the herd will likely not recover until calf survival improves. The model also determined that small changes in adult survival can have a large influence on population trajectories (J. Boulanger and A. Gunn, in prep). A similar finding, that small changes in adult survival have a large influence on whether a population increases or declines, has been indicated with Porcupine Caribou herd modeling (Porcupine Caribou Management Board 2006).

ENR is interested in further demographic modeling with the Bathurst and other barren-ground caribou herds in the NWT to evaluate a number of alternative hunting strategies that could be pursued - e.g. all-male harvest, harvest of young males only, or a harvest of variable proportions of males and females. Generally speaking, hunter harvest management of moose, red deer, and other ungulates (hoofed mammals) has shown that a selective harvest of young males and calves provides the greatest hunting opportunities with the least impact on the population, although this approach should be closely monitored to ensure extremely unbalanced sex or age ratios do not result.

ENR shares community concern about increased harvest of bulls since there is considerable published literature on the subject of bull-only harvests and the impact it has on adult sex ratios. Extremely high harvesting of prime males has led to population collapses in species such as the saiga antelope in Africa (Ginsberg and Milner-Gulland 1994). We do not know at what levels for caribou the risks increase. The mechanisms for declines in other species with a sex ratio strongly biased toward females include breeding by young bulls which causes delayed conception, then later calving, and calves born late have lower birth weights (lower survival).

ENR believes that by lowering the total harvest pressure on the Bluenose-West herd to a maximum of 3 to 4% of the 2006 estimated herd size, with a recommended sex ratio of 20% cows, the risk of continued decline will be reduced, but not eliminated. This risk has not been quantified but the conclusion is intuitive given that population trajectory is very sensitive to adult female survival and particularly when calf survival/recruitment are low. Therefore, annual monitoring of trend indicators as identified in the previous co-management plan for Bluenose-West, Bluenose-East, and Cape Bathurst caribou herds and as outlined in the GNWT's Barren-ground Caribou Management Strategy is critical to evaluate the impact of management actions and recovery in the herd.

**4. Please describe what options exist for implementing mandatory reporting of harvest by subsistence and resident harvesters.**

<b>Compulsory Reporting Options</b>	<b>Advantages</b>	<b>Disadvantages</b>
<p><i>Outfitted Hunts (i.e., Non-resident and Non-resident Alien hunting licence holders</i> - Is a requirement of licence condition. Currently there are no outfitted hunts of caribou on the Bluenose-West range.</p>	<p>Outfitters already provide information as part of their licence condition.</p>	<p>None</p>
<p><i>Resident Hunters</i> - Make it a requirement of the licence. Resident hunters could not receive a new licence unless information has been provided for previous years. Currently no resident hunting of caribou is allowed on the Bluenose-West range. There is concern about increased pressure on other species.</p>	<p>Presently, Resident hunter harvest is an estimate based on voluntary return of an annual questionnaire. Compulsory reporting would provide much more accurate and complete harvest data.</p>	<p>None</p>
<p><i>Resident Hunters</i> - Hunters would be required to provide a cleaned incisor bar from harvested animals to ENR within 1 week of harvest. At such time, hunters would receive a receipt to verify the animal was reported. Currently no resident hunting is allowed on the Bluenose-West range.</p>	<p>Once resident hunting is implemented again, this would provide valuable samples and physical evidence of the harvest. The age and sex structure of the harvest (if not bull only) would be documented annually.</p>	<p>Substantial increase in workload of enforcement and regional personnel.  Collected samples need to be labeled, stored, and sent for analysis at considerable time and cost.</p>
<p><i>Subsistence</i> - a. Require use of a tag to hunt caribou (Legislated in I/BC/06). No limit on number of tags. Return unused tags</p>	<p>a. Relatively little cost. RRC\HTC can control who is hunting. Most efficient way to implement the proposed sex ratio</p>	<p>a. Up to hunter to return unused tags. If not used and not returned, harvest is overestimated. b. Depends on hunter to keep harvest data</p>

<p>to RRC\HTC. The Bluenose Caribou Advisory Committee has recommended a target annual harvest of 720. For the Bluenose-West range, the Inuvialuit have already implemented a limit of 345 tags.</p> <p>b. Use of calendars for hunters to record their harvest information and have calendars collected at end of the year. This could be done in conjunction with interviews.</p> <p>c. Hunter interviews</p>	<p>strategy.</p> <p>b. Lower cost depending if interviews also a part of plan.</p> <p>c. This method was successfully used in the SSSH, IHS, GHS. It provides the most accurate and complete harvest data and people are used to it already.</p>	<p>calendar. Calendars have to be collected and information data-entered and analysed annually.</p> <p>Interviews\home visits could reduce dependence on hunter turning in calendar.</p> <p>c. Requires interviewer training and is relatively high cost, depending on frequency of interviews and if all hunters are interviewed.</p>
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**References**

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