



Mr. Steven Matthews, Interim Chair
Wek'èezhì Renewable Resources Board
4504 49TH AVENUE
YELLOWKNIFE NT X1A 1A7

Dear Mr. Matthews:

Joint Management Proposal for Bluenose-East Caribou

The Tłıchọ Government and the Department of Environment and Natural Resources, Government of the Northwest Territories would like to submit to the Wek'èezhì Renewable Resources Board (WRRB) a management proposal for the period of July 2019 to July 2021 for the Bluenose-East herd.

We look forward to hearing from the WRRB on our proposal and about a hearing in 2019 on these caribou management and monitoring actions.

Sincerely,

Mr. Michael Birlea, Manager Lands
Protection & Renewable Resources
Department of Culture and Lands
Protection, Tłıchọ Government
Behchokò, NT
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Mr. Bruno Croft, Superintendent,
North Slave Region
Environment and Natural Resources
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Attachment

c. Honourable Robert R. McLeod
Premier

Mr. Gary Bohnet, Principal Secretary
Executive and Indigenous Affairs

Mr. Mike Aumond, Secretary to Cabinet/Deputy Minister
Executive and Indigenous Affairs

Ms. Shaleen Woodward, Deputy Secretary
Indigenous and Intergovernmental Affairs
Executive and Indigenous Affairs

Dr. Joe Dragon, Deputy Minister
Environment and Natural Resources

Ms. Rita Mueller, Assistant Deputy Minister, Operations
Environment and Natural Resources

Dr. Brett Elkin, Director, Wildlife
Environment and Natural Resources

Grand Chief George Mackenzie
Tłıchq Government

Chief Clifford Daniels
Community Government of Behchokò
Tłıchq Government

Chief David Wedawin
Community Government of Gamètì
Tłıchq Government

Chief Charlie Football
Community Government of Wekweètì
Tłıchq Government

Chief Alfonz Nitsiza
Community Government of Whatì
Tłıchq Government

Ms. Laura Duncan, Tłıchǫ Executive Officer
Tłıchǫ Government

Ms. Tammy Steinwand-Deschambeault, Director, Culture and Lands Protection
Tłıchǫ Government

Chief Maurice Moses
Pehdzéh Kí First Nation

Chief Edward Sangris and Band Council
Yellowknives Dene First Nation (Detah)

Chief Ernest Betsina and Band Council
Yellowknives Dene First Nation (N'Dilǫ)

Chief Darryl Marlowe and Band Council
Lutsel K'e Dene First Nation

Ms. Ethel Liske, ADFN Negotiations Coordinator
Akaitcho Dene First Nations

Grand Chief Gladys Norwegian
Dehcho First Nation

President William (Bill) Enge
North Slave Metis Alliance

President Garry Bailey
Northwest Territory Metis Nation

President Clem Paul
Mountain Island Metis

Ms. Jody Pelligsey, Executive Director
Wek'èzhìi Renewable Resources Board

Mr. George Barnaby, Interim Chair
Sahtú Renewable Resources Board

Ms. Deborah Simmons, Executive Director
Sahtú Renewable Resources Board

Mr. Jozef Carnogursky, Chair
Gwich'in Renewable Resources Board

Ms. Amy Amos, Executive Director
Gwich'in Renewable Resources Board

Mr. Larry Carpenter, Chairperson
Wildlife Management Advisory Council-NWT

Ms. Jody Pellissey
Advisory Committee for Cooperation on Wildlife Management

Mr. Vernon Amos, Chairperson
Inuvialuit Game Council

Ms. Jodie Maring, Resource Coordinator
Wildlife Management Advisory Council (NWT)

Mr. Daniel Shewchuk, Chairperson
Nunavut Wildlife Management Board

Ms. Aluki Kotierk, President
Nunavut Tunngavik Inc.

Mr. Larry Adjun, Chair
Kugluktuk Hunters and Trappers Organization

Mr. Stanley Anablak, President
Kitikmeot Inuit Association

Mr. Steve Pinksen, Deputy Minister
Department of Environment, Government of Nunavut

Mr. Drikus Gissing, Wildlife Director
Department of Environment, Government of Nunavut

Wek'èezhìi Renewable Resource Board Management Proposal

1. Applicant Information
<p>Project Title: Government of the Northwest Territories and Tłıchǫ Government Joint Proposal on Management Actions for the Bluenose-East ʔekwǫ (Barren-ground caribou) Herd 2019 – 2021</p>

<p>Contact Persons: Organization Names: Addresses: Phone/Fax Numbers: Email addresses:</p> <p>Michael Birlea Lands Protection and Renewable Resources Manager Department of Culture and Lands Protection Tłıchǫ Government Behchokǫ, NT. X0E 0Y0 Phone: 867-392-6381 Ext: 1355 Fax: 867-392-6406 MichaelBirlea@tlicho.com</p> <p>Bruno Croft Regional Superintendent North Slave Region Department of Environment & Natural Resources Government of the Northwest Territories 2nd Floor, ENR Main Building P.O. Box 2668 3803 Bretzlaff Drive Yellowknife, NT. X1A 2P9 Phone: 867-767-9238 Ext: 53234 Fax: 867-873-6260 Bruno_Croft@gov.nt.ca</p>
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2. Management Proposal Summary: provide a summary description of your management proposal (350 words or less).	
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<p>Start Date: July 1, 2019</p>	<p>Projected End Date: July 1, 2021</p>
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<p>Length: 2 years</p>	<p>Project Year: 1 of 2</p>
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A June 2018 calving ground photographic survey of the Bluenose-East (BNE) herd of caribou resulted in estimates of 11,675 ± 2,040 breeding cows and 19,294 ± 4,729 adults, which indicated that the herd's rate of decline has continued at a relatively constant annual 20-21% since 2010. In June 2010 the herd was estimated at about 120,000 caribou, thus the 2018 estimate represents an 84% decline in 8 years. The Bluenose-East herd in 2018 should be considered as being in the red phase of low numbers as defined by the Advisory Committee for Cooperation on Wildlife Management (ACCWM) management plan of 2014 (pending

confirmation from ACCWM boards). In view of this rapid continuing decline, the Tłı̨chǫ Government (TG) and Government of the Northwest Territories (GNWT) Department of Environment and Natural Resources (ENR) are proposing management actions to slow the herd's decline and promote recovery for a period of 2 years beginning in July 2019 (the start of the harvest season). Management actions should be reviewed annually as further information becomes available. Proposed actions are highlighted here and greater detail is provided in the main text. Actions are grouped under the 5 categories defined in the ACCWM plan: harvest, predators, habitat and land use, and education. In addition, revised monitoring and research are described.

(1) **Harvest:** TG and ENR propose that resident and commercial harvest from this herd remain at 0 and that Indigenous harvest be limited on a herd-wide basis to 300 bulls/year. This harvest is a substantial reduction from the 750 bulls determined by WRRB in 2016, but provides some continued opportunity for Indigenous harvesting and the maintenance of cultural practices. The allocation among Indigenous groups proposed retains the same proportions as in 2015 (Tłı̨chǫ 39.3%, Sahtú 17.2%, Dehcho 1.6%, Inuvialuit 0.8%, NWT Métis Nation [NWTMN] 1.5%, Akaitcho 2.1%, and North Slave Métis Alliance [NSMA] 1.8%, and Kugluktuk (NU) 35.8%. Although TG and ENR have no authority over wildlife management in NU, the NWMB in 2016 worked with the allocation formula used in NWT proposals of 2015 (340 of 950 or 35.8% for Kugluktuk). For clarity, the percentages and numbers of caribou are listed below.

Table 1. Proposed percent of harvest and numbers of BNE bulls for harvester groups, with allocation formula used as in 2015 and 2016, for harvest of 750 bulls and 300 bulls. WRRB determined herd-wide harvest of 750 bulls in 2016, recognizing that the board has no authority in the Sahtú region or Nunavut.

Harvester Group	% of Harvest	Harvest 750 Bulls	Harvest 300 Bulls
Tłı̨chǫ	39.3	295	118
Sahtú	17.2	129	52
Dehcho	1.6	12	5
Inuvialuit	0.8	6	2
NWTMN	1.5	11	5
Akaitcho	2.1	16	6
NSMA	1.8	13	5
Kugluktuk (NU)	35.8	268	107
Total	100	750	300

TG and ENR recognize that reduced caribou harvesting opportunities have serious implications for Tłı̨chǫ and other Indigenous communities, including expensive groceries replacing caribou harvest. TG and ENR will explore ways of supporting harvesting of other wildlife (e.g. moose, muskox and fish harvesting). In addition, TG and ENR will look for ways to increase on-the-land activities and cultural practices such as upkeep of old cabins, travel routes and trails.

(2) **Predators:** A separate TG-ENR joint management proposal to WRRB on reduction of wolf numbers on the Bluenose-East and Bathurst caribou ranges is under development. Demographic evaluation of the herd's trend suggests that recent

pregnancy rates have been healthy but survival rates of adults and calves have been low, which may indicate that predation is limiting recovery. Methods will draw on a collaborative wolf reduction feasibility assessment completed in 2017 for the Bathurst herd. To date, GNWT incentives for wolf harvesters since 2010 have not resulted in any substantive increases in numbers of wolves taken in the North Slave region. In 2019, the GNWT is proposing to increase incentives for wolf harvesters in an area centered on the collar locations of wintering Bluenose-East and Bathurst caribou. TG will continue to develop a program of training wolf harvesters using culturally acceptable methods on the winter range.

- (3) Land Use and Habitat: Recovery of the Bluenose-East herd will require a healthy habitat on the herd's range in NU and in the NWT. Currently, there are no active mines and overall there has been limited development on the Bluenose-East range. However, proposed actions to support healthy habitat include the following: promotion of protecting the herd's calving grounds in NU, identifying key unburned winter ranges and increasing fire management on these areas, participation in development of the wildlife management plan for the Tibbett-to-Contwoyto winter road, and participation in any environmental assessments and land use planning in NWT and NU that may affect this herd. In addition, TG and ENR support ongoing TK and scientific research focused on identifying key caribou habitats, such as ekwò no'oke (water crossings), tataa (land crossings), important unburned winter habitat, and the herd's core range used at low numbers, and ensuring conservation of these habitats, including minimizing disturbance.

TG and ENR will continue to support research on climate factors that may affect herd trend and studies of how a changing climate, including forest fires, may be affecting vegetation and foraging conditions for caribou.

- (4) Education: ENR and TG recognize the importance of continued communication and engagement with communities and harvesters about the status of the caribou herds and about management actions underway, and the importance of accurate harvest reporting by all harvesters. Initiatives such as sight-in-your-rifle, minimizing wastage and respecting traditional ways of harvesting will be continued. Annual visits to the 4 Tłı̄ch̄q communities will be continued and enhanced, beginning with visits in January 2019. The ENR On-The-Land unit and North Slave staff will support and promote these efforts. A key area of emphasis will be providing information about caribou and conservation to affected communities.

- (5) Monitoring & Research: Biological monitoring of the herd is proposed to increase, particularly to maintain closer monitoring of calf and adult caribou survival rates. Population surveys would be carried out at 2-year intervals. Annual composition surveys would be carried out in June, October, and March/April to assess initial productivity or pregnancy rates and mortality rates of calves to the fall and late-winter periods. Radio-collars would be increased to 70 in total (50 cows and 20 bulls) with annual additions, to increase monitoring of cow survival rates and better define seasonal distribution and herd fidelity to calving grounds. Reconnaissance surveys on the calving grounds in years between population surveys would be suspended as recent results suggest they are not always reliable trend indicators. Accurate monitoring of harvest will continue to be important; TG and ENR will seek to improve condition assessment of harvested caribou.

TG and ENR support expansion of the Traditional Knowledge caribou monitoring program Boots on the Ground. To date this TG program has been focused on Bathurst caribou on their summer range in July and August. TG and ENR will explore ways to expand the program to the Bluenose-East range and to other seasons.

TG and ENR support continuing scientific and TK research into factors contributing to caribou declines. This includes monitoring and research focused on caribou health, parasites and other diseases, and diseases and parasites from the south that may be expanding into the NWT.

Please list all permits required to conduct proposal.

Renewable Resource Boards (WRRB, SRRB and NWMB) may hold public hearings to review proposals involving a Total Allowable Harvest (TAH) for the BNE herd, as included in this proposal.

NWT and NU Wildlife Research Permits will be required annually to conduct monitoring recommended in this proposal.

3. Background (Provide information on the affected wildlife species and management issue)

A. Bluenose-East Caribou Status in 2018

A June 2018 calving ground photographic survey of the Bluenose-East (BNE) herd of caribou resulted in estimates of 11,675 \pm 2,040 breeding cows and 19,294 \pm 4,729 adults, which indicated that the herd's rate of decline has continued at a relatively constant annual 20-21% since 2010 (Boulanger 2018a). In June 2010 the herd was estimated at about 120,000 caribou (Adamczewski et al. 2017), thus the 2018 estimate represents an 84% decline in 8 years. Both the herd and the estimated number of adult cows have declined by about half since 2015 (Fig. 1, Boulanger et al. 2016).

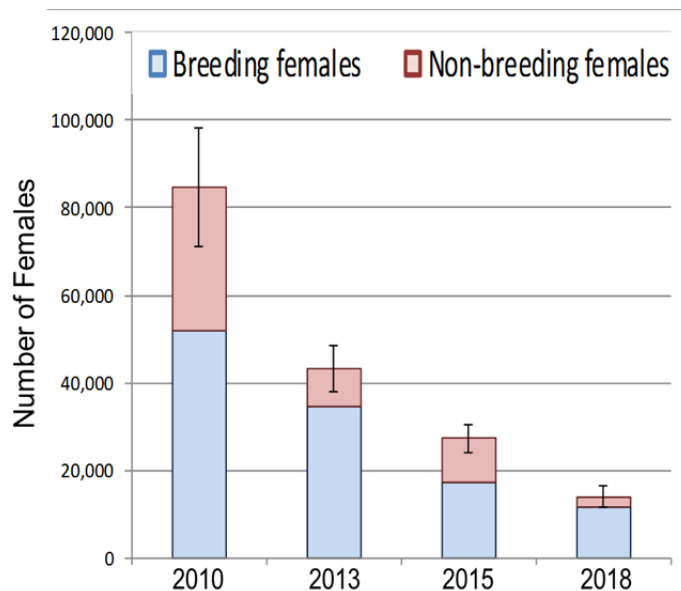


Fig. 1a. Trend of Bluenose-East herd breeding and non-breeding cows 2010-2018 based on photographic calving ground surveys (Means \pm 95% Confidence Intervals).

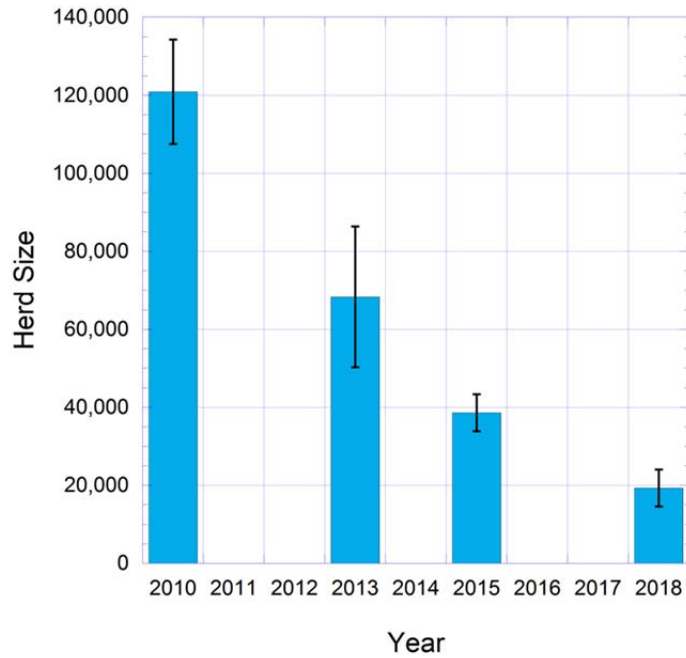


Fig. 1b. Trend of Bluenose-East herd estimates 2010-2018 based on photographic calving ground surveys (Means \pm 95% Confidence Intervals).

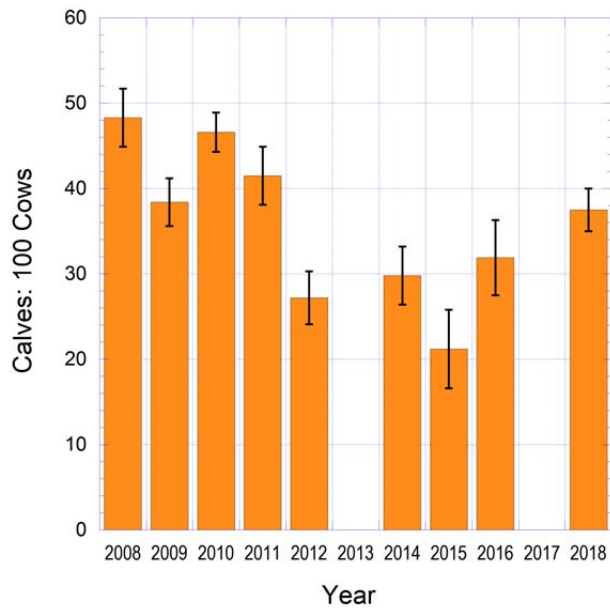


Fig. 2. Bluenose-East caribou late-winter (March/April) calf:cow ratios 2008-2018.

Population trend in caribou herds can in part be understood by examining vital rates like the pregnancy rate and survival rates of calves and adults. Cow survival was estimated 2013-2015 for the BNE herd at 71% (Boulanger et al. 2016), well below the 83-86% needed for a stable

herd (Boulanger et al. 2011). An updated cow survival estimate will be generated for 2015-2018, and it will likely be similar to the 71% given that annual rates of change have been relatively constant. The pregnancy rate in 49 cows captured for collar placement 2013-2015 was 94% (46/49) and the proportion of breeding females on the Bluenose-East calving ground in 2018 was 83.4%. These results suggest that pregnancy rates have been healthy for this herd in the last few years. Late-winter calf:cow ratios provide an index of the number of the previous year's calves that survived their first 9-10 months. The last calf:cow ratio for the herd was 37.5 ± 2.5 calves: 100 cows, higher than the 21-31 calves: 100 cows observed 2014-2016. A ratio of 30 calves: 100 cows has been considered a benchmark of a stable herd, however this depends on adult survival rates being healthy (83-86%). If adult survival rates are 71% as in the BNE herd 2013-2015, then these calf:cow ratios are insufficient for a stable herd. Overall, the vital rates for the BNE herd suggest that recent pregnancy rates have been healthy but adult survival rates remain well below those associated with a stable herd and calf survival has not been sufficient for a stable herd.

The average estimated/reported Bluenose-East harvest in winters 2009-2010 to 2012-2013 was about 2700 caribou/year, and likely at least 65% cows (Adamczewski et al. 2016; BGTWG 2014). These estimates are considered minimums; wounding losses were not included, some harvest was un-reported and the true harvest may have been at least 4000/year (Adamczewski et al. 2016).

Reported harvest for the BNE herd has been as follows for 2016-2017 and 2017-2018 (Table 2).

Table 2. Bluenose-East harvest by region for 2016-2017 and 2017-2018. Numbers should be considered preliminary until confirmed with ACCWM status reports. Kugluktuk numbers from Government of NU staff, Déljine harvest as reported by Déljine, Wek'èezhii harvest as reported by TG and ENR wildlife officers.

Harvest by Region	2016-2017	2017-2018
Wek'èezhii	15 bulls	142 bulls
Déljine	93 bulls, 33 cows	7 bulls
Kugluktuk	232 caribou	174 caribou
Total	373 caribou	323 caribou

The overall totals of 373 and 323 caribou were well below the harvest limits established in 2016 and reflect in part limited access to the herd, particularly in winter. These relatively limited harvest numbers likely contributed proportionately little to the herd's most recent decline 2015-2018.

B. Management Context for the Bluenose-East Caribou Herd

Guidance for the management and monitoring of the Bluenose-East herd is primarily found within the ACCWM's management plan for the Cape Bathurst, Bluenose-West and Bluenose-East herds, finalized in November 2014 (ACCWM 2014). In 2017 the ACCWM developed an Action Plan for the Bluenose-East herd and this plan was updated in 2018. The ACCWM held annual status update meetings in November for the three herds in 2016, 2017 and 2018. In 2017 the BNE herd was assessed as being in the orange phase (declining), and in 2018 the herd was assessed as being in the red zone (low numbers and below 20,000 – pending confirmation from ACCWM boards).

As a result of hearings in 2016 of the WRRB, SRRB and NWMB, harvest limits for this herd were established, respectively, as 750 bulls (intended to be herd-wide) under the WRRB, 150 (80% bulls) under the SRRB for Déljine, and 340 caribou (no gender) under the NWMB for Kugluktuk. The allocation among Indigenous harvester groups established in 2015 based primarily on previously documented harvest levels was Tłjchq 39.3%, Sahtú 17.2%, Dehcho 1.6%, Inuvialuit 0.8%, NWT Métis Nation [NWTMN] 1.5%, Akaitcho 2.1%, and North Slave Métis Alliance [NSMA] 1.8%. This would leave an allocation of 35.8% BNE caribou for Nunavut.

4. Description of Proposed Management Action

Goal of Management Actions

The short-term goal of the management actions proposed is to slow the herd's decline and promote recovery. Over the longer-term, the goal is to enable sustainable caribou harvesting that addresses Indigenous community needs levels across this herd's range. In particular within Wek'èezhii, the goal is to allow the exercise of Tłjchq rights to harvest caribou throughout Mqwhì Gogha Dè Njłtłèè.

1. Harvest management

In view of the continuing rapid decline in the BNE herd and its status assessment in 2018 by the ACCWM as being in the red phase (low numbers and below 20,000, pending confirmation from ACCWM boards), TG and ENR recommend that harvest be reduced further from the limits established in 2016. Resident and commercial harvest from this herd should remain at 0. Aboriginal harvest should be limited on a herd-wide basis to 300 caribou/year with the harvest being 100% bulls.

	Harvest Sex Ratio	
	100% Cows	100% Bulls
Harvest Number	Herd Size	Herd Size
0	9923	9923
100	9702	9731
250	9370	9443
500	8818	8963
750	8266	8484
950	7824	8100
2000	5504	7086

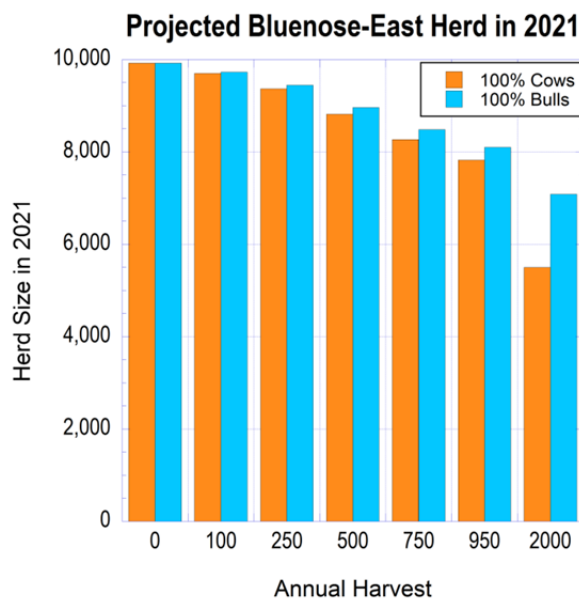


Table 3 and Figure 3. Projected herd size in the Bluenose-East herd in 2021 with various

levels of harvest and harvest sex ratio. Key assumptions: Cow survival rate at 71% with no harvest, and average calf recruitment.

Modeling of the herd’s likely trend over the next 3 years by J. Boulanger (2018b) suggests that if the 2015-2018 trends continues, the herd will be near or below 10,000 caribou in 2021 (Table 3 and Figure 3). Any harvest would reduce projected herd size further, but harvest levels of 100-300/year would result in limited additional decline. As harvest level increases, the incremental effect on herd decline increases. The effects of cow harvest (compared to bull harvest) are most noticeable at higher harvest levels. A larger range of modeling outcomes and details are provided by Boulanger (2018b). Estimated/reported harvest in the 2016/2017 (373 caribou) and 2017/2018 (323 caribou) seasons was relatively limited and well below the 750 caribou determined by WRRB in 2016, but harvest reduction remains one of the actions that can help support recovery.

The proposed harvest is a substantial reduction from the 750 bulls herd-wide determined by WRRB in 2016, but provides some continued opportunity for Indigenous harvesting and the maintenance of cultural traditions. TG and ENR recognize that the closure of Bathurst caribou harvest greatly reduced Tłı̄ch̄q caribou harvesting opportunities, thus allowing for a limited BNE harvest is important for these communities.

Unless a revised allocation formula accepted by all user groups is determined, the proposed allocation among Indigenous groups retains the same proportions as in 2015 (Tłı̄ch̄q 39.3%, Sahtú 17.2%, Dehcho 1.6%, Inuvialuit 0.8%, NWT Métis Nation [NWTMN] 1.5%, Akaitcho 2.1%, and North Slave Métis Alliance [NSMA] 1.8%, and 35.8% BNE caribou for Kugluktuk in Nunavut (NU). Although TG and ENR have no authority over wildlife management in NU, the NWMB in 2016 worked with the allocation formula used in NWT proposals (340 of 950 for Kugluktuk, or 35.8%). TG and ENR will continue to work with management authorities in NWT (Sahtú and Wek’èezhii regions) and NU (Kugluktuk, NWMB and GN) to ensure a consistent approach to harvest management for this herd. For clarity, the percentages and numbers of caribou are listed below for three levels of harvest. The 118 authorization cards (caribou bulls) for Tłı̄ch̄q communities are for Tłı̄ch̄q harvesters to continue cultural practice on the land and the harvest will be allocated to the elders.

Table 4. Proposed percent of harvest and numbers of BNE bulls for harvester groups, with allocation formula used as in 2015 and 2016, for harvest of 750 bulls and 300 bulls. WRRB determined herd-wide harvest of 750 bulls in 2016, recognizing the board has no authority in Sahtú region or Nunavut (WRRB 2016 a, b).

Harvester Group	% of Harvest	Harvest 750 Bulls	Harvest 300 Bulls
Tłı̄ch̄q	39.3	295	118
Sahtú	17.2	129	52
Dehcho	1.6	12	5
Inuvialuit	0.8	6	2
NWTMN	1.5	11	5
Akaitcho	2.1	16	6
NSMA	1.8	13	5
Kugluktuk (NU)	35.8	268	107
Total	100	750	300

ENR will create and print new authorisation cards to harvest Bluenose-East caribou males in July of each year and make them available to all Indigenous groups as per their allocations in August prior to the beginning of the fall hunt.

ENR will consider adding mobile patrol stations at key locations along the winter roads, if there is an increased need for enforcement and compliance resulting from a change in the winter caribou distribution and obvious evidence of potential illegal caribou harvesting, as resources allow.

TG with ENR support will take a lead role in reporting on Bluenose-East caribou harvest by Tłıchq harvesters, based on authorization cards, and on increasing reporting of caribou condition by harvesters.

Support for harvest of other wildlife and on-the-land activities:

TG and ENR recognize that reduced caribou harvesting opportunities have serious implications for Tłıchq and other Indigenous communities, and that limitations on hunting have negative impacts on the continuity of Tłıchq culture, language and way of life. Lack of caribou harvesting opportunities means real hardships in Indigenous communities that have depended on caribou. TG and ENR will explore ways of supporting other harvesting initiatives - for example, moose, muskox and fish harvesting, as well as supporting traditional on-the-land activities that help maintain cultural practices.

The Tłıchq Government plans to continue and expand programs focused on cultural practices on the land. These programs include: sustain TG-owned hunting and trapping cabins; traditional canoe trails from the communities to cultural and harvesting locations; and winter skidoo trails to caribou hunting areas, along with other programs currently operated by the Tłıchq Government. The long-term aim is continuation of projects that teach Traditional Knowledge of the land and caribou by bringing elders, youth and community members together on the land. By maintaining traditional trails and TG-owned cabins, community members share knowledge of these important cultural and environmental locations, thus re-visiting and maintaining these sites are important to maintain the Tłıchq knowledge base. Such activities are important for the practice of the hunting culture, and maintaining cultural identity and continuity as a hunting people, ultimately, to condition people with skills and knowledge of the land, for when caribou return.

ENR's new On-The-Land unit, in collaboration with Wildlife Division and North Slave region, will play an active role working with Tłıchq Government and Tłıchq communities to identify appropriate cultural activities and harvest of other wildlife and fish, and sources of support for them.

2. Predators

The continued rapid decline in the BNE and Bathurst herds 2015-2018 occurred despite a very limited harvest of both herds between the NWT and NU. Low adult and calf survival rates in the BNE herds suggest that predation may be a key limiting factor for the BNE herd. A number of actions are proposed for more comprehensive management of predators that may assist with recovery of the Bluenose-East herd.

(a) Bathurst Wolf Management Feasibility Assessment 2017:

A collaborative feasibility assessment of wolf management options for the Bathurst caribou

range led by the WRRB, ENR and TG was completed in 2017 (Wolf Feasibility Assessment Technical Working Group 2017). The assessment considered 11 options including lethal and non-lethal methods, their potential effectiveness, costs and humaneness. While this feasibility was focused on the Bathurst range, the assessment can also be applicable to possible wolf reduction options for the Bluenose-East range.

(b) Continued TG program to train wolf harvesters:

A separate proposal to WRRB from TG described the approach that has been initiated to train Tłıchq wolf hunters from the 4 communities in harvesting wolves using culturally appropriate methods. This program will be continued and will likely form a key component of the larger wolf management proposal being developed.

(c) Increased GNWT incentives for wolf harvesters:

In 2010, GNWT increased incentives for wolf harvesters to reduce predation and promote caribou recovery. The incentives were increased in 2015 and at that time, the incentives included \$200 for an intact unskinned wolf, \$450 for a wolf pelt skinned to traditional standards and up to \$800 for a wolf pelt skinned to taxidermy standards. Overall, wolf harvest levels across the NWT and in the North Slave region showed no real increase in wolf harvest as a result of these incentives. A substantial portion of the wolves that were taken were near community landfills, thus not from caribou winter ranges. Recognizing that the incentives to date have been ineffective, GNWT is proposing to increase them to \$900 for an unskinned wolf, \$1300 for a wolf pelt skinned to traditional standards and \$1650 for a pelt skinned to taxidermy standards (Fig. 4). These higher incentives would apply in an area in the North Slave region centered on the collar locations of wintering BNE and Bathurst caribou. Wolf hunters would be required to check into and out of the wolf harvesting zone with increased incentives at winter road access points. This would ensure that wolves taken under the higher incentives are associated with the two caribou herds. The incentives are proposed in part to help increase interest in the TG program to train wolf harvesters from the Tłıchq training program described above.

(d) Wolf management proposal for BNE and Bathurst ranges:

In addition to joint management proposals for the two caribou herds (including this document), a separate joint proposal wolf management is currently under development that will include the ranges of both herds. Efforts to date to increase wolf harvest in the North Slave region, including GNWT incentives for wolf harvesters and the TG program to train wolf harvesters in culturally appropriate ways to hunt wolves, have not resulted in a meaningful increase in numbers of wolves taken. The new proposal will recommend ways to ensure that wolf harvest is increased to a level where caribou survival rates will be measurably increased. This will require more intensive wolf removal programs because small-scale wolf removals are generally ineffective at increasing caribou survival rates.

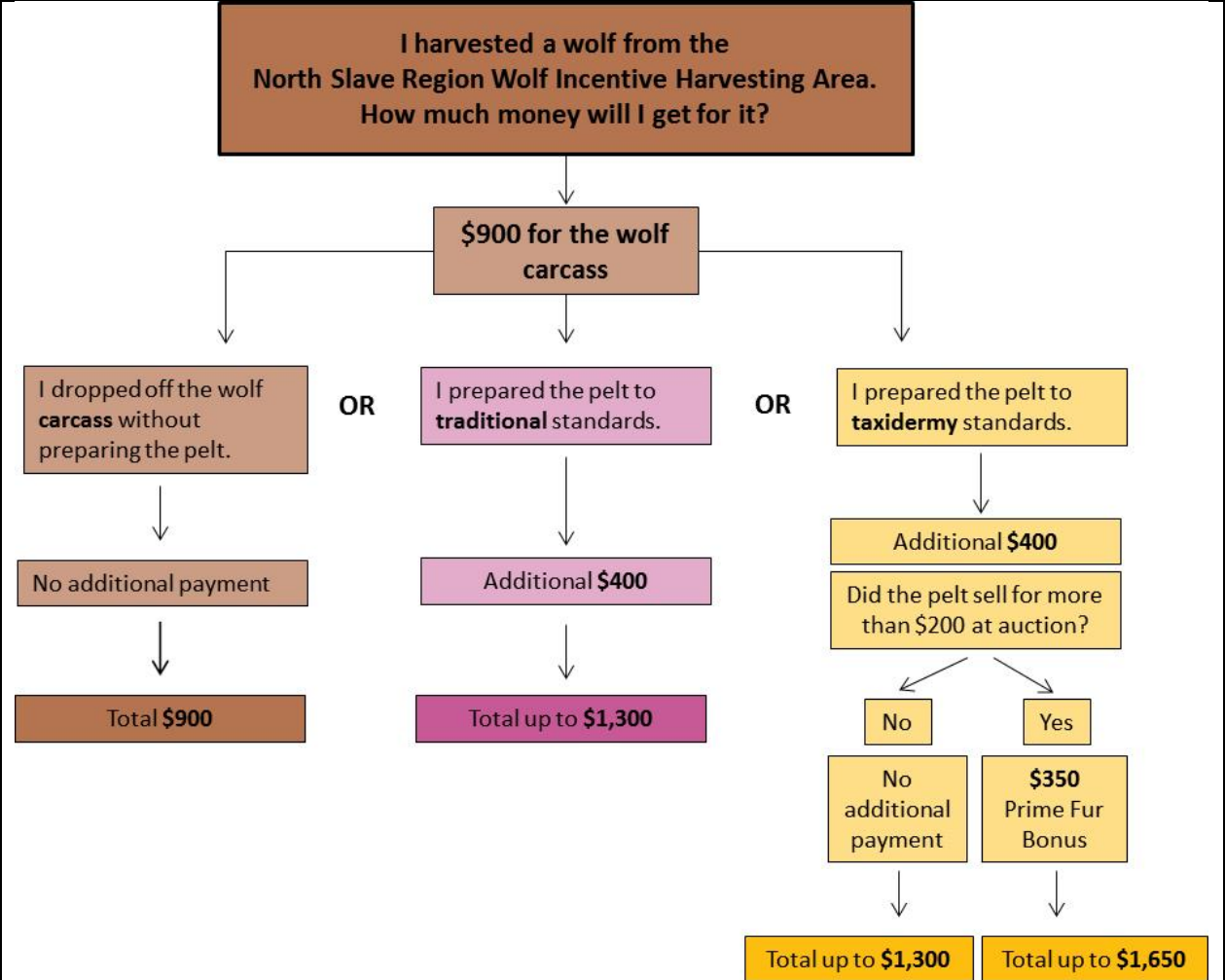


Fig. 4. Proposed new incentives for wolf harvesters in North Slave region in areas with BNE and Bathurst caribou.

(e) Collaboration between NWT and NU managers about predator management:
 The calving grounds and a large portion of the summer ranges of the BNE and Bathurst caribou herds are in Nunavut. At these times of year (June-August), the herds are generally well separated and their ranges well-defined spatially. In contrast, winter ranges tend to be larger and more variable from year to year, but they are also more accessible to hunters and trappers. Range overlap of wintering caribou herds has often included extensive overlap between neighbouring herds; for example, the BNE, Bathurst and Beverly/Ahiak collared caribou were well mixed in December 2018. Wolf removals on calving and summer ranges would affect the target caribou herds directly. Wolf removal on the winter range is challenged by the overlap of caribou herds and mixing of the wolves associated with these herds; in this situation the overall number of wolves associated with the caribou herds will be larger and likely require more wolf removals to be effective.

There has been a series of discussions involving GNWT and GN wildlife staff and more senior officials (ministers and deputy ministers) about the potential for collaboration centered on predator reduction on the NU ranges of the BNE and Bathurst herds. As with harvest management or other possible management actions in NU, the GNWT, TG, WRRB and other

management organizations in the NWT have no authority in NU and potential predator management would need to respect NU processes and be approved by the NWMB. However, coordinated harvest and wolf management actions across jurisdictional boundaries are key to effectiveness and likelihood for caribou recovery. Harvesters associated with the Kugluktuk Hunters and Trappers Organization have expressed interest in contributing to recovery of the BNE and Bathurst herds by reducing predator numbers. GNWT and TG will pursue these discussions further to develop and implement coordinated predator removals across the BNE and Bathurst herd ranges.

3. Habitat and Land Use

Recovery of the Bluenose-East herd will require a healthy habitat on the herd's range in NU and the NWT. Currently, there are no active mines and overall there has been limited development on the Bluenose-East range. However, proposed actions to support healthy habitat include the following:

- Promotion of protecting the herd's calving grounds in NU;
- Participation in development of the wildlife management plan for road access into herd range, as the Tibbitt-to-Contwoyto winter road (limiting speed limits, traffic and other mitigations for caribou);
- Participation in any environmental assessments and land use planning in NWT and NU that may affect this herd's range;
- Identifying key unburned habitat on the winter range to be included in the Values at Risk hierarchy, and increased fire management activity in these areas during the fire season.
- Continuation of ongoing TK research focused on identifying and conserving key caribou habitat:
 - Ekwò no'oke (water crossings),
 - Tataa (land crossings), and
 - Important unburned winter habitat.

For the Bathurst Caribou Range Plan (BCRP), the TG conducted TK research and identified valuable caribou habitat as Ekwò no'oke (water crossings), tataa (land crossings), migration routes and seasonal ranges. The BCRP process can serve as a model for identifying key habitat for the BNE herd by using scientific data and traditional knowledge to identify the Bluenose-East core range (centre of habitation) and other important areas. This model can be followed to identify key BNE caribou habitat, by combining recent years of collar data and Tłjchq traditional knowledge to identify critical habitat. The Bluenose-East fall and winter ranges overlap with the Bathurst herd, thus parts of its range will be included in the habitat protection recommendations in the Bathurst Caribou Range Plan. Continuation of ongoing research can lead to further identification of important habitats for potential protection on the full Bluenose-East range.

4. Education

TG and ENR recognize that continuing effort is needed to increase awareness among harvesters, communities and the public about the status of NWT caribou herds, the need for conservation actions to promote recovery and how people can contribute to conservation. The following actions are proposed to continue and increase public and hunter education:

The following are education/public awareness initiatives to improve hunter practices and reduce wounding and wastage:

- Continue to work with the communities, in particular more closely with schools, on promoting Indigenous laws and respecting wildlife, including how to prevent wastage; and
- Invite elders to work with the youth to teach traditional hunting practices and proper meat preparation.

Posters, pamphlets, media and road signs will be used to better inform the public about respecting wildlife, traditional hunting practices, wastage, poaching and promoting bull harvest. Table 5 below summarizes the TG and ENR objectives for increased public engagement and hunter education.

ENR has promoted sound hunter harvest practices, preventing meat wastage, harvesting bulls instead of cows, and implementing related conservation education in NWT communities for a number of years. In response to community requests, ENR has developed a Hunter Education program that is meant to be tailored to the needs of individual communities and organizations.

An important area to emphasize will be ensuring that information on the status and management of regional caribou herds is provided in appropriate ways and on an on-going basis to harvesters, elders and other community members.

Table 5. Summary of approaches and objectives for increased public engagement and hunter education for caribou in Wek'èezhii.

General Approach	Description & Objective	Lead (Support)
Public hearings	A (likely) public hearing on wildlife management actions for BNE herd in 2019	WRRB & SRRB (TG, ENR)
Community meetings	1 meeting per year in each Tłıchǫ community to discuss and update wildlife management issues and actions	TG and ENR
Radio programs	When needed radio announcements, interviews and/or updates on wildlife management in Tłıchǫ language during winter hunting season (annual)	TG & ENR
Sight-in-your-rifle programs	Conduct community-based conservation education programs with an objective of 1 workshop / Tłıchǫ community / hunting season (annual)	ENR and TG; need to coordinate with community leaders
Boots on the Ground and other Traditional Knowledge programs	Highlight the programs and their results with Tłıchǫ communities and the public (annual)	TG and ENR

Outreach through internet and social media	Regular updates (10 updates per season) on government websites and social media during fall and winter hunting seasons (Facebook & Tłıchq website)	TG, ENR (WRRB)
Poster campaign	Produce posters for distribution in each Tłıchq community: posters to be developed annually as needed	TG and ENR

5. Monitoring and Research

Three aspects of monitoring and research are described in this section: (a) biological monitoring mostly led by ENR, (b) expansion of the Tłıchq Boots on the Ground caribou monitoring from Bathurst range to Bluenose-East range, and (c) support for biological or TK research that helps explain changes in caribou abundance.

(a) Biological monitoring:

Table 6 lists updated biological monitoring of the Bluenose-East herd, mostly led by ENR, proposed for 2019-2023. A key focus of the increased monitoring is to provide annual information on productivity and survival of caribou calves and adult cows, as well as increased surveys to estimate herd size. The increased monitoring in part anticipates more intensive wolf management, for which assessment of effectiveness in improving caribou survival rates will be needed. The table includes a rationale for changes from previous monitoring as in the 2015 joint proposal for this herd. Changes are also described and a brief rationale given for them below.

- I. *Population surveys every 2 years:* In recent years, calving photo surveys for the BNE and Bathurst herds have been carried out every 3 years and the new population estimates have been benchmarks for revised management. The continued rapid decline of the two herds and expected increase in wolf management are the main rationale for proposing population surveys every 2 years for the two herds, i.e. in 2020 and 2022.
- II. *Collar increase to 70 (50 cows and 20 bulls):* A technical rationale for increasing the number of collars on the Bathurst herd to 65 (50 cows and 15 bulls) was provided by Adamczewski and Boulanger (2016). Some applications, such as monitoring cow survival rates with good precision, would require 100 collared caribou, while other applications can be addressed reliably with 50 or fewer collars. At this time, increasing the number of collars on cows to 50 would provide more reliable annual estimates of cow survival rates, as well as increasing confidence in defining distribution of caribou throughout the year, assigning harvest to herd reliably, and monitoring of herd fidelity to calving grounds. Range use by bulls shows patterns that vary from those of cows, thus maintaining the 20 bull collars used in recent years will also be important. The collars may also assist in determining where and when predators should be removed as well as in monitoring whether predator management actions are having an effect on the herd.
- III. *Annual composition surveys in June, October and March/April:* To date composition

surveys have been carried out on a nearly annual basis for the BNE herd in late winter, as an index of calf survival to 9-10 months of age. Composition surveys on the calving grounds have been carried out every 3 years as part of the calving photo surveys and provide a measure of initial productivity. Fall composition surveys have been carried out every 2-3 years to monitor the bull:cow ratio, which is needed to convert the estimate of cows from the June calving photo surveys to an overall herd estimate. Fall composition surveys also provide a calf:cow ratio that gives a measure of how many calves have survived the first 4-5 months. The recommended increase to annual June, October and late-winter composition surveys will provide annual information on initial productivity of young and the survival rates of calves to the fall and late-winter periods. Increased survival of adults and calves are the key changes that need to happen for this herd to stabilize and potentially increase. Increased survival will also be a key indicator of effectiveness of predator management.

- IV. *Suspension of June calving reconnaissance surveys in years between photo surveys:* Reconnaissance surveys over the calving grounds have been used for the Bathurst and Bluenose-East herds in years between photographic population surveys as a way of tracking the numbers of cows on the calving grounds. In most years they have tracked trend from the more complete photo surveys well. However, the variance on these surveys has usually been high, which reduces confidence in the estimates. In June 2017 a recon survey of the BNE calving grounds suggested that the decline had ended and the herd had increased from 2015; the June 2018 survey showed that the herd had in fact declined further by about half. In view of the high variance on these surveys and the questionable 2017 results, these surveys are being discontinued.
- V. *Harvest monitoring:* Accurate reporting of caribou harvest remains a priority for the Bluenose-East caribou herd. TG and ENR will work together to ensure that all harvest by Tłıchq harvesters is reported based on authorization cards and community monitors. ENR will continue overall monitoring of harvest via check-stations at Gordon Lake and McKay Lake, regular patrols by officers on the ground and periodic aerial monitoring. ENR will continue to monitor compliance within the Bathurst mobile no-harvest zone using the check-stations and patrols as in previous winters.
- VI. *Condition Assessment and Visual Monitoring:* Limited sample numbers have somewhat constrained the reliability of the assessments of trends in condition of harvested BNE caribou (see Garner 2014). Reliable reporting of caribou condition with adequate sample numbers could improve understanding of the herd's nutritional status and the influence of environmental conditions that are tracked through the drought index, oestrid (warble and bot fly) index and indices of snow conditions on herd condition. Condition sampling in winter from hunter-killed caribou will continue (led by TG with ENR support) with a focus on increasing sample sizes and completeness of monitoring, when and if funding allows. Training will be needed in each community to ensure qualified staff are available.

(b) Expansion of Boots on the Ground TK monitoring to Bluenose-East caribou range:

TG and ENR support expansion of the Traditional Knowledge caribou monitoring program Boots on the Ground, and will explore ways to expand the program to the Bluenose-East range. For three years, this TG program has been focused on Bathurst caribou on their

summer range in July and August, by having Tłıchq monitors for six weeks, in July and August, on the summer range of the herd. The Tłıchq Government aims to expand the program in both time and space, but this will be dependent on availability of staff, elders and other resources.

The Tłıchq Government is considering plans to purchase boats to be placed on other larger lakes on the summer and fall range that are used by both herds. By placing boats on several larger lakes, monitoring teams can fly to these lakes, where it is possible to walk in proximity to the herds and monitor caribou. Currently, TG relies on two boats on Contwoyto lake and Fry Inlet. This gives access to a larger area around these two large water bodies. The monitoring has been successful for the Bathurst herd as the herd has remained around these large lakes during the last years. On the summer and fall range of the Bluenose-East herd, there are fewer large lakes where the herd tend to aggregate. Thus, Boots on the Ground monitoring of Bluenose-East caribou is conditional on the herd remaining relatively stable around larger waterbodies, such as Point Lake, and on sufficient resources, including qualified staff. The locations for the boats are not determined yet, and will be based on recent years of collar data and Tłıchq harvesters' local knowledge. The expansion will be phased in over the next monitoring seasons, as training new monitors and building capacity in the monitoring team is a key to the success of the program. On-the-land monitoring will continue to inform decision makers on herd demographics, behaviour and migration, quality of summer and fall range habitat, and cumulative effects of predators, mining activities, and climate change on caribou.

(c) Research on drivers of change in caribou abundance:

TG and ENR recognize that there are likely multiple factors that have contributed to the BNE herd's decline since 2010. While harvest levels of 3000 or more caribou annually likely contributed to the herd's decline between 2010 and 2015, harvest was relatively low 2015-2018, thus other factors including predation, disturbance like mining camps and roads, and climate factors may have been key to the herd's decline over that period. Adverse environmental conditions may be important in some years to the herd's vital rates. For example, a drought year in 2014 potentially led to poor feeding conditions, poor cow condition and a low pregnancy rate in winter 2014-2015. A study by Chen et al. (2014) suggested that spring calf:cow ratios in the Bathurst herd were correlated with indices of summer range productivity one and a half years earlier; the mechanism proposed was that cows with poor summer feeding conditions were likely to be in poor condition during the fall breeding season, leading to low pregnancy rates and low June calf:cow ratios. An assessment by Boulanger and Adamczewski (2017) of relationships between environmental climate variables from a remote sensing database and demographic rates of the BNE and Bathurst herds demonstrated that climate variables such as the summer warble fly index, summer drought index, and winter climate indicators such as snow depth can help explain trends in cow survival, calf survival and pregnancy rate.

The two governments support increased research into underlying drivers of change in herd abundance by partnership with academic researchers and remote sensing specialists, using both scientific and Traditional Knowledge approaches. There is a need to better understand predation rates and their significance to caribou, environmental factors affecting caribou condition and population trend, and on the effects of climate change on these relationships. A further area of importance is monitoring and research focused on caribou health, parasites and other diseases, and diseases and parasites from the south that may be expanding into the NWT. Research results may lead to expanded monitoring using scientific and TK approaches. Monitoring should focus on methods that involve community members and increase their knowledge and sense of involvement.

Table 6: Biological monitoring of Bluenose-East herd (ENR and/or TG lead)

Indicator(s)	Rationale	Desired Trend	Adaptive Management Options	How Often	Notes
1. Estimate of breeding cows and extrapolated herd size from calving ground photo survey	Most reliable estimate for abundance of breeding cows and total number of cows & can be extrapolated to herd size based on sex ratio.	Stable or increasing trend in numbers of breeding cows and herd size in 2023.	If trend in breeding cows increasing, continue as before; if trend stable-negative, re-consider management.	Every 2 years	Last survey 2018, next surveys in 2020 and 2022. Trend in breeding females is most important for herd trend.
2. Cow productivity; composition survey on calving ground in spring (June)	Proportion of breeding females in June at peak of calving establishes initial productivity or approximate pregnancy rate.	Proportion of breeding cows at least 80%.	Low ratio indicates poor fecundity and suggests poor nutrition in previous summer; survey data integrates fecundity & neonatal survival.	Annual	Essential component of calving ground photographic survey. Proposed increase to annual survey to more closely monitor initial productivity and following calf survival
3. Fall sex ratio and calf:cow ratio; composition survey (October)	Tracks bull:cow ratio and fall calf:cow ratio. Fall calf:cow ratio provides an index of calf survival from birth through initial 4.5 months.	Bull:cow ratio above 30:100; calf:cow ratio of more than 40:100.	If bull:cow ratio below target, consider reducing bull harvest. Low fall calf:cow ratios suggest poor calf survival.	Annual	Sex ratio needed for June calving ground extrapolation to herd size.
4. Calf:cow ratio in late winter (March-April); composition survey	Herd can only grow if enough calves are born and survive to one year, i.e., calf recruitment is greater than mortality.	At least 30-40 calves:100 cows on average.	Sustained ratios \leq 30:100, herd likely declining; may re-assess management.	Annual	Calf productivity & survival vary widely year-to-year, affected by several variables, including weather.
5. Caribou condition assessment from harvested animals	Condition assessment provides overall index of nutrition/environmental conditions and changes over time.	High hunter condition scores (average 2.5-3.5 out of 4); target 70 animals/year.	Sustained poor condition suggests unfavourable environmental conditions and possibly further decline.	Annual	Sample numbers to date limited (2010-2018). TG working to improve program, sampling.
6. Cow survival rate estimated from OLS model and annual survival estimates from collared cows	Cow survival estimated 75-78% in 2013 (from model). Need survival of 83-86% for stable herd. Increased collar number to 50 cows should improve annual estimation.	At least 83-86% by 2022.	If cow survival continues $<$ 80%, herd likely to continue declining.	Annual	Population trend highly sensitive to cow survival rate; recovery will depend on increased cow survival.
7. Total harvest from this herd by all users groups (numbers & sex ratio)	Accurate tracking of all harvest is essential to management and to knowing whether management actions are effective.	All harvest reported accurately and within agreed-on limits.	Re-assess recommended harvest annually; if herd continues to decline, re-assess harvest limit.	Annual	Multiple factors other than harvest may contribute to decline but harvest is one of the few factors humans control.
8. Maintain up to 70 satellite/GPS collars on herd (50 on cows, 20 on bulls)	Collar information is key to reliable surveys, tracking seasonal movements and ranges, monitoring survival and herd fidelity.	Additional collars added every March/April to maintain up to 70 collars on herd.		Annual additions to keep total of 70.	Information from collared caribou is essential to monitoring and management of all N. America caribou herds.
9. Wolf Harvest on BNE range	Several Indigenous governments and communities have expressed interest in increasing wolf harvest by hunters and trappers to increase caribou survival.	Increased harvest of wolves	If herd continues to decline, consider increased focus on wolf harvest to slow herd decline and increase likelihood of recovery.	Annual	Herd overlap in winter likely means mixing of wolves associated with those herds and may influence effectiveness of wolf removals.

5. Consultation

Describe any consultation undertaken in preparation of the management proposal and the results of such consultation.

A letter with results of the Bluenose-East and Bathurst June 2018 surveys was sent from ENR by email to Indigenous governments, boards and other key stakeholders on Nov. 20, 2018. In the letter, organizations were invited to speak to the minister or deputy minister of ENR in person or by phone. A letter was also sent to the minister of Environment with the Government of Nunavut on the same day with an offer of further discussion in person or by phone. Senior leadership from the Sahtú region (SSI and other organizations) met with the GNWT premier and other senior officials on Nov. 20 to discuss barren-ground caribou among other matters. A media briefing on the Bluenose-East and Bathurst survey results was also held at the NWT legislature on Nov. 20. ENR officials will present to the GNWT Standing Committee on Economic Development and the Environment (SCEDE) on the status and proposed management of the Bathurst and BNE herds on Jan. 16, 2019 to increase GNWT-wide understanding of the caribou herds' status and management.

ENR staff presented on June 2018 survey results and other monitoring of the Bluenose-East herd on Dec. 21, 2018 at the annual ACCWM caribou herd status meeting in Yellowknife. This meeting was attended by representatives from Nunavut, including Kugluktuk, and all the boards making up the ACCWM.

Staff from the Government of Nunavut (GN) and observers from Kugluktuk participated in the June 2018 surveys of the BNE and Bathurst herds. Staff from GN and Nunavut Tunngavik Incorporated (NTI) worked with ENR staff at a technical meeting Oct. 16 and 17, 2018 to review results of the GNWT-led surveys of the BNE and Bathurst herds and the GN-led survey of the Beverly herd in the Queen Maud Gulf in June 2018. This meeting was a continuation of collaboration between GN and GNWT staff on trans-border caribou issues.

TG and ENR staff began to meet in late November 2018 and continuing into December 2018 and January 2019 to develop joint management proposals for the two caribou herds. Between these meetings, staff met with leaders and more senior staff of the two governments to discuss specific items to include in the management proposals.

TG, ENR and WRRB staff met monthly in fall and winter 2018-2019 to talk about status and management of the Bluenose-East, Bathurst and Beverly/Ahiak caribou herds; these 3 groups comprise the Barren-Ground Caribou Technical Working Group.

Meetings in the four Tłıchq communities are planned for January 2019. These will include the Tłıchq chiefs and senior officials from ENR to talk about the caribou herds and proposed management.

ENR staff attended meetings of the Déljine Renewable Resource Council Dec. 10-12, 2018 and Jan. 8, 2019 to participate in discussions of wildlife issues, including the status of the Bluenose-East herd and potential adjustments to the Déljine caribou conservation plan.

6. Communications Plan

Describe the management proposal's communications activities and how the Tłıchq communities will be informed of the proposal and its results.

TG and GNWT leadership will, together, hold an information session in each of the 4 Tłıchq communities. Emphasis will be placed on visual aids that are easily understood and on hearing from community members.

Table 5 (listed earlier in this proposal) describes approaches and objectives for increased public engagement and hunter education for caribou in Wek'èezhii.

7. Relevant Background Supporting Documentation

List or attached separately to the submission all background supporting documentation, including key references, inspection/incident reports and annual project summary reports.

- Adamczewski, J., and J. Boulanger. 2016. Technical rationale to increase the number of satellite collars on the Bathurst caribou herd. Department of Environment and Natural Resources, Government of Northwest Territories. Manuscript Report 254.
- Adamczewski, J., J. Boulanger, B. Croft, B. Elkin, and H. D. Cluff. 2016. Overview: monitoring of Bathurst and Bluenose-East caribou herds, October 2014. Environment and Natural Resources, Government of the Northwest Territories, Yellowknife, Northwest Territories, Canada. Manuscript Report 263.
- Adamczewski, J., J. Boulanger, B. Croft, T. Davison, Heather Sayine-Crawford, and B. Tracz. 2017. A comparison of calving and post-calving photo-surveys of the Bluenose-East herd of barren-ground caribou in northern Canada in 2010. *Canadian Wildlife Biology and Management* 6(1): 4-30.
- 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'èezhii Renewable Resources Board, 102A, 4504 – 49 Avenue, Yellowknife, NT, X1A 1A7.
- Barren-ground Technical Working Group (BGTWG). 2014. Barren-Ground Caribou 2013/14 Harvest & Monitoring Summary. Unpublished Report. Wek'èezhii Renewable Resource Board, Tłıchq Government, and Government of the Northwest Territories. Yellowknife, NT. Online [URL]: http://wrrb.ca/sites/default/files/2013-2014%20BGC%20Harvest%20Summary%20Report%20_%20FINAL_Oct15_2015.pdf
- Boulanger, J. 2018a. Notes on the analysis of the photo data for the Bluenose-East herd calving ground survey 2018. Draft Nov. 9, 2018. Environment and Natural Resources, Government of the Northwest Territories, Yellowknife, Northwest Territories, Canada. Unpublished draft report.
- Boulanger, J. 2018b. Preliminary harvest simulations for the Bluenose-East herd 2018. Draft Jan. 2, 2019. Environment and Natural Resources, Government of the Northwest Territories, Yellowknife, Northwest Territories, Canada. Unpublished draft report.
- 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. Lee, N. Larter, 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. Environment and Natural Resources, Government of the Northwest Territories, Yellowknife, Northwest Territories, Canada. Manuscript Report 260.
- Boulanger, J., and J. Adamczewski. 2017. Analysis of environmental, temporal, and spatial factors affecting demography of the Bathurst and Bluenose-East caribou herds. Environment and Natural Resources, Government of the Northwest Territories, Yellowknife, Northwest Territories, Canada. Manuscript Report (draft contract report).
- Chen, W., L. White, J. Z. Adamczewski, B. Croft, K. Garner, J. S. Pellissey, K. Clark, I. Olthof, R. Latifovic, G. L. Finstad. 2014 Assessing the Impacts of Summer Range on Bathurst Caribou's Productivity and Abundance since 1985. *Natural Resources*, 5, 130-145. <http://dx.doi.org/10.4236/nr.2014.54014>
- Garner, K. 2014. Tłıchq Caribou Health and Condition Monitoring Program. Final Report, Department of Culture and Lands Protection, Tłıchq Government, Behchokq, NT. 34 pp.
- Wolf Feasibility Assessment Technical Working Group. 2017. Wolf Technical Feasibility Assessment: Options for Managing Wolves on the Range of the Bathurst Barren-ground Caribou Herd. Wolf Feasibility Assessment Technical Working Group, Yellowknife, Northwest Territories. C/O Wek'èezhii Renewable Resources Board,

102A, 4504 – 49 Avenue, Yellowknife, NT, X1A 1A7.

WRRB 2016a. Report on a Public Hearing Held by the Wek'èezhì Renewable Resources Board 6-8 April 2016 Behchokò, NT & Reasons for Decisions Related to a Joint Proposal for the Management of the Bluenose-East (Barren-ground caribou) Herd. Part A, June 13, 2016. Wek'èezhì Renewable Resources Board, 102A, 4504 – 49 Avenue, Yellowknife, NT, X1A 1A7.

WRRB 2016b. Reasons for decisions related to a joint proposal for the management of the Bluenose-East (Barren-ground caribou) Herd. Part B, Oct. 3, 2016. Wek'èezhì Renewable Resources Board, 102A, 4504 – 49 Avenue, Yellowknife, NT, X1A 1A7.

8. Time Period Requested

Identify the time period requested for the Board to review and make a determination or provide recommendations on your management proposal.

Management actions proposed here would apply from July 1, 2019 (start of the harvest season) until July 1, 2021 with the results of the next calving ground photo surveys of the BNE herd expected in 2020 and 2022. In recent years the term of management proposals was 3 years to match the interval between surveys. TG and ENR suggest that management actions, including the harvest and other actions, be reviewed annually or whenever key additional information is available (e.g. additional survey information or recommendations from ACCWM or boards).

9. Other Relevant Information

If required, this space is provided for inclusion of any other relevant project information that was not captured in other sections.

TG and ENR support efforts by the WRRB and other boards, through recommendations and public hearings, to address the possible multiple causes of the BNE decline and the implementation of the ACCWM management plan.

10. Contact Information

Contact the WRRB office today to discuss your management proposal, to answer your questions, to receive general guidance or to submit your completed management proposal.

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