August 25, 2020

Mr. Joseph Judas, Chair  
Wek'eezhii Renewable Resources Board  
4504 49TH AVENUE  
YELLOWKNIFE NT X1A 1A7

Dear Mr. Judas:

**Revised Joint Management Proposal for Wolves (Dìga) on the Bathurst and Bluenose-East Caribou Winter Ranges**

As per the request in your letter of 13 March 2020, the Tłı̨chǫ Government and the Department of Environment and Natural Resources, Government of the Northwest Territories submit to the Wek’eezhìi Renewable Resources Board (WRRB) a revised proposal on management actions for wolves (dìga) on the Bathurst and Bluenose-East barren-ground caribou (ekwǫ̀) herd winter ranges for 2021 to 2024. With the revised proposal we also attach a Plain Language Summary and the 2020 Wolf (Dìga) Management Pilot Program Technical Report with “lessons learned”. The Technical Report is submitted as a Draft Manuscript report which will be revised and updated when additional technical analyses are completed and the report is subjected to the peer-review process.

We look forward to participating in the proceeding as outlined in the Board’s Work Plan and receiving recommendations from the WRRB on the revised proposal.
If you have any questions, please do not hesitate to contact either of the undersigned.

Sincerely,

Ms. Tammy Steinwand-Deschambeault,
Director
Department of Culture and Lands
Protection, Tłı̨chǫ Government
Behchokǫ, NT
TammySteinwand@tlicho.com

Ms. Karin Clark,
A/Director, Wildlife Division
Environment and Natural Resources
Yellowknife, NT
Karin_Clark@gov.nt.ca

Attachment

c.
Dr. Erin Kelly, Deputy Minister
Environment and Natural Resources

Dr. Brett Elkin, Assistant Deputy Minister, Operations
Environment and Natural Resources

Grand Chief George Mackenzie
Tłı̨chǫ Government

Chief Clifford Daniels
Community Government of Behchokǫ
Tłı̨chǫ Government

Chief David Wedawin
Community Government of Gamè tì
Tłı̨chǫ Government

Chief Charlie Football
Community Government of Wekweètì
Tłı̨chǫ Government

Chief Alfonz Nitsiza
Community Government of Whatì
Tłı̨chǫ Government
Ms. Laura Duncan, Tłı̨chǫ Executive Officer
Tłı̨chǫ Government

Mr. Michael Birlea, Manager, Lands Protection
Tłı̨chǫ Government

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

Chief Ernest Betsina and Band Council
Yellowknives Dene First Nation (N’Dilo)

Chief Darryl Marlowe and Band Council
Łutsël K'é Dene First Nation

Chief Louis Balsillie and Band Council
Denínu K'ųę́ First Nation

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

Ms. Annie Boucher, Executive Director
Akaitcho Territory Government

President William (Bill) Enge
North Slave Metis Alliance

President Garry Bailey
Northwest Territory Metis Nation

Ms. Ursula Vogt, Executive Director
Northwest Territory Métis Nation

President Lloyd Cardinal
Fort Resolution Métis Council

President Allen Heron
Fort Smith Métis Council

President Trevor Beck
Hay River Métis Government Council

President Clem Paul
Mountain Island Metis

Ms. Jody Pellissey, Executive Director
Wek’ėezhìı Renewable Resources Board

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, Assistant Deputy Minister
Department of Environment, Government of Nunavut

Mr. Drikus Gissing, Wildlife Director
Department of Environment, Government of Nunavut
Wek’èezhìi Renewable Resource Board (WRRB)  
Management Proposal

1. Applicant Information

<table>
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<tr>
<th>Project Title:</th>
<th>Government of the Northwest Territories and Tłı̨chǫ Government Joint Proposal on Management Actions for Wolves (Dìga) on the Bathurst and Bluenose-East Barren-ground Caribou (Ekwǫ) Herd Winter Ranges: 2021 – 2024</th>
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| Contacts:      | Michael Birlea  
Lands Protection and Renewable Resources Manager  
Department of Culture and Lands Protection  
Tłı̨chǫ Government  
Behchokǫ, NT. X0E 0Y0  
Phone: 867-392-6381 Ext: 1355  
Fax: 867-392-6406  
MichaelBirlea@Tłı̨chǫ.com  
  
Bruno Croft  
Regional Superintendent  
North Slave Region  
Department of Environment & Natural Resources (ENR)  
Government of the Northwest Territories (GNWT)  
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 |

2. Management Proposal Summary

<table>
<thead>
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<tr>
<td>January, 2021</td>
<td>July 1, 2024</td>
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<tr>
<td>Length:</td>
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The Government of the Northwest Territories (GNWT) and Tłı̨chǫ Government have prepared this joint management proposal for enhanced wolf (dìga) management actions to support recovery of the Bathurst and Bluenose-East barren-ground caribou (ekwǫ) herds. The proposal outlines a range of existing and enhanced wolf (dìga) management actions to support recovery of these herds, and builds upon lessons learned from the 2020 Wolf (Dìga) Management Pilot Program (Wolf (Dìga) Management Pilot Program Technical Report attached), Predator Management Recommendations from the Wek’èezhìi Renewable Resource Board (WRBB letter of February 6, 2019) and the response from the Tłı̨chǫ Government and GNWT (March 7, 2019).
There is an urgent need to continue enhanced actions put in place during the Wolf (Dìga) Management Pilot Program to increase caribou (ekwò) cow and calf survival rates of the Bathurst and Bluenose-East barren-ground caribou (ekwò) herds. Caribou harvest restrictions and wolf (dìga) reduction are the two management actions most likely to influence the direct mortality of Bathurst caribou (ekwò), which has declined to a critical status, and the Bluenose-East herd, which is currently in the 'red' herd status as defined by the January 2020 Bluenose-East Action Plan (Advisory Committee for Cooperation on Wildlife Management 2020). Proposed actions to reduce the number of wolves on the winter ranges of the Bathurst and Bluenose-East herds, combined with ongoing caribou (ekwò) harvest restrictions, is predicted to improve caribou (ekwò) survival and promote population recovery for both herds. The 2019-2021 Bathurst and Bluenose-East ɂekw (Barren-ground caribou) Herd proposals also identify additional management actions for habitat and land use, education and research and monitoring.

This proposal recommends that multiple approaches to reduce wolf (dìga) predation on Bathurst and Bluenose-East caribou (ekwò) be undertaken in conjunction with annual monitoring for a minimum of 5 years (including the 2020 Wolf (Dìga) Management Pilot Program). If annual wolf (dìga) removals are maintained at a meaningful level there is a reasonable likelihood of detecting a measurable effect on improved caribou (ekwò) survival rates within a 5-year time frame (Wolf Feasibility Assessment Technical Working Group (WFATWG), 2017). Recent caribou (ekwò) population modeling of various levels of wolf (dìga) removal predicted caribou (ekwò) population stability over five years with a high level of removal initially followed by sustained removal to keep wolf numbers low (see attached Caribou Modeling Summary). The modeling also showed that with a sustained effort in maintaining low wolf numbers, a reduction in the rate of decline in a caribou population is achieved even when wolf abundance has been underestimated.¹

Wolf (dìga) removal levels in the 2020 Wolf (Dìga) Management Pilot Program were 31 from the Bathurst winter range and 54 from the Bluenose-East winter range. The 60 to 80% target removal levels for these two herds were 29-39 on the Bathurst and 73-97 for Bluenose-East range based on caribou (ekwò) densities on the winter range, extrapolated herd population size and an Ungulate Biomass Index (see 2020 Wolf (Dìga) Management Pilot Program Technical Report). Based on these results, the Pilot Program was successful in reaching target removal levels on the Bathurst herd, and achieved removal of 45% of estimated wolves on the Bluenose-East caribou (ekwò) herd range. However, it is likely that the aerial program could have removed more wolves on the Bluenose-East range had the COVID-19 pandemic not delayed the program and impacted where the crew was based. Poor weather conditions also severely impacted the program as the crew was unable to fly on 20 of the 30 available days. Sustained removal effort will be required over the next 4 years to keep wolf (dìga) predation rates as low as possible on these herds.

An evaluation of the Wolf (Dìga) Management Program will be undertaken each year to identify challenges, areas for improvement and to adapt procedures to any new information and understandings. At the end of the 5-year implementation phase, Tłįchǫ Government and the GNWT will conduct a comprehensive analysis of information collected, as well as a full program review with the WRRB and other Indigenous governments and organizations to:

- Assess the effectiveness of wolf (dìga) reduction actions in achieving program goals and objectives;

¹ The modeling exercise did not consider environmental variability or other factors influencing caribou demography.
• Determine whether wolf (digā) reductions should continue based on the effectiveness of the Wolf (Dīga) Management Program; and
• Implement improvements to the overall program, as required.

Attributing caribou (ekwǭ) population response to specific management actions will be complex, involving consideration of the interacting effects of harvest, predation and environmental conditions. Caribou (ekwǭ) population models will be used to help tease out the contribution of multiple factors affecting caribou (ekwǭ) population response including the effect of predator management.

This proposal includes 3 main approaches to wolf (digā) management:

1. Enhanced Support for Wolf (Dīga) Harvesters and the Traditional Economy:
   • Continuation of Tłı̨chǫ Government’s Community-based Dīga Harvest Training Program
   • GNWT workshops on wolf (digā) harvesting and pelt preparation
   • Continuation of Enhanced North Slave Wolf Harvest Incentive Program
     o Increased incentives are available to all NWT Resident and Indigenous harvesters
   • Participation of Tłı̨chǫ wolf (digā) harvesters
   • Participation of Nunavut wolf (digā) harvesters
   • Use of bait by hunters to support wolf (digā) removals

2. Aerial Wolf (Dīga) Reduction Actions (if required):
   • Aerial shooting of wolves on Bathurst and Bluenose-East winter ranges

3. Monitoring, Research and Assessment:
   • Collecting information from wolf (digā) harvesters
   • Monitoring catch per unit effort
   • Estimating wolf (digā) removal levels on caribou (ekwǭ) winter range
   • Monitoring wolf (digā) condition, diet, health and humaneness of aerial removals
   • Monitoring wolf (digā) movements (collaring program under a separate proposal)
   • Monitoring changes in caribou (ekwǭ) herd demographic rates

This proposal builds on the lessons learned during the 2020 Wolf (Dīga) Management Pilot Program which implemented new and enhanced management actions for wolf (digā) reduction, monitoring and assessment. These actions align with current and ongoing management and monitoring of the Bathurst and Bluenose-East herds and previous WRRB recommendations.

Please list all permits required to conduct proposal:

a) NWT General Wildlife Permit will be issued to anyone wishing to use bait to harvest wolves and to permit aerial removals.

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

The Bathurst and Bluenose-East caribou (ekwǭ) herds have both declined significantly in recent years and the situation for both herds is dire. The decline of the Bathurst herd was first documented in 1996 when the population was estimated at 349,000 animals, down from 472,000 in 1986. Management actions to date have included harvest restrictions and wolf (digā)
harvest incentives starting in 2010; these actions have failed to halt the decline, and the herd was estimated at 8,200 animals in 2018.

The decline of the Bluenose-East herd was first documented in 2013 when it was estimated at 68,000 animals, down from 121,000 in 2010. In 2018, the herd’s population was estimated at 19,300 animals. Calving-ground photographic surveys, which take place in Nunavut, were scheduled in June 2020 for both these herds, but were postponed to 2021 due to restrictions put in place through Government of Nunavut Public Health Orders related to COVID-19.

Both traditional and scientific knowledge have shown that barren-ground caribou (ekwö) experience population cycles that can be between 30–60 years long. These cycles can be hard to predict and at times do not follow the same pattern. What drives these cycles in barren-ground caribou (ekwö) is not fully understood but likely include many factors such as harvest, habitat, predators, climate and disease. Previous low points in the cycle for the Bathurst herd occurred in the 1920s, and again during the period of 1950-1970 based on Tłįchǫ knowledge and spruce root scar frequency along key caribou movement corridors (Zalatan et al 2006).

The current population estimates for the Bathurst and Bluenose-East herds are the lowest estimates from survey results going back to the 1980s. To promote recovery of these two herds our goal is to reduce mortality rates of caribou (ekwö) and improve survival and encourage population growth. In 2016, the WRRB set a total allowable harvest (TAH) of zero for all users of the Bathurst herd within Wek’èezhìi which will continue until at least the 2020/21 harvest season. In 2016, a TAH of 750, bulls only, was established for all users of the Bluenose-East herd within Wek’èezhìi. In 2019, the WRRB determined that the TAH for Bluenose-East would be further reduced to 193 bulls. The Nunavut Wildlife Management Board is currently considering proposals from the Government of Nunavut to reduce harvest of Bathurst caribou (ekwö) in the Kitikmeot region, to zero from 30 and for the Bluenose-East to 107, bulls only, from 340.

This proposal presents a coordinated approach to wolf (diga) management actions aimed at reducing wolf (diga) predation on caribou (ekwö). Reducing wolf (diga) predation in combination with ongoing harvest management is anticipated to have a positive influence on survival rates of caribou (ekwö) in the Bathurst and Bluenose-East herds.

Previous joint management proposals for the Bathurst herd submitted by the Tłįchǫ Government and the GNWT resulted in the WRRB holding public hearings in 2010 and again in 2016. Public hearings were also held to address management proposals for the Bluenose-East herd in 2016 and 2019. During the 2016 and 2019 public hearings, through consultation conducted January 21-23, 2019, and more recent engagements (GNWT, GN and Indigenous leaders meeting, February 2020; Tłįchǫ community engagement February 2020) the WRRB, the GNWT and Tłįchǫ Government heard concern from community members that wolves are continuing to put pressure on barren-ground caribou (ekwö) populations.

The WRRB expressed at the public hearings for the Bluenose-East herd in April 2019 that the 20% rate of annual decline for the Bathurst and Bluenose-East herds is so serious that waiting any longer to implement predator management would make recovery of the herds even more difficult.

A preliminary summary of the 2020 Wolf (Diga) Management Pilot Program was provided to Indigenous governments and organizations on July 22, 2020 inviting feedback including any concerns (See attached Plain Language Summary). No responses were received by the time...
of this submission. Consultation with Indigenous governments and organizations on the current proposal was initiated at time of the submission (detailed engagement log attached).

A collaborative assessment of wolf (dìga) management options for the Bathurst caribou (ekwô) range was conducted by the WRRB, GNWT and Tłįchǫ Government, and a final report entitled “Wolf Technical Feasibility Assessment: Options for Managing Wolves on the Range of the Bathurst Barren-ground Caribou Herd” was released in 2017 (WFATWG 2017). The assessment considered 11 options, including both lethal and non-lethal methods, their potential effectiveness, cost and humaneness. The feasibility assessment provided a basis for developing the current proposal for wolf (dìga) management actions for the Bathurst and Bluenose-East herds which is comprised of a combination of three of the options presented: snaring, ground-based shooting and aerial shooting on the winter range. These options were selected as they allowed for a high level of involvement of harvesters and the traditional economy and focus on removal activities from the winter range within the NWT where Tłįchǫ Government and the GNWT have jurisdiction.

Wolves on the range of the Bathurst and Bluenose-East herds are migratory and their diet relies heavily on barren-ground caribou (ekwô). This is different than wolves in the boreal forest that are territorial and prey on multiple species in an area. It has been shown that wolves associated with barren-ground caribou (ekwô) herds can, on average, take 23 to 29 caribou (ekwô) per year (WFATWG 2017). This can vary seasonally and is likely influenced by factors such as pack size (Dale et al. 1994, Hayes and Russell 2000, Vucetich et al. 2004). As is the case in many jurisdictions, the GNWT does not have reliable estimates of wolf (dìga) abundance across the NWT, or for populations of wolves associated with specific barren-ground caribou (ekwô) herds. The difficulty in obtaining estimates of wolf (dìga) abundance arise from behavioural characteristics such as organization into packs resulting in clumped distributions, lack of territoriality and the tendency to be elusive resulting in reduced sightability from the air.

Monitoring of wolf (dìga) abundance and denning activity on the Bathurst range indicated a significant decline in rates of wolf (dìga) pup survival and den occupancy between 1996 and 2010 (D. Cluff pers. comm. 2019; Klaczek 2015). These lower rates are believed to be directly linked to the decline in Bathurst caribou (ekwô) numbers. Efforts to conduct more recent winter wolf (dìga) abundance survey on the ranges of the Bluenose-East and Bathurst have been confounded by the fact that 3 caribou (ekwô) herds (Bathurst, Bluenose-East and Beverly) sometimes converge across a large, shared winter range.

Unlike wolves that live in the boreal forest, which defend permanent territories and prey upon multiple resident species such as moose and woodland caribou (ekwô), migratory tundra wolves associate with barren-ground caribou (ekwô) on their winter ranges and move northwards with spring migratory movements of caribou (ekwô), ultimately denning south of the caribou (ekwô) calving grounds (Heard and Williams 1992, Musiani et al. 2007, Hansen et al 2013). However, it is not well known how closely the tundra wolves (dìga) seasonal movements are affiliated with specific barren-ground caribou (ekwô) herds on an annual basis, and whether the association between tundra wolves (dìga) and caribou (ekwô) herds may establish a basis for defining wolf (dìga) populations for management purposes.

Early research by Kennedy et al. (1991) assessed genetic variability of wolves sampled across ranges of barren-ground caribou (ekwô) in the Mackenzie delta, tundra range of the Bluenose herd (as it was known through the 1980s and 1990s), forested ranges in the Sahtu Region associated with woodland caribou and the Bluenose herd, and the area of the Richardson Mountains associated with the Porcupine caribou herd. This work found that wolves across
these different caribou ranges were generally similar suggesting a large panmictic population. This understanding was supported by field observations of extensive movements of wolves (díga) throughout the study area, with many changes in pack structure and formation attributed to disruptions from hunting and trapping, with packs splitting and moving to new areas. Some males associated with two or three different packs and reproduction by more than one adult female per pack were observed (Clarkson and Liepins 1989a, 1989b). More recent research suggests that prey specialization may be a primary determinant of wolf (díga) population structure (Carmichael et al. 2001), and that there are clear patterns of genetic differentiation between migratory wolves that rely on barren-ground caribou (ekwǫ) in the taiga and tundra biomes, and non-migratory, territorial wolves that live in the boreal forest (Carmichael et al 2007, Musiania et al. 2007).

While research has shown that the abundance and productivity of wolves on the range of the Bathurst herd has declined since 2000 (D. Cluff pers. comm. 2019; Klaczek 2015), the relative abundance of wolves today may still be having a significant impact on both the Bathurst and Bluenose-east caribou (ekwǫ) herds, and inhibiting population recovery.

The overall goal of the proposed wolf (díga) management program is to reduce wolf (díga) numbers sufficiently to enable an increase in survival rates of both calf and adult caribou (ekwǫ) promoting stabilization and recovery of these herds. The proposal is based on the following assumptions and caveats:

- Wolves are the primary predator of barren-ground caribou (ekwǫ), and on average can take 23-29 caribou (ekwǫ) per year;
- Wolf (díga) management occurs within a broader social-ecological system where people are important harvesters of barren-ground caribou (ekwǫ) and wolves;
- Caribou (Ekwǫ) are a cultural keystone species that are an important foundation to culture, language and way of life to Tłįchǫ and other Indigenous peoples;
- There is some uncertainty in our knowledge of the caribou (ekwǫ)-wolf (díga)-human system because of the complex dynamics and interactions of barren-ground caribou (ekwǫ), wolves, people, land and environmental conditions;
- Wolf (díga) reductions on the Bathurst and Bluenose-East winter ranges should be carried out through a combination of coordinated management actions to help increase caribou (ekwǫ) survival and support herd recovery, including support for wolf (díga) harvesters and the traditional economy; and
- The adaptive co-management approach recognizes uncertainty including the likely effectiveness of wolf (díga) reduction actions, and emphasizes the importance of monitoring to enhance learning, revising approaches as our understanding improves and making decisions in a co-management context.

Since 2010, to encourage increased harvest of wolves (díga) to facilitate recovery of caribou (ekwǫ), ENR’s North Slave Region has administered a region-wide harvest incentive program (Cluff 2019, unpublished report, ENR, 05 Sep. 2019). The incentive was originally set at $100/carcass (skinned) for any wolf (díga) harvested within the North Slave Region. The incentive was increased to $1200/wolf (díga) for the 2019/20 harvest season with an additional $400 advance for the pelt and $350 prime fur bonus for those of taxidermy quality. Further, the tag fee for all licence holders was eliminated in 2019/20.

In winter 2019/2020, wolf (díga) harvesting within the North Slave Region occurred mostly outside of the North Slave Wolf Harvest Incentive Area. Of a total of 68 wolves harvested by NWT harvesters only 18 were within the North Slave Wolf Harvest Incentive Area. In addition,
Nunavut harvesters took 57 wolves in the Inuit traditional harvesting area within the NWT with 35 harvested within the North Slave Wolf Harvest Incentive Area (Cluff 2020).

The North Slave Wolf Harvest Incentive Area is defined on an annual basis based on Bluenose-East and Bathurst caribou (ekwǫ̀) collar locations (methods described in Caslys Consulting Ltd. 2016). In 2018/2019, a high degree of herd overlap led to defining a large North Slave Wolf Harvest Incentive Area. In 2019/2020, these two herds exhibited less overlap than in recent years, and the North Slave Wolf Harvest Incentive Area was adjusted as a result (Figure 1). Caribou (ekwǫ̀) herd mixing is an obstacle to estimating abundance of wolves associated with a specific caribou (ekwǫ̀) herd and poses a significant challenge when attempting to target harvest pressure on wolves associated with the Bathurst and Bluenose-East caribou (ekwǫ̀) herds. Given the June 2018 estimate of the Beverly herd (103,372 ± 5109 SE caribou (ekwǫ̀), Campbell et al. 2019), wolves associated with that herd will likely also travel into the North Slave Region significantly increasing wolf (dìga) numbers and predation pressure in the area over the winter.

It has been shown that removing up to 30% of the wolves in a population will have no numerical impact on wolf populations, within a year numbers will be back to pre-removal levels because of their high reproductive potential (large litters and a potential for more than one litter per pack) and their ability to disperse from far away (immigrating into areas of recent removals). These characteristics also allow wolf (dìga) populations to quickly rebound once management actions are no longer applied.

**Figure 1:** Enhanced North Slave Wolf Harvest Incentive Area in a) 2018/19 and b) 2019/20.

The purpose of the proposed wolf (dìga) management actions is to reduce wolf (dìga) numbers sufficiently for caribou (ekwǫ̀) survival rates to increase and facilitate population growth; it is not to eliminate wolves (dìga). Our understanding of wolf (dìga) ecology is that the risk of population extirpation is exceedingly low, because juvenile wolves (dìga) can immigrate from hundreds to thousands of kilometers away particularly with a larger caribou (ekwǫ̀) herd such as the Beverly herd and its associated wolves overlapping or wintering near the Bathurst and Bluenose-East herds.
4.  Description of Proposed Management Action

GOAL OF MANAGEMENT ACTIONS

The goal of the proposed management actions is to sufficiently reduce wolf (dìga) predation on the Bathurst and Bluenose-East herds to allow for an increase in calf and adult caribou (ekwǫ̀) survival rates to contribute to the stabilization and recovery of both herds. Recent modelling which updated the work in the Wolf Technical Feasibility Assessment, suggests that with aggressive wolf (dìga) removal efforts (all else being equal) caribou (ekwǫ̀) herd size could potentially stabilize to extrapolated 2020 levels over the five year program (see attached Caribou Modeling Summary). The proposed actions will be adaptively managed to improve the program throughout its implementation.

The objectives of the program are:

1. Increase annual ground-based harvest of wolves (ekwǫ̀) on the winter range of the Bathurst and Bluenose-East caribou (ekwǫ̀) herds by increasing participation of harvesters in the traditional economy related to wolf (dìga) harvest and hide preparation.
2. Ensure sustained removal of wolves (dìga), using aerial removals if required, on the winter ranges of the Bathurst and Bluenose-East caribou (ekwǫ̀) herds to achieve a level necessary to maintain low wolf (dìga) densities and elicit a response in caribou (ekwǫ̀) population.

The following section outlines the proposed management actions to achieve the goal and objectives of this joint proposal with a summary describing the rationale for each.

1:  Enhanced Support for Wolf (Dìga) Harvesters and the Traditional Economy

Action 1.1: Tłı̨chǫ Government Wolf (Dìga) Harvester Training

The Tłı̨chǫ Government proposes to take a similar approach to its Community-based Dìgà Harvest Training Program as it did during the 2019/20 season which consisted of three phases:

1) community consultation meetings with Tłı̨chǫ harvesters and elders to ensure the program follows and respects Tłı̨chǫ protocols of harvesting dìgà and plan logistics for the harvesting camps;
2) conducting a training workshop for local Tłı̨chǫ harvesters; and
3) establishing harvester camps to further support training and dìgà harvesting by Tłı̨chǫ on a rotational basis.

Community engagement meetings will be held as needed to review and seek guidance on improvements and revisions to the program (see 2020 Wolf (Dìga) Management Pilot Program Technical Report for more detail).

Action 1.2: GNWT Wolf (Dìga) Harvester Training

The GNWT will continue to provide trapper training workshops to support the traditional economy. Wolf (dìga) harvester training workshops will be hosted each fall to provide hunters and trappers in the North Slave Region with training opportunities to increase harvest success and enhance skinning skills specifically for wolves (dìga). In the 2019/2020 harvest season ENR hosted a wolf (dìga) harvester training workshop with Yellowknives Dene First Nation
(YKDFN) in December 2019 and supported Tłı̨chǫ Government in hosting a workshop in Wekweétì in January 2020. Based on feedback from the 2020 Wolf (Diga) Management Pilot Program, more effort is needed to direct harvesters to areas of high expected wolf (diga) abundance when caribou (ekwò) are located away from winter road corridors. Additional work is also needed to encourage and support higher rates of reporting for harvest effort and success by wolf (diga) hunters.

In support of the goals of the Enhanced North Slave Wolf Harvest Incentive Program, the focus of training workshops is to:

- Draw on the skills, expertise and techniques used by experienced and successful wolf (diga) harvesters;
- Offer training on the use of snares;
- Improve skinning techniques to maximize pelt value for harvesters;
- Teach best practices for humane hunting and trapping of wolves (diga);
- Discuss opportunities for obtaining information on areas of high wolf (diga) abundance based on current caribou locations;
- Provide training on how to fill out questionnaires, focusing on how to collect “catch per unit effort” information and importance of completing the questionnaires; and
- Review the wolf (diga) carcass sampling program and the biological data being collected and explain how it is used.

Workshop trainers will include representatives from the Fur Harvesters Auction, experienced northern wolf (diga) harvesters, experienced southern wolf (diga) trapper(s) and GNWT staff to discuss the Enhanced North Slave Wolf Harvest Incentive Program. As was done during the December 2019 training workshop with the YKDFN, the GNWT may also invite experienced Inuit harvesters to share their wolf (diga) harvesting techniques and experiences on the central barrens.

The GNWT will promote best practices to ensure the humane hunting and trapping of wolves (diga), as addressed in the “Wolf Technical Feasibility Assessment: Options for Managing Wolves on the Range of the Bathurst Barren-ground Caribou Herd”.

**Action 1.3: Continuation of Enhanced North Slave Wolf Harvest Incentive Program**

In 2010, the GNWT implemented a wolf (diga) harvest incentive program for wolf (diga) harvesters across the NWT. Harvest incentives have subsequently been increased in portions of the North Slave Region (North Slave Wolf Harvest Incentive Area) to encourage harvest of wolves associated with Bathurst and Bluenose-East caribou (ekwò). In addition, tag fees are no longer required (effective July 1, 2019) by licensed hunters. Wolf (diga) harvest over this time period has been variable, generally increasing with the increased incentives. However, the rate of harvest is also strongly influenced by the location of the caribou (ekwò) and their accessibility. In 2020, for example, harvest did not reach 2019 levels because wolves were more difficult to access due to the distribution of caribou (ekwò) which was further from the winter road.

The GNWT is proposing to continue the Enhanced North Slave Wolf Harvest Incentive Program for the next 4 years. A summary of the current price structure for wolf (diga) harvesting can be found in Figure 2.
Figure 2: 2019/2020 GNWT incentives, effective for wolf (dìga) harvesters in the North Slave Wolf Harvest Incentive Area on the winter range of Bathurst and Bluenose-East caribou (ekwǫ).  

**Action 1.4: Participation of Tłı̨chǫ Wolf (Dìga) Harvesters**  
The Tłı̨chǫ Government, with support from the GNWT, will set up wolf (dìga) harvest camps where Tłı̨chǫ harvesters can continue to improve on harvest, skinning and navigation skills and be safely away from communities where there might be cultural sensitivities. Based on outcomes from the 2020 Wolf (Dìga) Management Pilot Program, next winter two base camps will be set up where there are high densities of caribou (ekwǫ) and wolves. Rotations are recommended to be at least three weeks long, and preparatory work will be undertaken so that harvester time and effort while at the camp is most efficient. The 2020 Wolf (Dìga) Management Pilot Program Technical Report provides further detail on the harvest camps.  

**Action 1.5: Participation of Nunavut Wolf (Dìga) Harvesters**  
Beneficiaries of the Nunavut Final Agreement have overlapping harvesting rights in parts of the NWT (Figure 1b). The GNWT is coordinating with the Government of Nunavut (GN) in supporting harvesters from Nunavut to exercise their rights in the NWT by harvesting wolves on the winter ranges of the Bathurst and Bluenose-East caribou (ekwǫ) herds. When that harvest is within the GNWT’s Enhanced North Slave Wolf Harvest Incentive Program Nunavut wolf (dìga) harvesters receive a payment of $900 from GNWT and $300 from GN. In 2020 Nunavut harvesters took 57 wolves in the NWT within their traditional use area.
**Action 1.6: Use of Baiting to Support Wolf (Dìga) Removals**

Harvesters can obtain a General Wildlife Permit from the GNWT to use bait to harvest wolves within the North Slave Wolf Harvest Incentive Area. This approach gives permit holders the ability to enhance their wolf (digá) removal success, while allowing the GNWT to regulate this activity and promote public safety. Baiting will also be used to support aerial removal efforts, if required.

Permits will be issued, under specific terms and conditions, to allow individuals to use approved forms of bait at known locations, directed by the GNWT. These locations will be kept a minimum distance from roads for public safety reasons and may occur across the North Slave Wolf Harvest Incentive Area to extend coverage across caribou (ekwò) winter range. Approving the location of baiting sites enables the GNWT to monitor and ensure permit holders are complying with their permit and all listed conditions.

The GNWT recognizes that while the use of bait will likely improve wolf (digá) hunting success within the North Slave Wolf Harvest Incentive Area, it needs to be carried out responsibly so that public safety is not compromised.

The Tłı̨chǫ Government was approved to use baits in association with their wolf (digá) harvest camps during the 2020 Wolf (Dìga) Management Pilot Program (see attached Technical Report).

**Action 2: Aerial Wolf (Dìga) Reduction Actions**

**Action 2.1: Aerial Shooting of Wolves on Bathurst/Bluenose-East Winter Range**

While our focus is on supporting harvesters to achieve the wolf removal levels necessary to support caribou recovery, aerial removal will be considered at the end of March if wolf removal targets cannot be met by harvesters alone. By waiting until later in the season, we give our harvesters the best chance to make an impact on wolf populations.

A successful wolf (digá) management program, according to the feasibility assessment (WFATAW 2017), must meet the following conditions:
- Define initial target wolf (digá) removal levels and track over time;
- Support and allocate effort for wolf (digá) removal; and
- Assess the effects of wolf (digá) removal levels on caribou (ekwò) and wolves.

Other jurisdictions such as Alaska, British Columbia, Alberta and Yukon have demonstrated the effectiveness of aerial shooting of wolves (WFATWG 2017; McLaren 2016; Russell 2010). Recent efforts to remove a targeted number of wolves in northern BC have successfully resulted in reductions to boreal caribou (ekwò) mortality, increased calf recruitment and increased herd size (Bridger 2019). In addition, a review of wolf management programs implemented elsewhere has shown that improvement in caribou (ekwò) survival rates is associated with wolf (digá) removal efforts of approximately 60-80% initially and then sustained removals for the duration of the management program to maintain low wolf (digá) density (WFATWG 2017).

If at the end of March, harvesters have not met removal targets, aerial removal efforts will be undertaken in a manner that avoids interference with ground-based harvesting activities, which occur primarily along the winter road system and near communities (Figure 3). Aerial removal
will focus on areas away from roads and harvesting locations reported in previous years, and will be done to minimize temporal and spatial overlap with ground-based harvesters.

Figure 3: Distribution of North Slave wolf (dìga) harvest in 2020; primarily along the winter road and near communities.

Aerial removal of wolves each season will be undertaken in the manner described below.

1. Setting targets and applying them to aerial wolf (dìga) removal activities:
   a. Targets were established in 2020 (year one of the program) using wolf (dìga) abundance estimates based on caribou (ekwǫ̀) density, extrapolated herd size and Ungulate Biomass Index. Wolf (dìga) abundance associated with the Bathurst caribou (ekwǫ̀) herd on its winter range was estimated at 49 wolves, and 121 wolves on the Bluenose-East herd’s winter range. The targets were set as a range representing 60-80% of the estimate (29-39 on the Bathurst and 73-97 for Bluenose-East range). Because wolf populations will not be impacted by removal rates of 30% or less, and we expect in-migration of wolves to be high with overlapping or nearby winter ranges of adjacent caribou (ekwǫ̀) herds, removal efforts will need to remain high. The targets will be assessed on an annual basis and adjusted as necessary.
   b. If there is overlap of the Bluenose-East and Bathurst winter ranges (December through February) the targets will be combined and applied across the combined winter ranges of the two herds such that removal effort can be allocated to areas of highest wolf (dìga) density.
c. In circumstances when the winter range of the Beverly herd overlaps with that of the Bathurst and/or Bluenose-East, wolf (dìga) removal targets will be assessed based on the amount of overlap of the Beverly herd, and the estimated number of wolves associated with the Beverly.

2. Support and effort will be allocated in the following manner:
   a. If ground harvest in a particular year does not meet the removal targets by March 15th aerial removals will be initiated and operate in areas to minimize potential conflict with harvesters.
   b. Aerial removals will be continued until the target is met or until the operation period has ended.
   c. Support aircraft may be used to increase search effort and to direct aerial removal crews to wolf (dìga) packs. Wolf (dìga) collar locations will be used to locate removal crews in the general vicinity of wolves. Every effort will be made to avoid the removal of the collared wolf (dìga) or its pack mates.
   d. Aerial removal crews will attempt to remove all un-collared wolves encountered, removing entire packs, where possible to reduce the possibility of splitting wolf (dìga) packs, which may result in dispersal and/or establishment of additional packs.
   e. Every effort will be made to recover wolf (dìga) carcasses and transport them for subsequent skinning and necropsy (discussed below in the Monitoring, Research and Assessment section).
   f. Continue aerial removal efforts each winter for at least 4 more years, if required.

3. Assessing the effects on caribou (ekwǫ̀) and wolves (discussed more fully in Monitoring, Research and Assessment section).
   a. Depending on environmental conditions, availability of aircraft and other resources, wolf track survey methods (Stephenson 1978, Becker et al. 1998, Gardner and Pamperin 2014) will be used to monitor wolves within the aerial removal areas.
   b. Wolf (dìga) estimates or minimum counts, and removal efforts will be tracked, assessed and evaluated on an annual basis following the harvest season to determine operational efficiencies and corresponding areas for improvement.
   c. Correlations between wolf (dìga) removals and caribou (ekwǫ̀) demographic rates will be undertaken after the five year completion of the program as there is an expected lag time between initiation of wolf (dìga) removals and caribou (ekwǫ̀) population response. Population surveys for Bathurst and Bluenose-East are scheduled to be conducted in June 2021, 2023 and 2025. Calf:cow ratios will be obtained three times a year: in fall, late winter and summer.

3: Monitoring, Research and Assessment

Action 3.1: Collecting Information from North Slave, Tłı̨chǫ and Nunavut Wolf (Dìga) Harvesters

Similar to the 2020 Wolf (Dìga) Management Pilot Program, a harvester questionnaire will be required to be filled out and submitted by all wolf (dìga) harvesters in the North Slave Wolf

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ii The caribou winter range analysis described in section 5.2 of the 2020 Wolf Management Pilot Program Technical Report shows the Beverly herd overlapped with the Bathurst in all four of the previous years and with Bluenose-East and Bathurst in two of the previous four years.
Harvest Incentive Area to collect information on abundance, location, effort and harvest of wolves. Check stations along the winter road will be used to encourage harvesters to briefly stop to answer a series of questions on wolf (diga) observations and harvesting, and provide feedback on the effectiveness of management actions. Successful harvesters will be asked these same questions when submitting their wolf (diga) carcasses (if not reported previously) to ensure the maximum number of harvesters participate. To encourage participation in the survey, the GNWT will provide participating harvesters with a $25 gift card.

The questionnaires will be undertaken not only by wolf (diga) harvesters that successfully harvest wolves, but also by harvesters who spend time (effort) searching for wolves but are unsuccessful at harvesting. The GNWT updated the Enhanced North Slave Wolf Harvest Incentive Program questionnaire for use in the 2020 Wolf (Diga) Management Pilot Program to help evaluate the relative abundance of wolves. Similarly, Tłı̨chǫ harvesters will be asked a series of questions based on their activities at the Tłı̨chǫ harvest camps to gather similar information (questionnaires for NWT and Nunavut harvesters and Tłı̨chǫ harvest camp participants are provided in the 2020 Wolf (Diga) Management Pilot Program Technical Report).

**Action 3.2: Monitoring Catch Per Unit Effort**

To assess the effectiveness of the Wolf (Diga) Management Program, the GNWT will monitor “catch per unit effort” (CPUE) which is an indirect measure of the relative abundance of a target species (Rist et al. 2010). This will involve recording the actual number of hours or days spent harvesting (effort), distance travelled (km) and the number of wolves (singles, packs) observed during their trip.

Over the winter, and over several years of documenting catch per unit effort (CPUE) of harvesters and aerial crews, trends should emerge with fewer wolves being observed and harvested per hour of effort or distance travelled. As management efforts begin to reduce wolf (diga) numbers, more time and effort will be required to harvest a declining number of wolves. CPUE will be a key monitoring indicator to help assess whether removals are sufficient to keep wolves at low numbers.

For ground-based harvest, CPUE will be calculated for each harvester and trip based on the number of wolves harvested/sighted per hours travelled (regardless of whether a wolf (diga) was harvested) taken from the harvester questionnaires. CPUE will then be averaged across harvesters daily, weekly, monthly or by season as appropriate.

Search effort will also be calculated for all aerial surveys, collaring and removal efforts by relating the number of wolves observed per hour flown within the caribou herd (ekwǫ̀) winter ranges summarized daily, weekly, monthly or by season as appropriate. As the number of wolves removed increases and wolf (diga) density declines, it will take more effort and longer distances for harvesters to observe wolves.

CPUE will likely be influenced by overlapping winter distributions of two or more caribou (ekwǫ̀) herds as wolf (diga) densities would be expected to increase under that scenario. As a result, CPUE will need to be interpreted with caution and with reference to caribou (ekwǫ̀) and wolf (diga) collar distribution maps.

The 2020 Wolf (Diga) Management Pilot Program identified challenges in sufficiently completing the questionnaires, and in receiving and collating information from harvester questionnaires and aerial removal crews in a timely fashion. Questionnaires will be reviewed and updated prior to
the 2020-21 harvest season and procedures for collection and collation of information improved to address the challenges identified.

**Action 3.3: Estimating Wolf (Dìga) Removal Levels on Caribou (Ekwò) Winter Ranges**

Wolf (diga) removal levels are both a key performance indicator for assessing efficacy of harvester training, incentives and harvest camps, efficiency of search and removal techniques, and a key input parameter for evaluating effectiveness of wolf (diga) removal actions on caribou (ekwò) populations.

Using caribou (ekwò) collar distribution patterns for the past 4 years, the GNWT has conducted geospatial analyses to better understand how the Bathurst, Bluenose-East and Beverly herds have used the landscape and the annual variation in their range use (see 2020 Wolf (Dìga) Management Pilot Program Technical Report). Overwintering caribou (ekwò) ranges can be discrete in some years, and have various degrees of overlap in other years. The geospatial analysis shows that the Beverly herd overlapped with the Bathurst in all four of the previous years (excluding 2019/2020) and with Bluenose-East and Bathurst in two of the previous four years.

Assigning wolves to caribou (ekwò) herds is relatively straightforward when there is little to no spatial overlap among caribou (ekwò) winter ranges. Assignment becomes increasingly uncertain when there is high spatial overlap and a large discrepancy between herd sizes. Considering the geospatial analyses and the most recent caribou (ekwò) collaring data, the GNWT has developed a rationale for allocating wolf (dìga) removal effort and assigning herd identity to target wolves for the 2020 Wolf (Dìga) Management Pilot Program that will be used in future years of the program. The rationale will be revisited on an annual basis considering new information from wolf (dìga) collars, caribou (ekwò) distribution and harvester questionnaires in preparation for each winter harvest period to inform and focus management action on the Bathurst and Bluenose-East herds.

The initial logical framework to assign a wolf (dìga) to a particular caribou (ekwò) herd’s winter range is based on the recorded locations and dates of wolf (dìga) kills relative to the monthly spatial probability (or utilization distribution) maps generated from home range analyses of caribou (ekwò) collar data from the Bathurst, Bluenose-East and Beverly herds. Herd affiliation of a wolf (dìga) harvest or removal will be based on which monthly herd distribution the removal location overlaps with and if it overlaps with more than one caribou (ekwò) herd distribution it will be assigned to the herd with the highest overlapping density class (see 2020 Wolf (Dìga) Management Pilot Program Technical Report).

This framework provides an initial approach for assigning wolf (dìga) removal levels to caribou (ekwò) herd winter ranges but will be revisited as new information from wolf (dìga) collars and other sources becomes available. It is important to note that there is uncertainty in whether an assignment of a wolf (dìga) removal based on kill date and location relative to the concurrent distribution of collared caribou (ekwò) is robust and biologically accurate. Movement patterns of collared wolves will provide empirical data to assess this means of assigning wolf (dìga) removals to a caribou (ekwò) herd.

**Action 3.4: Monitoring Wolf (Dìga) Condition, Diet and Welfare Outcomes**

Consistent with the 2020 Wolf (Dìga) Management Pilot Program, GNWT staff will necropsy, collect biological information and samples, and conduct laboratory analysis of wolves taken under this program. The information collected from the wolves will include:
• Sex;
• Age class;
• Health;
• Condition; and
• Diet.

Efforts will be made to necropsy the majority of wolves taken by both ground and aerial removals. In more remote areas, it may be challenging for harvesters to haul numerous wolf (diga) carcasses (heavy loads) over long distances. ENR will facilitate the collection of as many wolf (diga) carcasses as logistically possible; to maximize the collection of biological data since partitioning carcasses by herd affiliation, age and sex class will reduce sample sizes. It is anticipated that at the very least, most skulls will be processed to obtain a breakdown of the sex and age class structure of the harvest.

ENR will examine a subsample of wolves taken by ground shooting, trapping and aerial shooting to assess the animal welfare outcomes (see Hampton et al 2020) of each harvest approach being used. Based on these ongoing assessments, ENR is prepared to increase harvester training as well as training for aerial removal crews should evidence arise that wolves are not being killed quickly and humanely.

To aid in the assessment of animal welfare outcomes the aerial removal crews are required to record information in the field for each removal including:

• Pursuit time
• Pack size
• Number of shots fired
• Estimated time to death
• Documentation of other wildlife present/observed nearby
• Body condition

Details on the necropsies from the 2020 Wolf (Diga) Management Pilot Program are presented in the attached Technical Report.

**Action 3.5: Monitoring Wolf (Diga) Movements**

The GNWT has applied for an amendment to an existing five year Wildlife Research Permit to continue to deploy and maintain up to 30 satellite collars on wolves (generally 10 each on Bathurst, Bluenose-East and Beverly caribou (ekwô) herds) to support the wolf (diga) monitoring and management actions being proposed. Collared wolves will assist in our understanding of wolves associated with the Bathurst, Bluenose-East and Beverly caribou (ekwô) herds, and their movements within and among these herds both seasonally and annually.

The objectives of the wolf (diga) collaring program are to:

1. Determine how wolves travel among caribou (ekwô) on their winter ranges.
2. Determine broader wolf (diga) movement patterns across caribou (ekwô) ranges on an annual and multi-year basis.
3. Determine fidelity of wolves to den sites and caribou (ekwô) herd ranges.
4. Assist in the evaluation of wolf (diga) management actions in the NWT.

While, the primary purpose of the collaring program is for the above stated research and monitoring objectives, secondarily the location information will be used to direct wolf (diga) harvest effort/camp locations and overall aerial removal efforts. Every effort will be made to avoid the removal of collared wolves and their pack mates.

**Action 3.6: Monitoring Barren-ground Caribou (Ekwô) Herd Demographic Data for Improvement**

Multiple factors (i.e. environmental, disturbance, predation) are believed to be influencing the health and status of the Bathurst and Bluenose-East caribou (ekwô) herds. It is anticipated that reduction in wolf (diga) numbers should allow for an increase in caribou (ekwô) cow and calf survival rates, which in turn will contribute to caribou (ekwô) recovery. Monitoring will be done to test and assess the relative effect of wolf (diga) removal levels on herd-specific monitoring data, including adult female survival (estimated and modelled), age ratios and population trends. The Tlicho Government program Ekwô Nàxoëhdee K’e (Boots on the Ground) will contribute important information on key caribou (ekwô) indicators such as calf survival and caribou (ekwô) health.

Given the complexity and uncertainty regarding interaction of key factors influencing barren-ground caribou (ekwô) populations, caution is required when attempting to attribute the specific contribution of wolf (diga) reduction to observed changes in caribou (ekwô) productivity and/or population trends. For example, the influence of other factors such as environmental conditions, biting insect severity indices, anthropogenic disturbance and caribou (ekwô) harvesting may also be affecting caribou (ekwô) productivity and/or survival rates. Modeling caribou (ekwô) population response with covariates for wolf (diga) removal, and environmental indices such as insect harassment and vegetation productivity will be important for overall analyses.

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**5 Consultation**

This proposal was jointly developed by the GNWT and the Tlicho Government, and has included discussions with Tlicho communities and leaders (December 2019 through February 2020). Wolf (diga) management actions were also discussed at the WRRB’s public hearing on the Bluenose-East herd held in Behchokô on April 9-11, 2019. The GNWT conducted consultation with Indigenous governments and organizations on wolf (diga) management actions in an initial proposal in November/December 2019, on the 2020 Wolf (Diga) Removal Pilot Program in July 2020 and the current revised proposal as of August 25, 2020. A detailed engagement log is attached.

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**6 Communications Plan**

**General approach**

The general communications approach will be proactive and aimed at large, but specific audiences. Information about program activities, incentives, training opportunities and other general information will be relayed to key audiences – primarily communities, harvesters and the general public – through a variety of advertising and promotional channels, including print, radio, online and in-person. These communications will be done in Tlicho Yati, English, French and other Indigenous languages as required and where possible. During the 2020 Pilot Program community
posters were developed to inform Tłı̨chǫ communities of wolf (diga) management activities in the area, as well as radio ads and public service announcements. Website and Facebook pages were updated regularly to reflect program activities.

Communications will be aimed at achieving the following objectives:

- Ensuring the public understands the scientific, local and traditional knowledge rationale behind predator management as one aspect of a larger co-management approach for barren-ground caribou (ekwǫ) recovery.
- Ensuring harvesters are aware of wolf (diga) harvest incentives and know how to participate in the traditional economy by promoting training opportunities, eligibility criteria, safety information, wildlife regulations and harvesting best practices.
- Amplifying northern voices and knowledge in discussions about the effectiveness of predator management, especially those of our residents and co-management partners.
- Making the public aware of training and incentives that enable and encourage NWT residents to go on the land and participate in the traditional economy.
7 Relevant Background Supporting Documentation


## 8 Relevant Background Supporting Documentation

### Appendix A: Timeline of previous and proposed/proposed management actions for Bathurst and Bluenose-East caribou (ekwǫ) herds

<table>
<thead>
<tr>
<th>Mgmt Lever</th>
<th>Previous Years</th>
<th>I Start I</th>
<th>Future Years</th>
</tr>
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<tbody>
<tr>
<td>Bathurst Herd</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Harvest Management (allowable harvest)</td>
<td>Interim Emergency Measures (80M/yr)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wolf Management</td>
<td>Wolf Technical Feasibility Assessment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Range (disturbance) Management</td>
<td>Develop Bathurst Caribou Range Plan (BCRP)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bluenose East Herd</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Harvest Management (allowable harvest)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wolf Management</td>
<td>Wolf Technical Feasibility Assessment</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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*Follow-up shading indicates years where calving ground photographic surveys were conducted in previous years or planned for future years. A two-year interval for future calving ground surveys was assumed based on recent joint management proposals submitted by the Tłı̨chǫ Government and the Government of the Northwest Territories to the Wek'eezhii Renewable Resources Board.*

* M = Male; F = Female

1. MCBCCA = Mobile Core Bathurst Caribou Conservation Area implemented in 2015/16

* TAH = Total Allowable Harvest

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* Planned or proposed actions
8 Relevant Background Supporting Documentation

Appendix B: Tłı̨chǫ Knowledge

The traditional territory of the Tłı̨chǫ is vast, and the network of hunting trails extends far into every corner of their lands. The four Tłı̨chǫ communities of Behchokǫ̀, Whati, Gameti and Wekweétì are located in the boreal forest, and the land stretches far north of the treeline into the tundra, where many Ekwǫ̀ hunting grounds are located. The traditional land use areas of the Tłı̨chǫ lie within the boundary known as “Mwįh Gógha Dé ḅįttį̀lié,” which was outlined by Chief Mǫhwhį during the negotiations of Treaty 11 in 1921 (Helm 1994). The modern treaty area of Mwįh Gógha Dé ḅįttį̀lié is described in an illustrative map to the Tłı̨chǫ Agreement.

The traditional land consists of the area between Great Slave Lake and Great Bear Lake, from the Horn Plateau in the southwest, and as far north as the Coppermine River and Contwoyto Lake (2018 Results Ekwǫ̀ Nàxoèhdee Kè (Boots on the Ground)).

From time immemorial, the barrenland was populated with Inuit and Dene families. Several Inuit families lived and hunted along Contwoyto Lake as well as the large lakes further south to the treeline. From the treeline and north, Dene families lived and hunted as far north as Contwoyto Lake, and some harvested further north towards the Arctic coast. On numerous occasions, Inuit and Dene families met on the barrenlands. The Tłı̨chǫ families travelled by canoe and canvas boat to the barrenlands in the fall to hunt caribou. They camped in certain locations with a secure wood supply, such as Ts’iedaa on Ewaánit’ílí (Courageous Lake). While the women and children remained in camp, the trappers ran their dog teams along the shoreline of the large lakes further north towards Contwoyto Lake (Kǫ̀k’ętì). These harvesters hunted caribou and trapped wolves, white fox and wolverine throughout the winter months. When spring arrived with warmer temperatures and sunlight, the Tłı̨chǫ trappers and their families returned south while the ice was still strong enough to hold the dog teams (2018 Results Ekwǫ̀ Nàxoèhdee Kè (Boots on the Ground)).

Times have changed from when Tłı̨chǫ families used to travel on the barrenlands to hunt Ekwǫ̀. Ekwǫ̀ are not as plentiful as they used to be back then. Ekwǫ̀ being a staple to the Tłı̨chǫ diet and a key species that connects them to their cultural way of life, the Tłı̨chǫ have taken it amongst themselves to be stewards of their lands by managing and monitoring the resources within their lands. The Ekwǫ̀ Nàxoèhdee Kè (Boots on the Ground) program (initiated in 2016) and the Community-based Diga harvesting program (initiated in winter 2019/2020) are two programs that have been implemented by Tłı̨chǫ Government to help conserve the ekwǫ̀ populations.

Ekwǫ̀ Nàxoède K’è
Ekwǫ̀ Nàxoèhdee Kè (Boots on the Ground) is a Kǫ̀k’ętì ekwǫ̀ (Bathurst caribou) monitoring program based upon the Traditional Knowledge (TK) of Tłı̨chǫ and Inuit indigenous elders and harvesters. The objectives are to monitor the conditions of Kǫ̀k’ętì ekwǫ̀ on the summer range, focusing on four key indicators: (1) habitat; (2) ekwǫ̀ health; (3) predators, and (4) industrial development.

Ekwǫ̀ Nàxoèhdee Kè adopts a biocultural approach to emphasize the Tłı̨chǫ as well as Inuit knowledge of the ecosystem in which they live. Biocultural approaches explore the link between biological and cultural diversity, and their interdependency with one another. Our framework of research is based upon two methodologies developed over the course of the program named “We Watch Everything” and “Do as Hunters Do.” Tłı̨chǫ learned that the
success of the program is dependent on following exactly what local harvesters and elders have always done on the lake: travel similar routes; set camp at the same historical campsites and walk the same trails. The act of monitoring became an act of trying to position oneself at places where one anticipates Ekwǫ̀ will move through. In Tłı̨chǫ, Kǫ̀k’ètì literally means empty campsite lake, and refers to the many old campsites that have been made at the lake over time. These campsites were chosen for a purpose; namely, for protection from wind or proximity to hunting locations. The program used the same sites for the same reasons (2019 Results, Ekwǫ̀ Nàxoèhdee Kè (Boots on the Ground).

Ekwǫ̀ are a keystones species because of their ecological influence as a herbivore on the plant communities and as a key source of food for predators and scavengers including Dìga, Sahcho (Grizzly Bear), Nògha (Wolverine), Ets’imbaa (Arctic Fox) and Det’ǫcho (Eagle). As their primary predator, dìga rely on ekwǫ̀ for food and have a powerful influence on their daily behavior, and seasonal patterns of migration and habitat use. Dìga are often seen denning or travelling near a water crossing, knowing that ekwǫ̀ will, at one point, enter the narrow funnel. There, a kill can be made with less effort than attempting to hunt one down on open ground. Over the past four years, observations of dìga activity on the summer range has increased. Tłı̨chǫ monitoring efforts have increased yearly, which has improved the chances of wildlife encounters. The frequency of dìga observations during summer months has increased greatly throughout the years (table 1).

Table 1. Results from Ekwǫ̀ Nàxoèhdee Kè since the program has been established in 2016.

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Dìga seen</th>
<th>Pups of the year</th>
<th>Active Dens</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2017</td>
<td>19</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>2018</td>
<td>16 *might have been in den</td>
<td>7</td>
<td>2</td>
</tr>
<tr>
<td>2019</td>
<td>31</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Observations have been made of ekwǫ̀ kill sites most likely from dìga, attempted chases on ekwǫ̀ as well as successful attacks by dìga. However, there have not been any chases by nògha or sahcho observed on ekwǫ̀, except for one unsuccessful attempt by det’ǫcho. Nonetheless, there have been many observations of said predator species and they all typically appeared healthy. Another observation noticed over the years, is that monitors have seen more dìga dens and that when pups were observed, they appeared healthy, well-fed and had “lots of muscles”. The dìga observations occurred all around Kǫ̀k’ètì and Kwìidliachǫ, where the teams walked. Concurrent to these observations, many groups of ekwǫ̀ were migrating through these locations.

Results from 2018 and 2019 show a low ekwǫ̀ calf abundance. The monitors stated that a contributing factor to the low calf abundance was the high dìga activity observed around Kǫ̀k’ètì. It was clear to them that the high dìga activity had an impact on the ability of calves to survive their first few months, while they were still unable to outrun the chase of a dìga. According to harvesters, barren-ground ekwǫ̀ herds (Bluenose east, Bathurst and Beverly/Ahiak herds) provide a steady and secure supply of meat for dìga throughout the year, as they remain near to and north of the treeline on the central barrens year-round. Although the herds have declined, there are still thousands of ekwǫ̀ on the land that the dìga can hunt (2019 Results, Ekwǫ̀ Nàxoèhdee Kè (Boots on the Ground).

In recent winters, the barren-ground caribou herds (Bathurst, Bluenose-east and Beverly-Ahiak herds) stayed within, or north of, the treeline on the barrenland for most of the year,
including winter. The presence of the Ekwǫ on the central barrenland throughout summer and winter creates a steady supply of meat for the wolves. The wolves can travel far distances in days, and the ready availability of herds on the barrenland provides caribou meat in relatively close proximity throughout the year. “Wolves hang around caribou all the time. They follow the herds all winter, all the time,” said one elder. Furthermore, during summer, when wolf pups are growing, they prefer to eat the meat from calves. Reflecting on his past observations the elder explained, “for wolf pups, it is good to eat the soft meat from calves.” (2019 Results, Ekwǫ Nàxoèhdee Kè (Boots on the Ground).

Wolf hunting in particular is an important conservation measure for the rapidly declining Bathurst caribou herd. The Ekwǫ Nàxoèhdee Kè program supports the traditional harvesting of predators as well as the Enhanced North Slave Wolf Harvest Incentive program by GNWT-ENR. The incentive is a way to support the traditional economy and generate income through wolf harvesting, which may help offset some of their financial costs. By increasing diga and fur trapping on the herd range, we can help harvesters develop and maintain their knowledge and on-the-land skills.

**Community-Based Diga Harvesting Program**

Through the ongoing decline of the Bathurst and Bluenose East ekwǫ herds, the Tłı̨chǫ Government and Government of the Northwest Territories Department of Environment and Natural Resources have been collaborating with the Wek’eezhii Renewable Resources Board to implement co-management actions to support ekwǫ recovery. A key recommended action from the Ekwǫ Nàxoèhdee Kè program and from the 2019 Wek’eezhii Renewable Resources Board hearing was that the Tłı̨chǫ Government implement a Community-Based Diga Harvest Program.

The Tłı̨chǫ Government initiated its Community-based Diga Harvest Program for the 2019/20 harvest season in three phases:

1) held a community consultation meeting with Tłı̨chǫ harvesters and elders to ensure the program followed and respected Tłı̨chǫ protocols of harvesting diga and planned logistics for the harvesting camps;
2) conducted a training workshop for local Tłı̨chǫ harvesters with an instructor from the Alberta Trappers Association; and
3) established harvester camps to further support training and diga harvesting by Tłı̨chǫ on a rotational basis.

There is a strong spiritual connection between the Tłı̨chǫ people and diga. Archie Wetrade of Gameti, when he gave evidence to the WRRB at its 2019 Public Hearings concerning the Bluenose East Ekwǫ, had this to say on the subject:

I mentioned that we have to really focus in and work with – because this wolf, it’s a spiritual to – to Aboriginal people. We just – they just don’t go out there and start shooting wolf. Wolf and the caribou been among the people from the beginning and it – and they’re still here. Wolf are not in our way of system. We don’t play with – with the wolf. The wolf, they don’t play with us. When they take serious against people, there could be a very bad association into – association into – in that system. Wolf have their own technique to take down animals. But in my lifetime, I have never ever heard wolf attack Aboriginal people at all, never, because they respect us and we – we respect them. But also we have to understand that it’s out training level in the
community, each community, that we just have to work how we’re going to do it for
the safety of the public and the children.iv

Joe Mantla of Behchokǫ also provided information on the connection to diga:
Yes, that – I know that the caribou, I guess, you know, that we’ve heard enough of it
and now for the wolf wise says I – I do harvest some wolf from time to time when I
have to, but somehow you got to be , you know, careful and you have some
technique to do it. And I do have. And then the – at the same time I was taught on
the land with my – my dad. He was a great hunter and a great trapper and then the –
so although there are some spiritual manner that – that has with the wildlife such as
the wolf, that the – that the – some of the people kind of I don’t want to handle the
wolf because of the – some spiritual nature it has. You’ve got to be careful how you
hand their – their carcass and then it that’s including their – their blood. And the – to
date they feel kind of reluctant to – to handle them the way as professional people
would do. I don’t see anything wrong with it if you do it right, because to date, its not
like before, you got rubber gloves and all that. You got disinfectant, you know,
substance that you could always clean your hand with once you’re completed. v

A very important process in implementing the Community-based Diga Harvest Program was
having the meeting with the Tłı̨chǫ elders and harvesters, this meeting occurred in Wekweètì
on December 17. Having this meeting allowed for the program to be run following and
respecting Tłı̨chǫ protocols based on the traditional knowledge gained. Many participants of
the meeting voiced the importance of harvesting wolves for the sake of conserving the ekwǫ
populations as well as for the safety of the communities. There were many concerns about
the increase of diga surrounding all the Tłı̨chǫ communities. Not many Tłı̨chǫ hunters
currently have experience in harvesting diga and so through the meeting it was suggested
that Tłı̨chǫ hold a “trapper training” type of course for the participants of the harvesting
program. There was a clear objective that came out of the meeting, it was important that for
the recovery of ekwǫ and for the Tłı̨chǫ people to continue to live their traditional way of life,
the diga population would have to be managed through increasing harvesting efforts.

The training was done at the beginning of January and was very well received by all
participants. After completion of the training, the harvesting program was initiated. The
program ran from January to March 2020 with little success - only 4 wolves were harvested
through the program. After the program was done, surveys were done to identify ways to
improve the program for future harvesting seasons. Based on those surveys, the main
elements that need improvement were to start preparations for the program much earlier.
Preparations would include starting to get bait ready in the fall, ensure the snares and traps
are ready to be used, start planning the logistics of the program and meet with participants of
the program to start strategizing snaring and trapping techniques so that participants can
effectively and efficiently harvest diga. As was mentioned in the meeting with the elders and
harvesters, diga are very smart, strong and powerful animals, they will know when they are
being hunted and so Tłı̨chǫ need to carefully observe their behaviour and thoroughly
strategize trapping and snaring them. While the objective is to harvest diga, Tłı̨chǫ choose to
do so in the most respectful manner so that diga are not disrespected.

97-8.
164-5.
References

Tłı̨chǫ Agreement. Chapter 1 part 3: Illustrative Maps (p. 17).

9 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 January 1, 2021 until July 1, 2024. Tłı̨chǫ Government and the GNWT suggest that management actions be reviewed annually or whenever key additional information becomes available.

10 Other Relevant Information

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

Attachments:
Engagement Log
Summary of Caribou Population Modelling of Varying Wolf Removal Levels on the Bathurst and Bluenose-East Herds
Plain Language Summary - 2020 Wolf Management Pilot Project

11 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.

Jody Pellissey
Executive Director
Wek’èezhii Renewable Resources Board
102A, 4504 – 49 Avenue
Yellowknife, NT. X1A 1A7
Phone: (867) 873-5740
Fax: (867) 873-5743
Email: jpellissey@wrrb.ca
Wolf Management Engagement Log:

**October 29, 2015**
Planning and Consultation meeting – conducted with elders and interested dı̀ga harvesters from all Tłı̨chǫ communities

**November 23 – 24, 2016**
Tłı̨chǫ Government conducted training of Tłı̨chǫ harvesters from all Tłı̨chǫ communities in collaboration with Greg Robertson taxidermy

**March 8, 2018**
Tłı̨chǫ Government conducted dı̀ga planning and consultation meeting with elders and interested dı̀ga harvesters from all Tłı̨chǫ communities to implement training activities and a harvesting program.

**August 28 – 30, 2018**
Francois Lake Gathering where dı̀ga (wolf) harvest incentives were discussed with Indigenous leaders, elders and youth in North Slave Region.

**January 21 – 23, 2019**
Tłı̨chǫ Government and Government of Northwest Territories Department of Environment and Natural Resources – Community tour – Behchokǫ̀, Whatì̀, Gamètì and Wekweètì̀

**January 24, 2019**
Government of Northwest Territories Department of Environment and Natural Resources – Meeting with Yellowknives Dene First Nation

**January 29, 2019**
Government of Northwest Territories Department of Environment and Natural Resources – Meeting with Northwest Territory Métis Nation

**January 30, 2019**
Government of Northwest Territories Department of Environment and Natural Resources – Meeting with Sahtú Renewable Resources Board and Tulít'a Renewable Resource Council

**February 6, 2019**
Government of Northwest Territories Department of Environment and Natural Resources – Meeting with Łutsel K’e Dene First Nation

**February 18, 2019**
Government of Northwest Territories Department of Environment and Natural Resources – Meeting with North Slave Métis Alliance
February 20, 2019
Government of Northwest Territories Department of Environment and Natural Resources – Meeting with Kugluktuk Hunters and Trappers Organization

December 17, 2019
Tłı̨chǫ Government Planning and Consultation meeting in Wekweëtì with elders and interested dı̀ga harvesters from all Tłı̨chǫ communities

January 9 – 13, 2020
Tłı̨chǫ Government - Dı̀ga Harvesters Training Workshop in Wekweëtì in collaboration with Alberta Trappers Association

January 30 – February 11, 2020
Tłı̨chǫ Government – Dı̀ga Harvest Program; Harvest Rotation one

February 3, 2020
Tłı̨chǫ Government – Department of Culture and Lands Protection (DCLP) conducted a community tour in Wekweëtì to update on DCLP matters which include dı̀ga harvesting program

February 5, 2020
Tłı̨chǫ Government – DCLUP conducted a community tour in Gamètì to update on DCLP matters which include dı̀ga harvesting program

February 11 – 25, 2020
Tłı̨chǫ Government – Dı̀ga Harvest Program; Harvest Rotation two

February 22, 2020
Government of the Northwest Territories – Government of Nunavut Barren-Ground Caribou Research & Management Meeting with Indigenous government leaders

February 25, 2020
Tłı̨chǫ Government – DCLP conducted a community tour in Whatì to update on DCLP matters which include dı̀ga harvesting program

February 25 – March 6, 2020
Tłı̨chǫ Government – Dı̀ga Harvest Program; Harvest Rotation three

July 22, 2020
August 25, 2020
In 2019, the Government of the Northwest Territories (GNWT) and Tłı̨chǫ Government initiated a joint pilot program for wolf management (dìga) in the North Slave region to help address significant declines in the Bathurst and Bluenose-East caribou (ekwò) herds.

Reducing wolf predation, together with ongoing caribou harvest restrictions and other management actions, can help increase caribou survival and give these herds a better chance to recover.

**Our approach**

**Enhanced support for wolf (dìga) harvesters and the traditional economy**

**Actions taken in 2019-20:**

- Increased payments under the Enhanced North Slave Wolf Harvest Incentive Program
- Workshops on best practices for wolf harvesting and pelt preparation
- New incentives for Nunavut hunters harvesting in their traditional area in the NWT
- No fees for wolf tags

In 2019-20, NWT and Nunavut harvesters received approximately $58,400 under the Enhanced North Slave Wolf Harvest Incentive Program.

**How can reducing wolf (dìga) populations help caribou?**

Wolf (dìga) management is one of many actions being taken by the GNWT, Tłı̨chǫ Government, and our co-management partners to help support our declining caribou herds.

Wolves are the main predator of barren-ground caribou. Reducing wolf predation, together with ongoing caribou harvest restrictions and other management actions, can help increase caribou survival rates and support population recovery.

**Learn and adapt**

To give caribou the best chance at recovery, we are prepared to adapt our approach using the latest scientific, local and traditional knowledge.

The GNWT and Tłı̨chǫ Government will conduct a full program review every year to assess the effectiveness of wolf management actions and determine, with the Wek’eezhii Renewable Resources Board (WRRB), whether wolf reductions should continue and/or if changes should be made.
Wolf (dìga) reduction

In addition to ground-based wolf (dìga) harvesting, some aerial removals were required in 2019-20 because the number of wolves harvested by hunters was less than removal targets.

Aerial removals were carried out:
- **Safely**, away from winter road traffic and communities, by a crew that specializes in aerial removals following approved health and safety measures
- **Respectfully**, by handling carcasses carefully and avoiding removal near communities

Monitoring, research and assessment

Learning more about wolf (dìga) movements, their diet and how they interact with caribou will help us understand the impact our actions are having on wolves and caribou recovery.

Actions taken in 2019-20:
- Wolf carcasses were examined to learn about diet, health and sex-age composition
- Wolf harvester questionnaires provided information about numbers and locations of wolves
- 11 collars were deployed on wolves in the North Slave Region
- New caribou collars were deployed to increase total number to 70 for each of the Bathurst and Bluenose-East herds

Successes and lessons learned

- **COVID-19.** The 2020 pilot program was hampered significantly by the COVID-19 pandemic, which delayed the start of the aerial program and required crews to be based out of Yellowknife. This resulted in more travel time, less time spent on removals, and increased costs. Wolf assessments (diet, condition and welfare) were also delayed.

- **Removal rates.** The number of wolves removed from the Bathurst caribou winter range met the removal target to help support herd recovery. Removal levels from the Bluenose-East caribou range were lower, but should still have a meaningful impact on predation.

- **Harvester support.** Analysis of hunter questionnaires indicates that some harvesters would like further training and support to access wolves away from major travel corridors and to document harvest efforts.

Next steps

The Wek'éezhì Renewable Resources Board (WRRB) will review the joint proposal submitted by the GNWT and Tłı̨chǫ Government and provide recommendations.