



MAY 11 2016

Mr. Daniel Shewchuk  
Acting Chairperson  
Nunavut Wildlife Management Board  
PO BOX 1379  
IQALUIT NU X0A 0H0

Email: [receptionist@nwmb.com](mailto:receptionist@nwmb.com)

Dear Mr. Shewchuk:

**GNWT Submissions to the NWMB Public Hearings  
on a Total Allowable Harvest for the Bluenose-East Caribou Herd**

The Government of the Northwest Territories (GNWT), Department of Environment and Natural Resources (ENR) is pleased to provide a written submission for the Nunavut Wildlife Management Board (NWMB) public hearings to consider harvest management of the Bluenose-East caribou herd within Nunavut. Please find attached copies of the written submission in English and Inuktitut/Innuinaqtun. A number of supporting documents are also attached.

If you have any questions, please contact Ms. Lynda Yonge, Director of Wildlife, at [lynda\\_yonge@gov.nt.ca](mailto:lynda_yonge@gov.nt.ca) or by phone at (867) 767-9237 ext. 53210.

Sincerely,

Ernie Campbell  
Deputy Minister

**Attachments**

- c. Mr. Fred Mandeville, Assistant Deputy Minister Operations, ENR, GNWT
- Ms. Lynda Yonge, Director of Wildlife Division, ENR, GNWT
- Mr. Drikus Gissing, Director of Wildlife Management  
Department of Environment, Government of Nunavut

May 13, 2016

## **Nunavut Wildlife Management Board Public Hearing To Consider a Regional Total Allowable Harvest for the Bluenose-East Caribou Herd June 16-17, 2016**

Submission from the Government of the Northwest Territories (GNWT), Department of Environment and Natural Resources (ENR)

**Summary:** This document summarizes information on the status of the Bluenose-East caribou herd, recent harvest and management for this herd in the Northwest Territories (NWT), and the GNWT's recommendations on harvest of Bluenose-East caribou. More detailed information on the herd is found in supporting documents. In 2010 the Bluenose-East herd was estimated at more than 100,000 caribou, but has since declined to an estimated 68,000 in 2013 and 38,600 in 2015. Between 2013 and 2015 the estimated number of breeding females dropped by about 50% in just two years. The herd's recent vital rates (cow survival, calf survival, and pregnancy rate) suggest that further decline is likely. In the NWT, resident and commercial harvesting of this herd was closed in January 2010. Aboriginal harvesting was unrestricted until 2014-2015 when a harvest limit of 1,800 and 80% bulls proposed by the Advisory Committee for Cooperation on Wildlife Management (ACCWM) was accepted by ENR. In December 2015, the GNWT and the Tłı̄chǫ Government (TG) submitted a joint proposal to the Wek'èezhìi Renewable Resources Board (WRRB) that recommended a Total Allowable Harvest of 950 caribou (all bulls) for Bluenose-East caribou on a herd-wide basis. This recommendation was based on the dramatic population decline since 2010, and the very rapid decline in breeding cows from 2013-2015. A similar proposal was submitted by the GNWT to the Sahtú Renewable Resources Board (SRRB) and the Wildlife Management Advisory Council - NWT (WMAC-NWT), and included same herd-wide Total Allowable Harvest. The proposed allocation would include 611 for NWT and 339 for Nunavut, although the GNWT and other NWT parties recognize they have no authority in Nunavut. The proposed allocation of 611 was to be shared amongst the Tłı̄chǫ, Sahtu, Dehcho, Inuvialuit, Northwest Territory Métis Nation, Akaitcho and the North Slave Métis Alliance. The remainder of this summary has information on the following subjects: (1) Bluenose-East herd status, (2) Management context for the Bluenose-East herd, (3) Recent harvest and management of Bluenose-East caribou in the NWT 2010-2015, and (4) GNWT proposed harvest management for Bluenose-East herd.

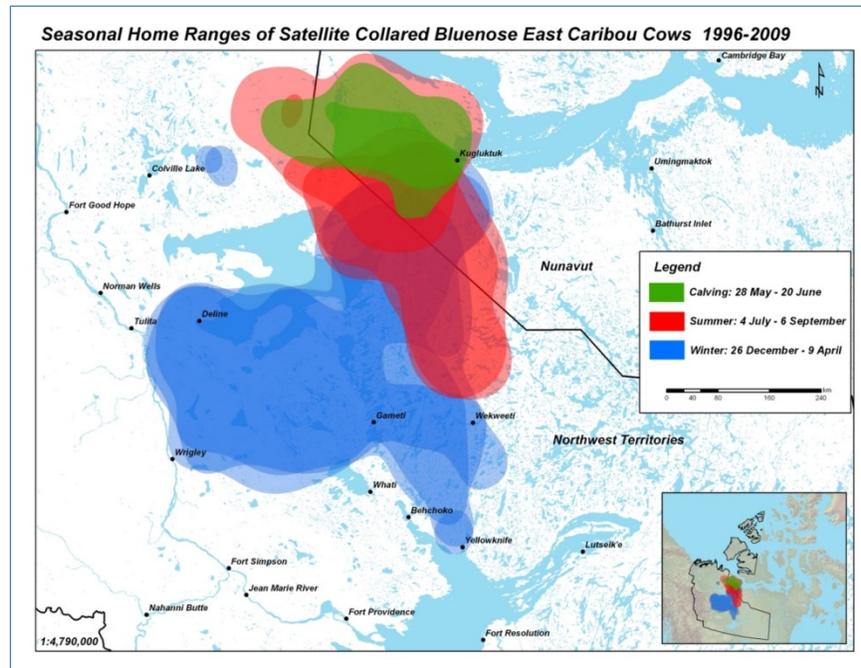
### **1. Bluenose-East herd status**

The Bluenose-East caribou range as determined from collared caribou locations since 1996 covers an area of 200,000-250,000 km<sup>2</sup> (Figure 1). The herd's calving grounds since at least 2000 have been west of Kugluktuk in Nunavut, and a portion of the herd's summer range is in Nunavut. The remainder of the herd's range, including most of its winter range, is in the NWT, mostly to the east and south of Great Bear Lake.

The June 2015 calving ground photographic survey of the Bluenose-East caribou herd estimated  $17,396 \pm 4,616$  (95% Confidence Interval) breeding females, which compared to the June 2013 estimate of  $34,472 \pm 4,363$  indicates that abundance has declined by ~29% per year (Fig. 2; Boulanger et al. 2016). These survey results are alarming for two reasons: 1) the rate of decrease has accelerated in recent years as it is twice as fast as the -14% annual rate of change observed

May 13, 2016

between calving ground surveys in 2013 and 2010; and 2) if the observed annual rate of -29% were to continue, the abundance of breeding females would be less than half of what it is today within 2 years, which is before the next calving ground survey scheduled for June 2018. The accelerated decrease in abundance of the Bluenose-East herd is similar to the rapid rate of decline observed in the Bathurst herd 2006-2009, when the annual rate of decline based on breeding cow estimates exceeded ~-30%. The 2015 photo survey results confirmed the steep downward trend in the Bluenose-East herd suggested by a June 2014 reconnaissance survey of this herd's calving grounds. The preliminary BNE herd estimate is  $38,592 \pm 4,733$  (CI) for 2015, which compares to  $68,295 \pm 18,041$  in 2013 and at least 100,000 in 2010 (Fig. 3).



**Figure 1:** Calving, summer, and winter ranges of the Bluenose-East caribou herd, 1996-2009, based on accumulated radio collar locations of cows. The location of the Bluenose-East range relative to the NWT and NU is shown as an inset. From Boulanger et al. (2016).

Other demographic indicators for the Bluenose-East herd in recent years are consistent with a rapidly declining trend 2010-2015. Late-winter calf:cow ratios in recent years have averaged below 30 calves:100 cows (ratios of 30-40 calves:100 cows or greater are associated with stable herds). Estimated cow survival was estimated for 2012-2015 at 71%, well below the 80% needed for a stable herd (Boulanger et al. 2016). There is evidence of a low pregnancy rate in at least some years, including 2010, 2012 and 2015 (ENR 2014a). Although sample sizes were small, evidence gathered by Tł̥ch̥ hunters during winter harvesting suggested that cows were in relatively poor condition between 2010 and 2014, and particularly 2010-2012 (ENR 2014a). It is important to note that only 61% of the caribou observed on the Bluenose-East calving ground in June 2015 were breeding females; generally this proportion is expected to be around 80% or higher at the peak of calving, as in 2009 (84%) and 2012 (82%). Greater detail on surveys and monitoring of this herd is provided in supporting documents; the population survey report (Boulanger et al. 2016) includes an analysis of recent demographics in the herd.

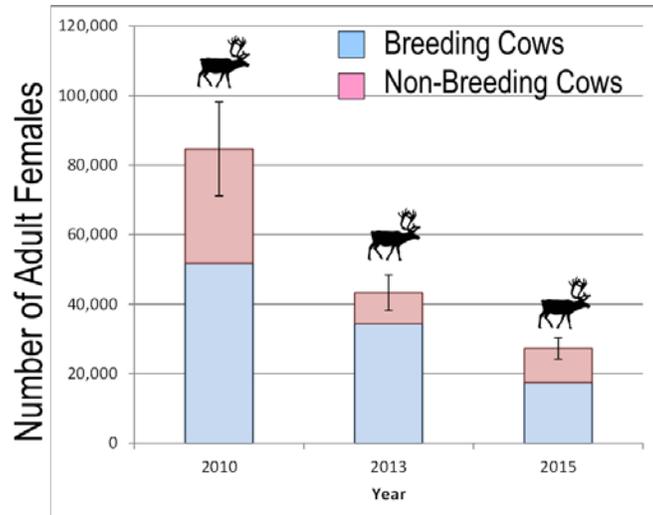


Figure 2. Estimated numbers of breeding and non-breeding cows ( $\pm$  95% CI) in the Bluenose-East herd 2010-2015, based on calving ground photographic surveys.

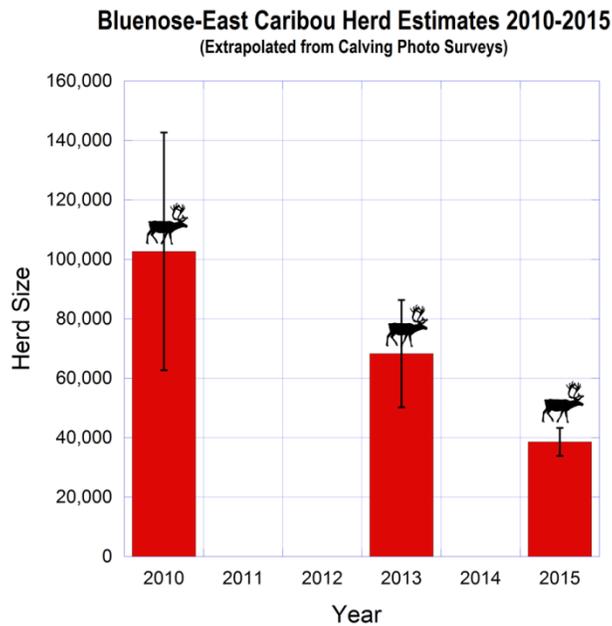


Figure 3. Estimated numbers of adult caribou ( $\pm$  95% CI) in the Bluenose-East herd 2010-2015, based on extrapolation from calving ground photographic surveys.

## 2. Management context for the Bluenose-East herd

Overall management: A management plan for the Cape Bathurst, Bluenose-West and Bluenose-East caribou herds entitled *Taking Care of Caribou* was developed by the Advisory Committee for Cooperation on Wildlife Management (ACCWM). This plan was finalized in 2014, and will serve as the GNWT's primary guidance on management of these three herds. The boards

May 13, 2016

represented on the ACCWM include the Wildlife Management Advisory Council NWT (WMAc-NWT), the Gwich'in Renewable Resources Board (GRRB), the ʔehdzo Got'ine Gots'ę Nákedı - Sahtú Renewable Resources Board (SRRB), the Wek'èezhii Renewable Resources Board (WRRB), the Kitikmeot Regional Wildlife Board (KRWB), and the Tuktut Nogait National Park Management Board (TNNPMB).

The ACCWM plan included an overall approach to management of the 3 herds based on the phase of the overall population cycle that the herd is in (Figure 4). There are 4 phases: green is high numbers, yellow is intermediate numbers and increasing, orange is intermediate numbers and decreasing, and red is low numbers. For the Bluenose-East herd, the threshold for the red phase is 20,000 or fewer and the threshold for the green phase is 60,000 or higher.

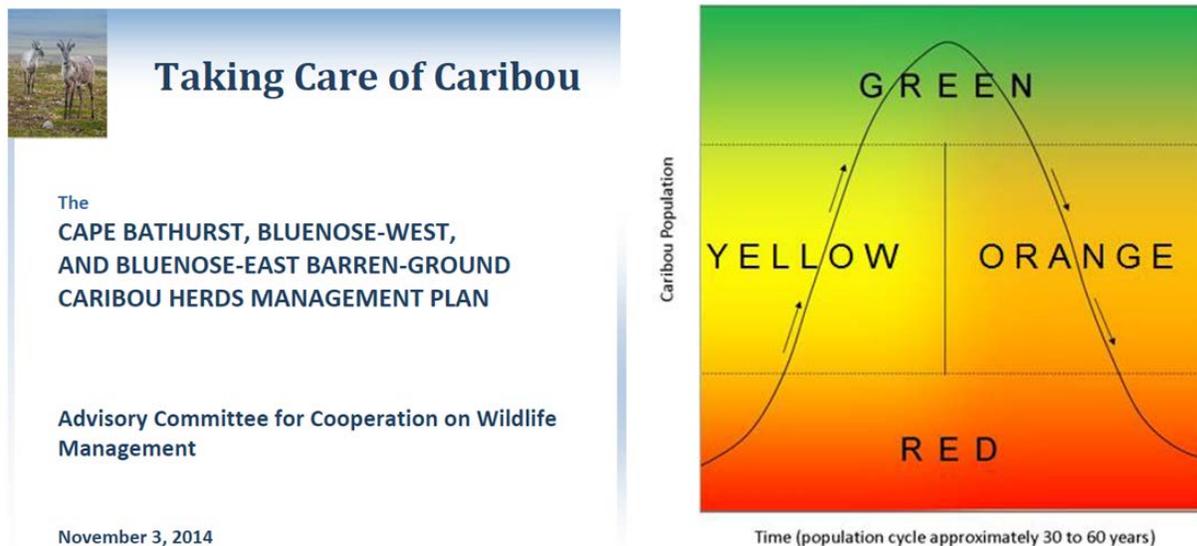


Figure 4. The ACCWM caribou management plan *Taking Care of Caribou* (left) and the colour phase chart for the herds based on population size and trend.

Based on its estimated size of 38,600 in 2015 and rapidly declining trend, the Bluenose-East herd would currently be considered to be in the orange (declining) phase. If its current rate of decline continues, the herd will likely be in the red phase (low numbers of 20,000 or less) within 2-3 years. The management plan describes a number of management options that may be considered if a herd is in the orange phase; this includes a Total Allowable Harvest acceptable to the ACCWM, and an emphasis on harvest of younger, smaller bulls. Other management options include actions on predator management, land use management and monitoring.

Land use and environmental assessment: There are currently no active mines in the Bluenose-East range in the NWT and NU (Figure 5), unlike the Bathurst caribou range to the East where there are 4 existing diamond mines and a number of all-weather and winter roads. Tundra Copper has carried out mineral exploration work on the calving grounds of the Bluenose-East herd in 2014 and 2015. The GNWT and a number of NWT groups have opposed this

May 13, 2016

development on the calving grounds due to potential effects on cows with calves at very sensitive times of year.

ENR has participated in all recent Environmental Assessment (EA) processes within the NWT that may affect barren-ground caribou ranges. ENR has also engaged in EA processes in NU for projects that could affect the Bluenose-East herd's calving grounds and summer range (e.g. Tundra Copper). A number of Aboriginal governments and other groups have also engaged in EA processes in NWT and NU. ENR has participated in a number of workshops in NU focused on protection of caribou habitat, and is opposed to any development on barren-ground caribou calving grounds.

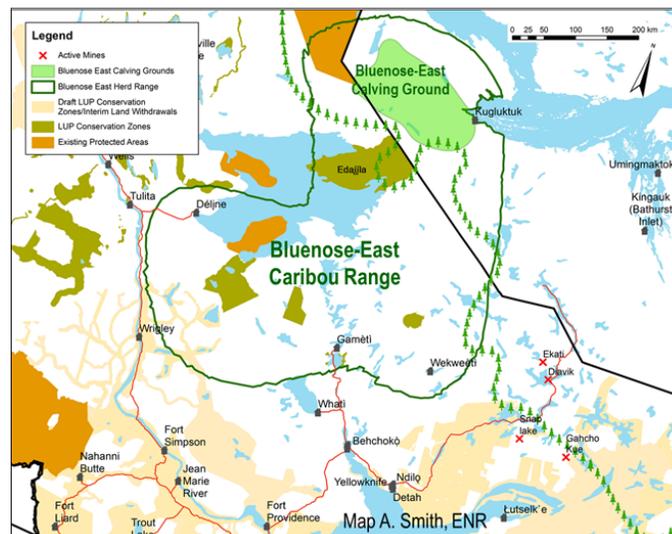


Figure 5. Annual range of the Bluenose-East caribou herd in the NWT and NU. The BNE calving grounds are west of Kugluktuk. Existing protected areas and conservation zones are shown olive and orange. Communities and existing mines and roads are included.

**Predator management:** As a result of the large and continuing declines in the Bathurst and BNE herds, the GNWT has led or supported a number of approaches to increase the harvest of wolves as a means of increasing caribou adult and calf survival rates. These approaches include:

GNWT ENR will lead a collaborative technical feasibility assessment of a full range of wolf management options in 2016, to consider the practicality, costs, and likely effectiveness of different management actions. The goal is to assess the feasibility of wolf management options for implementation within an adaptive management framework that would support recovery of barren-ground caribou herds. This assessment will be developed collaboratively with TG and the input of other Aboriginal governments and co-management partners.

In 2015, the GNWT revised its incentives to wolf harvesters to include 3 options (Figure 3). These include an option for a hunter to bring in an un-skinned, intact wolf for \$200, an incentive for \$450 for a wolf skinned to traditional standards, and an option for up to \$800 for a prime pelt skinned to taxidermy standards.

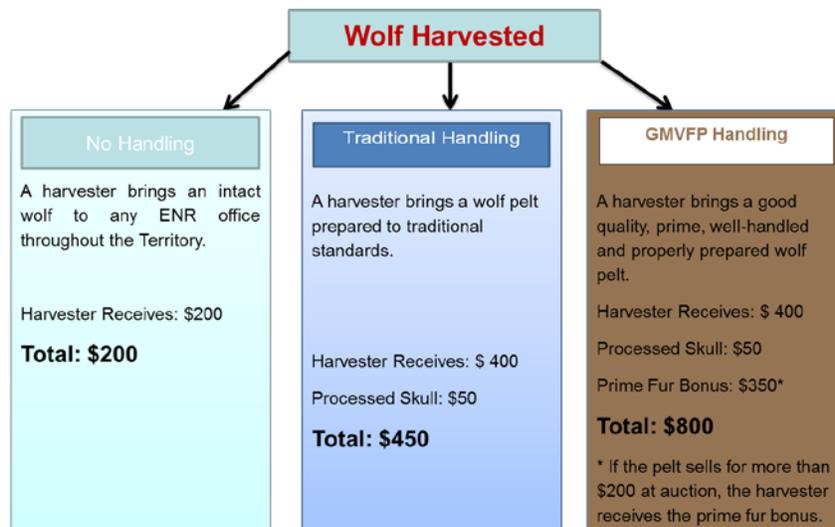


Figure 6. Incentives for wolf pelts available to wolf harvesters in the NWT in 2015/2016.

The Tłı̨chǫ Government with GNWT support has developed a pilot community-based wolf harvest program associated with the Tłı̨chǫ communities that would include training and support for wolf harvest on the winter range of the Bathurst herd in culturally acceptable ways. Further information is provided in the joint TG-ENR Bathurst caribou joint management proposal to the WRRB.

### 3. Recent harvest and management of Bluenose-East caribou in the NWT 2010-2015

Harvest of Bluenose-East caribou from 2009 to 2015 was tracked in the NWT by a combination of community monitors, check-stations and wildlife officer patrols. An example of the harvest monitoring information is shown in Figure 7. Harvest restrictions in the main Bathurst range in the NWT beginning in 2010 likely resulted in some harvest being deflected to the west and east of the Bathurst range, including increased harvest on the Bluenose-East herd. Estimates of harvest for seasons between 2009-2010 and 2013-2014 are provided in the right side of Figure 7. The average reported/estimated harvest was about 2750 caribou/year, with at least 65% of these being cows. These estimates are considered under-estimates, as they do not include wounding losses; some harvest is likely unreported or under-reported. The true harvest is considered to have been more likely 4000/year or higher.

These harvest estimates included an estimated Nunavut harvest from Kugluktuk of 300-1000/year; these estimates were provided by GN wildlife staff. The NWT harvest occurs primarily in winter between December and April. The Nunavut harvest occurs primarily in May, June and July, depending on how accessible the herd is from Kugluktuk.

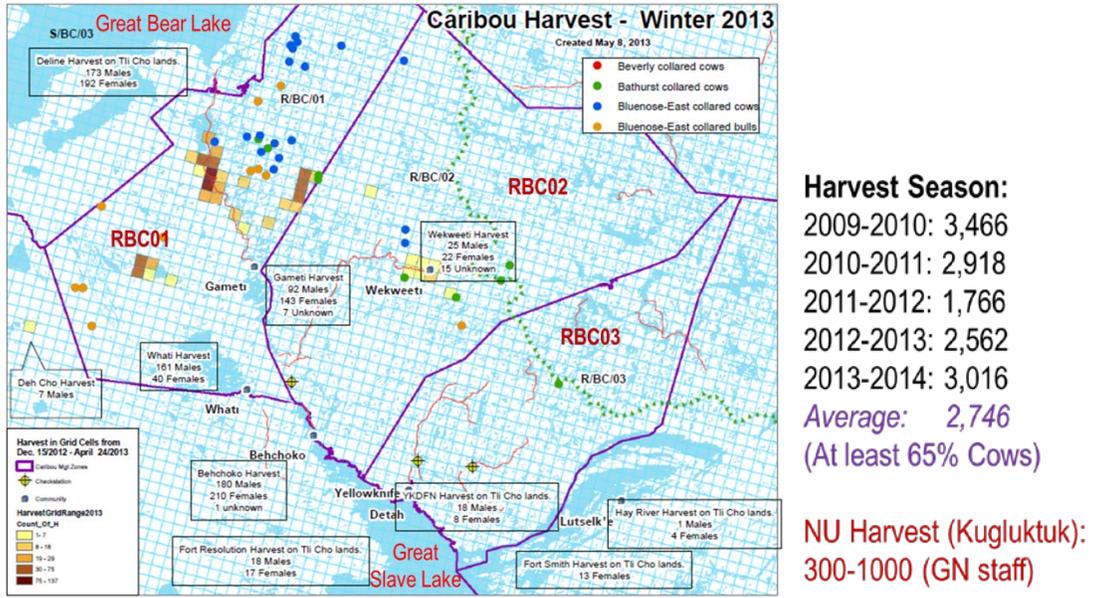


Figure 7. Map of reported caribou harvest in the North Slave and Sahtu regions in the NWT for winter 2012-2013. Coloured squares show relative harvest on a 10x10km grid of squares. RBC02 and RBC03 are the 2 large zones where harvest was restricted to 300 or less after 2009 to conserve Bathurst caribou. Green dots were collared Bathurst caribou and blue dots Bluenose-East collared caribou. Harvest estimates for the Bluenose-East herd 2009-2014 are listed on the right. These include estimates of harvest in NU.

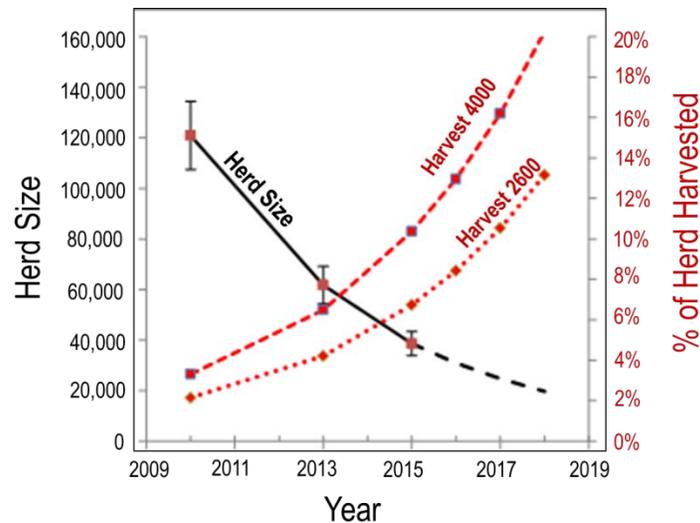


Figure 8. Effect of a constant harvest of 2600 or 4000 caribou/year from a declining Bluenose-East herd 2010-2015 and projected to 2018. Herd size is shown on the left y-axis and graphed as the black line, with a dotted line beyond 2015 to show a model projection. The harvest of 2600 or 4000/year is shown as a % of the herd on the right y-axis in red.

The estimated harvest 2009-2014 was relatively consistent from year to year, but over this period the herd declined substantially. The effect of a constant harvest from a declining BNE herd is shown in Figure 8. As the herd declined, the effect of this harvest became larger every year and

likely contributed to the herd’s downward acceleration. A similar effect of a relatively constant harvest of 4000-6000/year from the declining Bathurst herd likely contributed in a similar way to that herd’s downward acceleration from 2003-2006 to 2006-2009 (Boulanger et al. 2011).

Prior to 2013, Aboriginal harvest of Bluenose-East caribou in the NWT was not limited. In October 2010, the WRRB issued a report with a series of recommendations focused primarily on the Bathurst herd, but also for the BNE herd. Recommendations for the Bluenose-East herd included closing resident and commercial harvest and a voluntary Harvest Target for Aboriginal hunters of 2800 caribou (4% of an estimated 70,000) with a composition of 85% bulls. The recommended harvest target was not enacted after 2010 population surveys demonstrated that the herd was over 100,000 with good calf recruitment (Adamczewski et al. 2014).

In fall and winter 2014-2015, ENR hosted three meetings of Aboriginal leaders (August. 27, November 7 and November 28) and two 2-day technical meetings (October 9-10 and October 22-23) to review evidence for decline in the Bluenose-East and Bathurst herds and to consider management actions to address these declines. Of particular concern were results from June 2014 reconnaissance surveys over the calving grounds that suggested a substantial decline from 2013 to 2014 in both herds. Relevant information on the Bluenose-East herd’s status and demography were summarized by ENR (2014). Summaries from these meetings in the fall of 2014 were sent to participants and are available from ENR on request.

In early 2015 the ACCWM recommended, and ENR accepted, a harvest limit for NWT Aboriginal hunters of 1800 Bluenose-East caribou, with at least 80% of those being bulls, for the remainder of winter 2014-2015. Although the NU harvest for the BNE herd was not well documented, it was estimated by GN wildlife staff to number up to 1000/year.

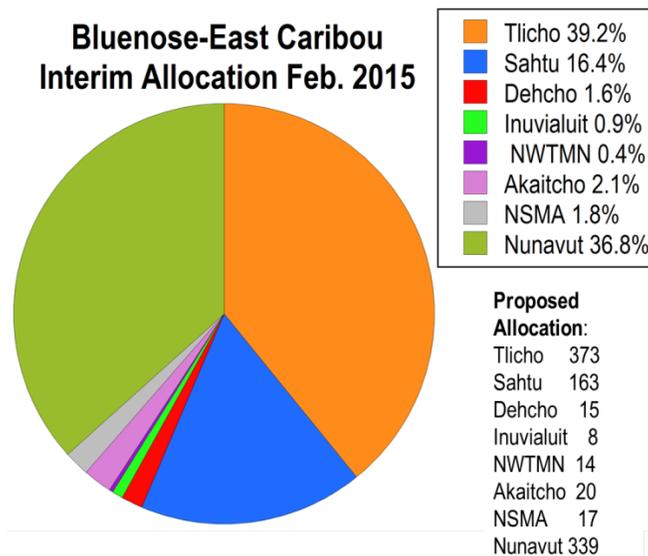


Figure 9. Interim allocation of Bluenose-East caribou harvest among 7 Aboriginal groups in the NWT from February 2015 (colored boxes and pie-chart). The 2015 allocation was for the NWT only and did not include NU. Nunavut is included here for reference (assuming 1800 for NWT and 1000 for NU), recognizing that harvest limits for NU will be determined by the Nunavut Wildlife Management Board. A proposed allocation (bottom right) for a herd wide TAH of 950 caribou (bottom right) reflects the same proportional split in allocation.

After seeking input on allocation from NWT Aboriginal user groups of this herd and co-management boards, ENR determined an allocation for the herd in NWT. This was based in large part on recent documented harvest from this herd but also on several other criteria including access to other animals. The allocation in February 2015 (Figure 9) considered the harvest of caribou that had already been taken, and shared the 1800 tags as follows: Tłı̨chʔ 1100 (61.11%), Sahtú 480 (2.67%), Dehcho 45 (2.50%), Inuvialuit 25 (1.39%), NWT Métis Nation 40 (2.22%), Akaitcho 60 (3.33%), and North Slave Métis Alliance 50 (2.78%). The assumed NU harvest was 1000, recognizing that harvest limits for NU will be determined by the NWMB.

The proposed allocation in the December 2015 management proposals submitted to the WRRB, SRRB and WMAC is for a total of 950 caribou for the entire herd, and applies the same approach to proportional allocation used in the February 2015 allocation. Further discussions on allocation of Bluenose-East caribou harvest amongst BNE user groups may result in a modified sharing formula amongst these groups.

#### 4. GNWT proposed harvest management for Bluenose-East herd

In view of the recent rapid decline in the Bluenose-East herd, the December 2015 management proposals ENR submitted to the WRRB, SRRB and WMAC (NWT) recognize that the herd is in the orange phase (intermediate and declining) of the ACCWM management plan, where a Total Allowable Harvest (TAH) acceptable to the ACCWM could be set. The rate of decline is such that the herd could reach the lower population threshold (the red zone where the herd is estimated to be 20,000 or less) in 2 years, and the rapid decline must be considered in proposed management along with herd size.

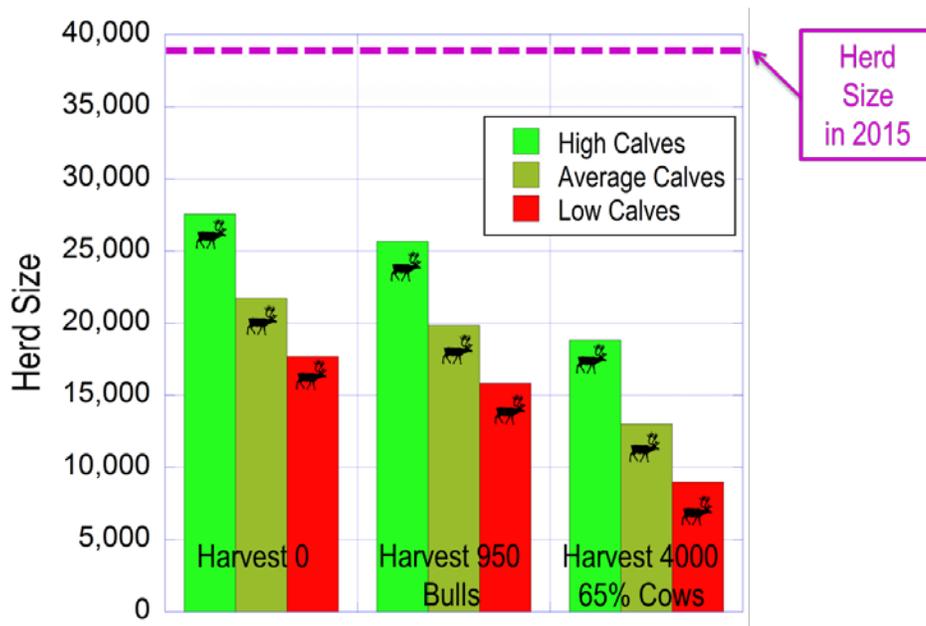


Figure 10. Projected herd size of the Bluenose-East herd in 2018 from a population model. A natural cow survival rate of 74% is assumed. Three levels of calf survival (equivalent to spring calf:cow ratios of 44, 34 and 25 calves:100 cows) are shown as green, olive and red. Bars on the left are for a 0 harvest, bars in the middle are for a harvest of 950 bulls only, and bars on the right are for a harvest of 4000/year, 65% cows.

A population model was used to project the herd’s likely size in 2018 when the next calving photo survey is expected (Figure 10). The projections assumed a natural cow survival rate of 74%. On the left are the herd estimates for 2018 with no harvest and 3 levels of calf survival. The projected herd estimates in this scenario are between 17,000 and 27,000. In the middle are projections with a harvest of 950 bulls/year and 3 levels of calf survival. The herd estimates for 2018 range between 15,000 and 26,000. On the right are projections with a harvest of 4,000 caribou/year and 65% cows. With this level of harvest, the herd estimates for 2018 range from a high of about 19,000 to a low of about 8,000 caribou. It is worth noting that the red bars may be the most realistic projections as they are based on the low calf survival recently seen in this herd. Based on population modeling of a range of harvest levels and sex ratios, and herds with varying levels of cow survival and calf productivity (Boulanger and Adamczewski 2014), ENR developed a ‘rule-of-thumb’ approach to recommended harvest levels (ENR 2014b; Figure 11), set out in the graph below. Based on its relatively low numbers and rapidly declining trend, the Bluenose-East herd in 2015 would be considered as high risk, thus a low rate of harvest and high emphasis on bulls would be recommended.

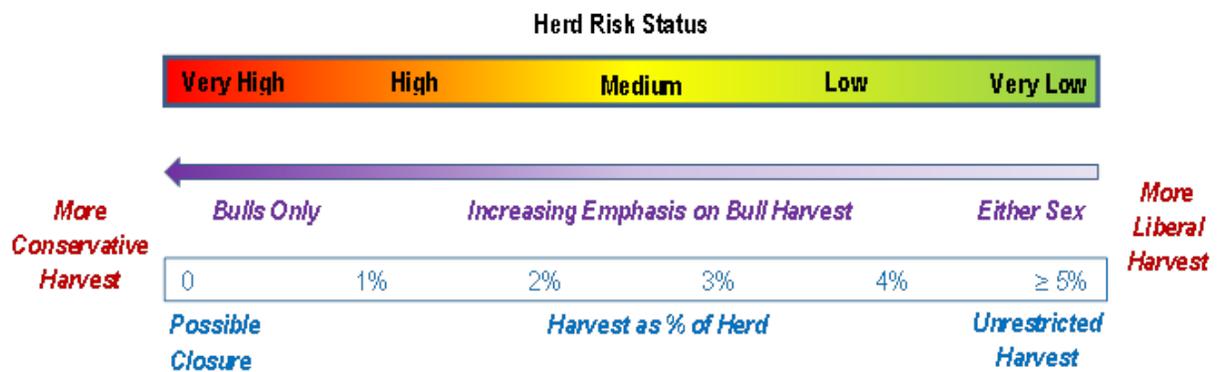


Figure 11. Recommended range of harvest from barren-ground caribou herds based on herd size and trend (ENR 2014b), based on harvest modeling by Boulanger and Adamczewski (2014). A herd at relatively low numbers and declining rapidly is at highest risk of further significant decline and least tolerant of harvest, while a herd at relatively high numbers and increasing is at lowest risk and most tolerant of substantial harvest.

In the December 2015 management proposals submitted to the WRRB, SRRB and WMAC, ENR recommended that resident and commercial harvest from this herd should remain at 0, and Aboriginal harvest should be limited on a herd-wide basis to 950 caribou/year and 100% bulls. This harvest would be reviewed on an annual basis and could be re-assessed when new information becomes available. Assuming an overall herd size estimate of 38,592, a harvest of 950 represents 2.5 % of the herd. ENR considers that the ACCWM’s recommended harvest limit of 1800 (2800 in total for the herd, including NU) from 2014-2015 is too high to continue, given the herd’s rapid decline and poor demographic indicators. The 50% decline in the herd’s breeding cows from 2013 to 2015 indicates that the herd’s breeding cows need to be conserved if the herd is to stabilize and recover. As noted in the ACCWM plan, harvest of bulls should focus on young or small bulls so that many of the large bulls are left for breeding. A harvest of 950 bulls does add to the risk of further decline in the herd, but to a much smaller extent than higher levels of harvest that include a substantial proportion of cows (Fig. 9).

May 13, 2016

The December 2015 proposals on TAH and allocation submitted to the WRRB, SRRB and WMAC-NWT proposed a harvest of 611 caribou within the NWT (Tłı̄chǝ 373, Sahtú 163, Dehcho 15, Inuvialuit 8, NWT Métis Nation 14, Akaitcho 20, and North Slave Métis Alliance 17), as shown in Figure 9. Management of harvest using tags, authorizations or other methods will be developed in collaboration with Aboriginal communities. ENR would like to acknowledge the leadership shown by the community of Délı̄nǝ in developing a community-based caribou conservation plan that would emphasize bull harvest and a limit of 150 caribou annually for the community (Délı̄nǝ 2016).

Under a proposed herd-wide Total Allowable Harvest of 950 to support conservation of this herd, this proposal would include an allocation of 339 Bluenose-East caribou for Nunavut. ENR has no authority for wildlife management or caribou harvest in Nunavut, but will collaborate with responsible authorities in Nunavut towards a consistent overall approach to Aboriginal harvest of this herd in NT and Nunavut.

May 13, 2016

References:

- Adamczewski, J., J. Boulanger, B. Croft, T. Davison, H. Sayine-Crawford, and B. Tracz. 2014. A comparison of calving and post-calving photo-surveys for the Bluenose-East herd of barren-ground caribou in the Northwest Territories, Canada in 2010. Environment and Natural Resources, Government of Northwest Territories. Manuscript Report 244.
- Advisory Committee for the Cooperation on Wildlife Management (ACCWM). 2014. Taking Care of Caribou – The Cape Bathurst, Bluenose-West, and Bluenose-East Barren Ground Caribou Herds Management Plan (Final). C/O Wek' èzhii Renewable Resources Board, 102A, 4504 – 49 Avenue, Yellowknife, NT, X1A 1A7.
- Boulanger, J., and J. Adamczewski. 2014. A general approach to harvest modeling for caribou herds in the NWT – draft recommendations report. Unpublished Report. Department of Environment and Natural Resources, Government of Northwest Territories, Yellowknife, NT, Canada.
- Boulanger, J., A. Gunn, J. Adamczewski, and B. Croft. 2011. A data-driven demographic model to explore the decline of the Bathurst caribou herd. *Journal of Wildlife Management* 75:883-896.
- Boulanger, J., B. Croft, J. Adamczewski, D. Cluff, D. Lee, N. Larter and L.M. Leclerc. 2016. An estimate of breeding females and analyses of demographics for the Bluenose-East herd of barren-ground caribou: 2015 calving ground photographic survey, draft Feb. 19, 2016. Environment and Natural Resources, Government of Northwest Territories, Yellowknife, NWT, Canada.
- Déline. 2015. A Déline Got'ine Plan of Action: Déline Caribou Conservation Plan. [http://srrb.nt.ca/index.php?option=com\\_docman&view=document&layout=default&alias=1287-2016-009-deline-caribou-plan-approved-16-01-08-edition&category\\_slug=proposal-for-decision-and-supporting-documentation&Itemid=697](http://srrb.nt.ca/index.php?option=com_docman&view=document&layout=default&alias=1287-2016-009-deline-caribou-plan-approved-16-01-08-edition&category_slug=proposal-for-decision-and-supporting-documentation&Itemid=697)
- Environment and Natural Resources (ENR). 2014a. Bathurst & Bluenose-East Caribou Herds: Overview of Population Trends 2009-2014. Unpublished Report Sept. 2014. Department of Environment and Natural Resources, Government of Northwest Territories, Yellowknife, NT, Canada.
- Environment and Natural Resources (ENR). 2014b. Harvest recommendations for barren-ground caribou based on herd risk status: A rule of thumb approach. Unpublished Report 2014. Department of Environment and Natural Resources, Government of Northwest Territories, Yellowknife, NT, Canada.
- Government of the Northwest Territories and Tłı̨chǫ Government (GNWT and TG) Joint Proposal on Caribou Management Actions for the Bluenose-East herd: 2016-2019. 2015. Proposal submitted to the WRRB Dec. 15, 2016.