



October 22, 2020

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

Dear Mr. Judas:

Information Request Round #2 - 2021-2024 Wolf (Diga) Revised Joint Management Proposal

As per the request in your letter of October 15, 2020, the Tłıchǫ Government and the Department of Environment and Natural Resources, Government of the Northwest Territories submit to the Wek'èezhì Renewable Resources Board responses to the Round #2 Information Requests.

If you have any questions, please do not hesitate to contact either of the undersigned.

Sincerely,

Ms. Tammy Steinwand-
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Tłıchǫ Government
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Ms. Karin Clark,
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Attachment

c. Ms. Shaleen Woodward
Principal Secretary

Ms. Erin Kelly
Deputy Minister
Environment and Natural Resources

Mr. Brett Elkin
A/Assistant Deputy Minister, Operations
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Mr. Bruno Croft
Superintendent, North Slave Region
Environment and Natural Resources

Grand Chief George Mackenzie
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Joint Wolf Dìga Management Proposal

Information Requests Round No. 2

Information Request #1:

Please define the recovery objectives for the Bluenose-East and Bathurst herds in the wolf management program and please describe how continued wolf removal will contribute to those objectives. Please specify whether those objectives are a rate (of survival or wolf removal) or a target herd size in a particular timeframe.

Submitted by: Wek'èezhì Renewable Resources Board

Parties Responsible: Government of the Northwest Territories and Tłıchq Government

Response:

The goal of the proposed wolf management program is to sufficiently reduce wolf (dìga) predation on the Bathurst and Bluenose-East herds to allow for an increase in calf and adult caribou (ekwò) survival rates to contribute to the stabilization and recovery of both herds.

Objectives are specified as:

1. Increase annual ground-based harvest of wolves (ekwò) on the winter range of the Bathurst and Bluenose-East caribou (ekwò) 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 targets cannot be reached by harvest alone, on the winter ranges of the Bathurst and Bluenose-East caribou (ekwò) herds to achieve a level necessary to maintain low wolf (dìga) densities and elicit a response in caribou (ekwò) population.

Annual target levels for wolf (dìga) removals have been identified to guide operations and to ensure removal pressure is maintained at a level deemed necessary (removing 60-80% of wolves on the winter range) to elicit a response in caribou (ekwò) survival rates. Analogous numerical target levels for caribou (ekwò) response have not been identified in acknowledgement of the complexity in factors influencing caribou (ekwò) herd dynamics. Rather, indicators of changes in wolf (dìga) abundance in combination with indicators of caribou (ekwò) response will be interpreted and assessed on an annual basis and following a full program review with co-management partners to build understanding of the possible success and contribution of the wolf (dìga) management program to caribou (ekwò) populations.

The relevant indicators that will be assessed will derive from two empirical approaches: Wolf (dìga)-centered metrics and Caribou (ekwò) centered metrics.

Dìga-centered metrics will include:

- (1) The number of wolves removed annually through the 5-year program. If this number declines significantly over 5 years with no reduction in effort, this will provide some evidence that the wolf (dìga) population on the winter range of the Bathurst and Bluenose-East herds has decreased. Conversely, if the number of wolves removed does not change with consistent effort, this would suggest that the wolf (dìga) removals were done at a sustainable harvest levels, and wolves removed were replaced relatively quickly.
- (2) A number of metrics of catch-per-unit-effort (CPUE) for wolf (dìga) removals. This includes hours flown per wolf (dìga) removed and effort by ground-based hunters (distance or time) per wolf (dìga) removed. If these metrics show that there is an increasingly greater effort needed to find wolves, either through a harvest season or over the 5-year period, this would provide evidence that wolf (dìga) numbers have decreased. Conversely, if CPUE shows no clear trend within a season or over 5 years, it would suggest that the wolf (dìga) removals were a sustainable harvest and wolves removed were replaced relatively quickly.
- (3) Age structure of wolves harvested. Modeling and empirical evidence (See Kelsall 1968 summary on wolf (dìga) poisoning program in 1950s and 1960s) show that a heavily harvested wolf (dìga) population should shift from an age structure of mostly adults to mostly young wolves. If the age composition of harvested wolves shifts in this way from primarily adults to primarily young wolves, this would indicate a decrease in the wolf (dìga) population, while the absence of such a trend would indicate that the removal rates have not caused a significant reduction in the wolf (dìga) population has not been sufficiently depleted.

Caribou (ekwò)-centric metrics will include the following.

- (1) Based on experience from a number of barren-ground caribou populations, we have an idea of the levels of cow and calf survival needed for a stable or increasing caribou population trend. Multiple factors play a role in influencing these vital rates, so caribou (ekwò)-centered metrics may not provide unambiguous evidence that wolf (dìga) removals specifically are effective. However, sustained high levels of cow and calf survival may provide indirect evidence that wolf (dìga) removals are effective.
 - a. Annual collar and model-based estimates of cow survival rates. Multiple studies have shown that caribou (ekwò) cow survival needs to be between about 84 and 87% (or higher) for a population to be stable. Survival rates exceeding 90% may be associated with an increasing trend, depending on levels of calf recruitment. The Department of Environment and Natural Resources (ENR) will monitor annual cow survival rates based on collars and an integrated population model.
 - b. Annual estimates of calf survival based on calf-cow ratios from surveys and modeling. Where feasible, initial calf productivity at calving (% of breeding females on calving grounds), calf:cow ratios in the fall (October) and calf-cow ratios in late winter (March) will be estimated in the field annually. These can be used to provide an annual estimate of calf survival. Sustained fall and late-winter

calf:cow ratios over 40% should be associated with a stable or increasing herd. A sustained combination of cow survival over 90% and calf-cow ratios of 40-45% should be associated with an increasing trend.

- (2) Population surveys every 2 years. Calving photo surveys have been the method of estimating the number of breeding females and overall herd size for the Bathurst herd since the 1980s and for the Bluenose-East herd since 2010. These benchmarks have been key to management decision-making. In consideration of all factors that influence herd size and trend, a stable or increasing caribou (ekwò) herd trend may provide indirect evidence that wolf (dìga) removals are effective, while further declines could suggest that wolf (dìga) removals are ineffective.

Given the complexity and uncertainty regarding the relative contribution of key factors influencing barren-ground caribou (ekwò) populations, attributing the relative contribution of wolf (dìga) reduction to observed changes in caribou (ekwò) productivity and/or population trends will be challenging. Other factors such as environmental conditions, biting insect severity, disease, anthropogenic disturbance and caribou (ekwò) harvesting may also be affecting caribou (ekwò) productivity and/or survival rates. As a result, using modeling approaches to explore caribou (ekwò) population response in relation to covariates for wolf (dìga) removal, and environmental indices will be important for overall analyses and assessment of how the wolf (dìga) management program has contributed to meeting recovery objectives. Such modelling, while being initiated in the early stages of the program, will be fully engaged during program evaluation following the full five-year implementation cycle.

Information Request #2:

Please provide a rationale as to why wolf removal on the summer ranges was not considered given the potential to reduce uncertainties, and increase efficiency, and effectiveness of the overall removal proposal.

Submitted by: Wek'èezhì Renewable Resources Board

Parties Responsible: Government of the Northwest Territories and Tłıchq Government

Response:

Actions proposed in the joint Wolf (Dìga) Management Proposal included a range of actions within the Northwest Territories where the Government of the Northwest Territories (GNWT) and Tłıchq Government have management authority. Given that the majority of the summer ranges of the Bathurst and Bluenose-East herds are located in Nunavut, wolf (dìga) management actions on the summer caribou ranges were not included in the proposal.

The Wolf Technical Feasibility Assessment: Options for Managing Wolves on the Range of the Bathurst Barren-ground Caribou Herd (WFATWG 2017) ranked options for reducing wolves (dìga) on the range of the Bathurst caribou (ekwò) herd according to criteria of humaneness, efficiency and effectiveness. Based on that ranking, ground shooting at dens was first overall and the three approaches put forward in the Wolf (Dìga) Management Proposal were ranked second (winter ground shooting), third (winter aerial shooting) and fifth (winter snaring). While

ground shooting of wolves (dìga) at dens was ranked first overall, in terms of the components of that classification it ranked high for effectiveness, somewhat lower for efficiency with respect to cost, and moderately poor for humaneness/welfare.

The rationale for the three approaches proposed is multifold. Foremost is the intent to support ground harvest and participation in the traditional economy through hunting, trapping and snaring during the wolf (dìga) harvesting season. The review of wolf (dìga) management programs in NWT, Alaska, Yukon, British Columbia and Alberta states, “Although seen as an effective reduction method, aerial wolf (dìga) control disregards local participation in management and local use of resources” (McLaren 2016, p. 6). Emphasizing winter ground harvesting maximizes opportunities for northern harvesters to benefit from enhanced financial incentives to support the traditional economy.

Proposing wolf (dìga) removals during the winter also focuses activities on the time of year when pelts are in the best condition and most likely to receive the best prices for harvesters. Wolves (dìga) shot at summer den sites would not have hides with prime fur and therefore would be unmarketable. Proposing winter aerial removals to supplement ground harvest efforts, when needed to reach target removal levels, further allows those hides to be utilized and submitted to auction. It is worth noting that during the 2020 Pilot Program all wolf (dìga) carcasses from the aerial removal efforts were retrieved, skinned by Indigenous harvesters and used in the traditional economy. In this way financial benefits of ground and aerial wolf (dìga) removals flows to harvesters as much as possible. In addition, harvesters benefit by gaining skills and knowledge through training workshops provided annually by GNWT and Tłı̨chǫ Government.

Shooting wolves (dìga) at summer den sites was also not considered a viable alternative due to the incomplete inventory of den site locations, particularly on the range of the Bluenose-East. There is an inventory of active wolf (dìga) dens on the Bathurst caribou summer range from 1996 to 2013 but this dataset is becoming dated and recent declines in wolf (dìga) abundance have resulted in fewer of these sites being occupied, thus increasing search times. There are few documented wolf (dìga) den sites on the Bluenose-East range. The few documented wolf (dìga) dens for the Bluenose-East herd have primarily been documented during caribou calving ground surveys. Many of these known wolf (dìga) dens are located on the caribou summer range in Nunavut and therefore not under the GNWT’s jurisdiction.

The Wolf (Dìga) Management Proposal focuses on winter ground harvesting supplemented by aerial removals as needed, such that opportunities are maximized for northern harvesters to benefit from enhanced financial incentives and participation in the traditional economy.

Information Request #3:

At what point (benchmarks) would the aerial removal program stop operations due to changing biological indicators in either wolves or caribou?

Submitted by: Wek’èezhìi Renewable Resources Board

Parties Responsible: Government of the Northwest Territories and Tłıchǫ Government

Response:

The Wolf (Dìga) Management Program is proposed as a five-year initiative comprised of multiple approaches to reduce wolf (dìga) predation on Bathurst and Bluenose-East caribou (ekwò). Wolf (dìga) and caribou (ekwò)-centred indicators (described in response to IR#1) will be monitored and assessed each year to identify challenges, areas for improvement and to adapt procedures to any new information and understandings. Following completion of the five-year implementation phase, Tłıchǫ Government and the GNWT will conduct a comprehensive analysis of information collected, as well as a full program review with the Wek'èezhì Renewable Resources Board (WRRB) and other Indigenous governments and organizations to:

- Assess the effectiveness of wolf (dìga) reduction actions in achieving program goals and objectives;
- Determine whether wolf (dìga) reductions should continue based on the effectiveness of the Wolf (Dìga) Management Program; and
- Implement improvements to the overall program, as required.

As stated in response to IR#1, annual target levels for wolf (dìga) removals have been identified to guide operations and to ensure removal pressure is maintained at a level deemed necessary (removing 60-80% of wolves on the winter range) to elicit a response in caribou (ekwò) survival rates. Analogous numerical target levels for caribou (ekwò) response have not been identified in acknowledgement of the complexity in factors influencing caribou (ekwò) herd dynamics. Rather, indicators of changes in wolf (dìga) abundance in combination with indicators of caribou (ekwò) response will be interpreted and assessed on an annual basis and following a full program review with co-management partners to build understanding of the possible success and contribution of the wolf (dìga) management program to caribou (ekwò) population change.

As the key indicators being used to assess the effectiveness of the program are influenced by multiple factors that are difficult to tease apart, the proposal aims to sustain reduction efforts on an annual basis followed by a full program review and evaluation at the end of the five years. The reasons for this approach are two-fold. First, the wolf (dìga)-centred indicators could be confounded by changing wolf (dìga) densities from overlapping winter distributions of two or more caribou (ekwò) herds. Analyzing and interpreting such changes in wolf (dìga) density in relation to caribou (ekwò) herd overlap will take time and likely more than one or two data points (i.e. several years of data). Second, attributing the relative contribution of wolf (dìga) reduction to observed changes in caribou (ekwò) productivity and/or population trends is complicated by the many factors influencing barren-ground caribou (ekwò) populations such as environmental conditions, biting insect severity, disease, anthropogenic disturbance and caribou (ekwò) harvesting.

Consequently, interpreting and drawing conclusions from these indicators is more appropriately done at the end of the five-year program after detailed analysis of all available

information. The use of caribou (ekwò) population models will be essential to the task of teasing out the relative contribution of multiple factors affecting caribou (ekwò) population response including the effect of predator management. Such modelling, while being initiated in the early stages of the program, will be fully engaged during program evaluation following the full five-year implementation cycle.

Information Request #4:

- a) Please expand on the discussion that occurred at the community meetings in Wekweètì, Gamètì, and Whatì on February 3, 2020; February 5, 2020; and February 25, 2020, respectively.
- b) Was a similar discussion had with the community in Behchokò? If not, then why?

Submitted by: Wek'èezhì Renewable Resources Board

Parties Responsible: Tłıchq Government

Response:

The Dìga Harvest Program organized by the Tłıchq Government was presented to the communities during the meetings on Feb 3, 5 and 25th. However, the meeting in Behchokò ended up being ultimately cancelled due to very low attendance relating to a death in the community. Soon after, an NWT wide emergency was declared to respond to the COVID-19 pandemic and there was no further community meeting in Behchokò. Notes were taken from meetings that were held and a summary will be provided by October 30, 2020.

Information Request #7:

Do the Elders feel that taking 80% of the wolves by hunting from airplane and on the ground could bring the caribou back?

Submitted by: Łutsel K'e Dene First Nation

Parties Responsible: Tłıchq Government

Response:

Tłıchq Elders who are experienced harvesters discussed aerial shooting of dìga and other hunting methods with Tłıchq Government staff and were in agreement that the wolf management proposal would be beneficial for the recovery of ək̀wò. They suggested that many dìga will need to be removed to help the ək̀wò recover.

Information Request #8:

During the TK Session on wolf management Elders were asked about balance and right relationship with wolves, caribou, and people. We heard from John Zoe and others that the balance has been disrupted a long time ago, with so many changes that have happened to how people live, hunt, and use the seasons. According to Tłıchq Knowledge, in what ways (good or bad) might the removal of wolves have an effect on the "interdependent relationships of all beings"? (Tłıchq Research and Training Institute, p.20)

Submitted by: Łutsel K'e Dene First Nation

Parties Responsible: Tłıchq Government

Response:

During the WRRB Traditional Knowledge (TK) Technical Session of the 2020 Wolf Management Proceeding, WRRB TK advisor Aalice Legat asked the Elders, along with Tłıchq Government advisor John B. Zoe, to discuss the concept of the “interdependent relationships of all beings”. This deep concept connects people, animals, and the land, and for Tłıchq, the concept underpins their language, culture, and way of life. As a result, this concept was challenging to fully describe and discuss as part of a 1-day “Zoom” video call; it would take a series of meetings to meaningfully discuss and fully develop shared understandings on the subject with Elders.

As noted at the TK session, it is challenging to come to a traditional knowledge answer on such a complex subject in a single meeting and our Elders did their best to discuss it in the time available. The Tłıchq Elders at the TK session thought there should be a TK research project over several years to fully understand the complexity of the current situation. It would take a lot of discussion and observations to grapple with the situation of how to maintain a balance between all animals given the current scenario.

At the same time, Tłıchq community members and Elders recognize the serious implications of the rapid and ongoing decline of ɤekwò, and have given the Tłıchq Government direction that strong actions are needed to try and help the caribou herds recover. Tłıchq Elders have indicated that reducing diga is an important way to try and help ɤekwò now. In other words, we can't wait – ɤekwò are still declining while we talk and meet – we know the numbers are going down, we have recommended and supported a complete harvest closure for Kqk'èeti ɤekwò and total allowable harvest of 750 Sahtì ɤekwò in Wek'èezhìi respectively, and we must do something more.

Information Request #9:

Were similar concepts of Tłıchq, Dene, and Chipewyan cosmology compared with the concepts of humanness and welfare as they have been used to inform the Wolf Management Plan for 2021-2024? What other concepts and values relating to the non-utilitarian killing of animals exist from Tłıchq, Dene, and Chipewyan cosmology? In other words, where is the traditional knowledge related to ethics on the non-utilitarian killing of animals to assess the feasibility of the proposed project?

Submitted by: Łutsel K'e Dene First Nation

Parties Responsible: Government of the Northwest Territories

Response:

The Wolf (diga) Management Proposal is a joint proposal developed collaboratively by GNWT and Tłıchq Government and as such reflects the traditional knowledge, values, priorities and management goals and objectives of the Tłıchq people as represented by their government.

Because of the special relationship between wolves (dìga) and Tłıchq̓ people, certain practices are followed when harvesting and handling wolves (dìga). For example, Tłıchq̓ harvesters traditionally seek permission from their families to participate in hunting and snaring wolves (dìga), as in the past, decisions were made on which families would participate in wolf (dìga) harvest activities. In addition, after they are trapped, wolves (dìga) are carefully and respectfully handled to prevent wolf (dìga) blood from entering the communities.

Values and knowledge of other Indigenous peoples were considered through engagement and consultations with Indigenous governments and organizations, leadership and members of the public. The engagement log submitted with the proposal outlines the extensive meetings and discussions that have been held from 2015 onward on the topics of caribou (ekwò) management and the contribution of wolf (dìga) management to meeting caribou (ekwò) recovery objectives. In addition, several public hearings and proceedings on Bathurst and Bluenose-East caribou (ekwò) management have taken place over the last decade (2010, 2016 and 2019) where Indigenous views and perspectives have been expressed and reflected in decisions and recommendations (available on the Sahtú Renewable Resources Board (SRRB) and WRRB public registries). Further, the 2007 Caribou Summit¹, 2013 Bathurst Caribou Gathering² and the 2015 Sahtú Caribou Gathering (Déljıneq̓)³ have all provided viewpoints and of Indigenous governments, communities and organizations for consideration by government and co-management partners in deciding on actions to support wolf (dìga) harvest and broader wolf (dìga) management actions.

The GNWT as a matter of practice solicits input from Indigenous governments and supports Indigenous governments to document Indigenous Knowledge, through collaborative planning processes (e.g. Bathurst Caribou Advisory Committee, Bathurst Caribou Range Plan, Boreal Caribou Range planning) as it develops wildlife management plans, programs and activities. Consistently throughout these processes, GNWT has heard concern from community members that wolves are continuing to put pressure on barren-ground caribou (ekwò) populations, and that actions to reduce wolf (dìga) numbers and wolf (dìga) predation on caribou (ekwò) is desired. The GNWT most recently requested input and feedback on the wolf (dìga) management proposal as it was under development on July 22, 2020.

The Wolf Technical Feasibility Assessment: Options for Managing Wolves on the Range of the Bathurst Barren-ground Caribou Herd (WFATWG2017), led by the WRRB with participation from GNWT, Łutsel K'e Dene First Nation, North Slave Métis Alliance, Tłıchq̓ Government and Yellowknives Dene First Nation, collaboratively assessed and ranked options for wolf (dìga) management on the range of the Bathurst caribou (ekwò). The assessment considered measures of humaneness, efficiency and effectiveness based on the traditional and scientific

¹ <file:///C:/Users/enruser/Downloads/Caribou%20Summit%20Report%202007.pdf>

² [file:///C:/Users/enruser/Downloads/Bathurst%20Gathering%20Report%20\(1\).pdf](file:///C:/Users/enruser/Downloads/Bathurst%20Gathering%20Report%20(1).pdf)

³

<file:///C:/Users/enruser/Downloads/D%C3%A9l%20jıneq%20for%20the%20Caribou%20Themes%202015.pdf>

knowledge brought forward by Working Group members (as directed in the Working Group Terms of Reference appended to the document). The management approaches of winter snaring and ground shooting supported by winter aerial shooting when needed put forward in the Wolf (Dìga) Management Proposal, allow for the greatest involvement and benefit to harvesters through their participation in the traditional economy. A winter program was specifically chosen and designed to ensure harvested wolf (dìga) hides were in the best condition possible and to provide the greatest opportunity for Indigenous harvesters to receive training, participate in harvesting activities and receive financial benefit from enhanced wolf (dìga) harvest incentives. Ground-based winter snaring and shooting allows direct participation in harvesting activities including skinning and utilization of hides. A commitment to retrieve and process as many of the wolf (dìga) hides resulting from aerial removals as possible is also made such that benefit flow to Indigenous harvesters. Thus all aspects of the proposed Wolf (dìga) Management Program are specifically framed around the utilization of hides by Indigenous harvesters.

Information Request #10:

What is the theory behind the practice of wolf removal as a support in caribou recovery? Does the proposed wolf cull stem from social concerns, or conventional wildlife practices in the normal course of ENR's caribou management? What forms of social support has the proposed wolf cull already achieved?

Submitted by: Łutsel K'e Dene First Nation

Parties Responsible: Government of the Northwest Territories and Tłıchq Government

Response:

Since 2010, the WRRB has recommended that GNWT and Tłıchq Government provide training and incentives in support of wolf (dìga) harvest on the ranges of the Bathurst and Bluenose-East caribou (ekwò) herds and to give broader consideration to wolf (dìga) management actions to reduce predation on the those caribou (ekwò) herds. In follow up to Recommendation #5-2016 (Reasons For Decision - Bathurst Caribou Proceeding), the WRRB led a process to develop the Wolf Technical Feasibility Assessment: Options for Managing Wolves on the Range of the Bathurst Barren-ground Caribou Herd in which representatives from GNWT, Łutsel K'e Dene First Nation, North Slave Métis Alliance, Tłıchq Government and Yellowknives Dene First Nation participated. Transcripts from the 2010, 2016 and 2019 Public Hearings on Bathurst and Bluenose-East caribou (ekwò) herd management proposals (available on the SRRB and WRRB Public Registry) document comments from Tłıchq and Sahtú elders, SRRB and WRRB members, other hearing participants and members of the public concerning the desire to implement and considerations for implementing wolf (dìga) management programs in support of barren-ground caribou (ekwò) herd recovery. The current Wolf (Dìga) Management Proposal and 2020 Wolf (Dìga) Management Pilot Program were in response to those earlier requests and more specifically to the WRRB letter of February 6, 2019 directing predator management recommendations to GNWT and Tłıchq Government.

Wolf (dìga) harvest incentives were first put in place in the North Slave Region to encourage increased harvest of wolves (dìga) to facilitate recovery of caribou (ekwò). Based on the experiences of that program and changes in population size of the two caribou herds, the program was adjusted in 2020 to focus and support enhanced efforts on the winter range of the Bathurst and Bluenose-East caribou herds. Under the Enhanced North Slave Wolf Harvest Incentive Program, the incentive has been increased to \$1,200/wolf with an additional \$400 advance for the pelt and \$350 prime fur bonus for those of taxidermy quality. In addition, the fee for wolf (dìga) tags was removed. These increases in harvest incentives are in response to input from harvesters on the challenges and cost of harvesting wolves in remote areas.

Consistently over the past decade the GNWT has heard the concern people have over the decline of the Bathurst and Bluenose-East caribou (ekwò) herds and the hardships they are experiencing (2007 Caribou Summit, 2013 Bathurst Caribou Gathering, 2015 Sahtú Gathering for Caribou (Déljine), Francois Lake Gathering, Bathurst Caribou Advisory Committee meetings, Bathurst Caribou Range Plan working group meetings, Advisory Committee for Cooperation on Wildlife Management (ACCWM) annual meetings⁴). The current population estimates for the Bathurst and Bluenose-East herds are the lowest estimates on record from survey results going back to the 1980s. After successive reductions in harvest since 2010, the WRRB set a total allowable harvest (TAH) of zero for all users of the Bathurst herd within Wek'èezhì in 2016 which will continue until at least the end of 2021. In 2019, the WRRB determined that the TAH for Bluenose-East would be reduced to 193 bulls. The Nunavut Wildlife Management Board is currently considering a proposal from the Government of Nunavut to reduce harvest of Bathurst caribou (ekwò) in the Kitikmeot region to zero from 30, and has reduced the TAH for Bluenose-East to 170, from 340 with a maximum ratio of 1 cow per bull harvested. With severe harvest restrictions in place, range management being implemented through the Bathurst Caribou Range Plan and continuing decline in both herds, a wolf (dìga) management program was piloted in 2020 and proposed for continuation by the GNWT and Tłı̄chq̄ Government.

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

⁴ <https://accwm.com/>

Information Request #11:

What is the total projected cost of the proposal?

Submitted by: Łutsel K'e Dene First Nation

Parties Responsible: Government of the Northwest Territories

Response:

Wolf (dìga) management is one of a range of actions being undertaken by the Government of the Northwest Territories and its co-management partners to support conservation and recovery of the Bathurst and Bluenose-East barren-ground caribou (ekwò) herds.

The GNWT and Tłıchq̓ Government's approach to wolf (dìga) management focuses on reducing the wolves on the Bathurst and Bluenose-East caribou (ekwò) winter ranges through enhanced support for harvesters and the traditional economy. This includes increased incentives under the Enhanced North Slave Wolf Harvest Incentive Program, with harvesters now able to receive up to \$1,950 per wolf (dìga) depending on the quality and preparation of the pelt. Training workshops are held on harvesting and pelt preparation techniques, and information is collected by harvesters. The overall cost of the Enhanced Wolf Harvest Incentive program each year will depend on the final number of wolves harvested and furs submitted in a given season.

Aerial wolf (dìga) removal is intended to augment the number of wolves taken by harvesters only if ground based harvesting in a given year does not reach the targets set to support caribou (ekwò) recovery. In years when aerial removals are undertaken further costs will be incurred in addition to those supporting ground harvest and research and monitoring aspects of the program.

Approximately \$500,000 has been budgeted annually for all wolf (dìga) management related activities for that year, and we expect the final costs for the 2020 Wolf (Dìga) Management Pilot Program to be within this range. A significant portion of the pilot program costs supported aerial surveillance and removal (as ground harvest had not met target removal levels for each caribou herd) and were likely higher than would be typical as a result of COVID19 related constraints in positioning aircraft and securing aircraft and survey crews.

Information Request #12:

Has a cost benefit analysis from a social and cultural standpoint been performed on the proposal or its alternatives?

Submitted by: Łutsel K'e Dene First Nation

Parties Responsible: Government of the Northwest Territories

Response:

As demonstrated in the extensive engagement log, the public record on previous caribou (ekwò) management hearings and proceedings, and the other forums where concerns over caribou (ekwò) and the role of predation have been expressed, the GNWT and Tłıchq̓

Government are responding to an over decades long expression of concern and direction to take action.

The WRRB characterized the issue in its letter of February 6, 2019 stating in part:

The situation for both of these herds is dire. Analysis of the joint management proposals by the Board and its advisors indicates an immediate need for action to reduce predation on the herds. During its 2016 public hearings and most recently in the TG-ENR Ekwò (barren-ground caribou) consultation tours, conducted on January 21-23, 2019, the WRRB has heard from the community members that dïga are continuing to put pressure on ekwò populations. Community members would like to see action taken now. The Board agrees.

The Wolf (Dïga) Management Proposal was submitted in fulfillment of the WRRB recommendation provided in the February letter which states:

Recommendation #3-2019 (Predator): The WRRB recommends that dïga management be undertaken in Wek'èezhìi. TG and ENR should review the "Wolf Technical Feasibility Assessment: Options for Managing Wolves on the Range of the Bathurst Barren-ground Caribou Herd" submitted in November 2017 to determine the most effective, humane and cost-efficient methods that would have the least impact and disturbance on the ekwò herds themselves.

Considering the above, the Wolf (Dïga) Management Proposal was designed by GNWT and Tłıchq Government to:

- address the concerns of Indigenous governments, communities and residents of the NWT regarding the state of the Bathurst and Bluenose-East caribou herds;
- meet the requirements of the WRRB recommendations in its letter of February 6, 2019;
- support harvesters to participate in the traditional economy;
- ensure the timing of harvest and aerial removals such that the hides of wolves (dïga) are in the best condition for use in the traditional economy; and,
- ensure the humane treatment of harvested wolves (dïga) and the humaneness of aerial removals through training and oversight.

GNWT and Tłıchq Government have secured appropriate resources for the successful implementation of the five-year program. Both organizations were able to successfully implement the 2020 Wolf (Dïga) Management Pilot Program. Target removal levels were met for the Bathurst herd and nearly met for the Bluenose-East herd (45% rather than the target of

60-80%), despite the challenges of COVID19 restrictions influencing the location of aircraft bases, having wolf (dìga) survey experts unable to enter the territory, and limiting the availability of survey crew members,.

Information Request #13:

In the broader context of caribou management, how are cumulative impacts (e.g., including human activity) being considered? How are these being incorporated into the proposed Project?

Submitted by: Łutsel K'e Dene First Nation

Parties Responsible: Government of the Northwest Territories

Response:

The Wolf (Dìga) Management Proposal complements other actions being taken to support recovery of the Bathurst and Bluenose-East caribou (ekwò) herds. An overall management plan is under development for the Bathurst caribou (ekwò) herd by the Bathurst Caribou Advisory Committee (BCAC) comprised of Indigenous governments and organizations from across the herd's range (including Łutsel K'e Dene First Nation). The BCAC will guide overall monitoring and management of the herd, including management of harvest, predators, land use, habitat, and education. Implementation is envisioned to include an annual meeting to review new information from scientific and Traditional Knowledge sources and consider recommendations on management.

With respect to cumulative impacts, a range plan was developed for the Bathurst caribou (ekwò) herd through a collaborative process that included twenty-one Indigenous government and other organizations from across the herd's range. The Range Plan included an assessment of current and future scenarios for mines, roads and other developments across the herd's annual range and includes recommendations to safeguard calving grounds, water crossings and the overall integrity of the herd's seasonal and annual ranges⁵. The Bathurst Caribou Range Plan was finalized and accepted for implementation by GNWT in 2019.

Management of the Bluenose-East caribou (ekwò) herd is guided by a management plan that was developed by the Advisory Committee on Cooperation for Wildlife Management (ACCWM) consisting of the co-management boards in the NWT and Nunavut with authority over the herd and its range. The Taking Care of Caribou plan covers three barren-ground caribou herds: the Bluenose-West, Bluenose-East and Cape Bathurst herds. It was finalized in 2014 following three rounds of community engagement meetings. As with the Bathurst Caribou Management Plan, this management plan includes consideration of harvest, predators, land use, habitat, and education. The ACCWM meets annually to review new monitoring information on the three herds from scientific and Indigenous knowledge sources, assess the status of each herd, and consider recommendations for management. The Bluenose-East herd is currently in the "red"

⁵https://www.enr.gov.nt.ca/sites/enr/files/resources/bathurst_caribou_range_plan_2019_-_plan_pour_laire_de_repartition_des_caribous_de_bathurst_2019.pdf

herd status category as defined by the 2020 Bluenose-East Action Plan ⁶ with predator management as one of several actions deemed appropriate under that status.

With respect to cumulative impacts on the Bluenose-East caribou (ekwò) herd, a collaborative project is under development for a cumulative effects assessment of the Bluenose-West, Bluenose-East, Cape Bathurst and Tuktoyaktuk Peninsula herds. This project is funded by the federal Habitat Stewardship Fund and the NWT Cumulative Impact Monitoring Program and led by GNWT with partners from WRRB, SRRB, Gwich'in Renewable Resources Board (GRRB) and the Wildlife Management Advisory Committee (NWT). The main goal of the project is to respond to the needs of the co-management partners for a decision-support tool to aid in caribou (ekwò) management decision-making for understanding the relative contribution of factors influencing caribou (ekwò) population dynamics and the consequences of alternate management actions.

Information Request #14:

What alternative forms of management are being implemented in addition to wolf culling for population recovery? What evidence is there that wolves contribute to significant caribou mortality rates compared to other causes of mortality?

Submitted by: Łutsel K'e Dene First Nation

Parties Responsible: Government of the Northwest Territories

Response:

The size of barren-ground caribou (ekwò) herds is affected by many factors, including weather in all seasons, climate and vegetation change, pathogens and parasites, predators, and cumulative effects of development. Through implementation of comprehensive management plans like Taking Care of Caribou, the Bathurst Caribou Range Plan, and the draft Bathurst Caribou Management Plan (all developed through collaborative processes), ENR and its partners are attempting to ensure that all factors that affect caribou (ekwò) are considered and that actions are taken to minimize negative influences. Many of these influences (like weather, pathogens and parasites) are not readily subject to short-term management.

The current Wolf (Dìga) Management Proposal for the Bathurst and Bluenose-East herds was developed as one of the management actions that can be taken to help improve caribou (ekwò) calf and adult survival rates in the short-term. Harvest of the Bathurst herd was severely restricted in 2010 and reduced by more than 90%. All harvest of the Bathurst herd was closed in the NWT in 2015, and has been limited to 30 caribou (ekwò) per year in Nunavut. Despite management actions to date, the herd has declined further (more than 50% from 2015 to 2018) with associated low adult survival and low calf survival rates. Harvest of the Bluenose-East herd has not been closed but has been significantly reduced in 2016, and reduced further in 2019. This herd also has continued to decline with associated low adult and calf survival, and declined

⁶ <https://accwm.com/herd-status>

by about 50% from 2015 to 2018. Reduction of harvest, including Indigenous harvest, in the NWT and Nunavut has been undertaken through collaborative co-management processes that have included formal hearings, proceedings and many community meetings.

The continued decline of both herds after harvest had been largely removed prompted a re-examination of predators and the role they play in caribou (ekwò) mortality. Reducing the most important year-round predator of caribou (ekwò) (the wolf (dìga)), is one of very few short-term options that could reduce caribou (ekwò) adult and calf mortality rates, and increase survival rates to the point of stability and then recovery.

Studies of the diets of tundra wolves that follow migratory herds have shown that caribou (ekwò) are by far the most important prey animal for wolves (dìga) (Gau *et al* 2002). Estimation of predation rates by tundra wolves (dìga) has shown that they may kill on average 25-29 caribou (ekwò) in a year (WFATWG 2017). Although it is highly likely that the numbers of wolves (dìga) associated with the Bathurst and Bluenose-East caribou (ekwò) herds have declined from times when these herds were much larger, the remaining wolves may still kill significant numbers of caribou (ekwò) calves and adults. Effectively reducing predation rates on the two herds is anticipated to have a direct effect on survival rates of calves and adults. ENR recognizes the uncertainties around wolf (dìga) numbers and predation rates, and that other factors like the weather and other predators (e.g. grizzly bears) will continue to affect these two caribou (ekwò) herds in many ways. Reducing the numbers of the single most important year-round predator of caribou (ekwò), wolves (dìga) has the potential to improve caribou (ekwò) survival rates to the point of initiating recovery.

Information Request #15:

What other predator-prey relationships have you identified other than wolf? How do these other predator-prey interactions influence the wolf-caribou relationship?

Submitted by: Łutsel K'e Dene First Nation

Parties Responsible: Government of the Northwest Territories

Response:

Wolves (dìga), grizzly bears, wolverines, and golden eagles have been identified as natural predators of barren-ground caribou. Golden eagles are only effective predators of newborn caribou on the calving ground and therefore there is a narrow time frame when newborn calves are vulnerable to these avian predators. Although wolverines have been documented killing caribou, this is not a common occurrence and consequently, wolverines are considered a minor predator of barren-ground caribou. Generally, wolverines are more of a predator of small mammals and birds in summer and a scavenger of barren-ground caribou carcasses in winter.

Grizzly bears are thought to be particularly effective predators of newborn calves on the calving ground, however, kill rates for grizzly bears of newborn calves on the calving grounds of Bathurst and Bluenose-East caribou have not been measured. During the summer, caribou have been noted to comprise 60-76% of grizzly bear diet by volume (Gau et al. 2002). Barren-

ground grizzly bears tend to be observed more often on the calving ground than wolves during caribou calving ground surveys, especially since wolves (dìga) have declined in abundance in recent years and often den to the south near the treeline. The interplay between wolf (dìga) and grizzly bear predation is largely unknown. A Grizzly Bear Biological and Management Feasibility Assessment is currently being led by the WRRB with participation from GNWT, Łutsel K'e Dene First Nation, North Slave Métis Alliance, Tłı̨chǫ Government, Yellowknives Dene First Nation and observers from Nunavut governments and co-management bodies. The Working Group is currently summarizing information on grizzly bear predation on Bathurst and Bluenose-East caribou and examining potential options for managing grizzly bear predation on their ranges.

Information Request #16:

What biological/experimental data are there linking wolf culls to caribou numbers? What evidence is there that the statistical relationships in simulated models reflect biological ones?

Submitted by: Łutsel K'e Dene First Nation

Parties Responsible: Government of the Northwest Territories

Response:

As highlighted in the responses to IR #10 and #18, there are three reviews (i.e., NRC 1997, Russell 2010, McLaren 2016) that discuss previous experiences and field studies on the effects of wolf (dìga) management for ungulate populations in North America. However, despite the relatively broad experience of undertaking and assessing wolf (dìga) management actions in boreal forest ecosystems, there are no comparable published studies that link data on removals of tundra wolves (dìga) specifically to the demography of migratory caribou herds.

Based on its overview of wolf management experiences in North America, the WFATWG (2017) suggested that improvement in survival rates of caribou would be expected based on removal actions that reduced wolf (dìga) density by 60-80% initially followed by sustained low wolf (dìga) densities achieved through ongoing annual removal effort over multiple years.

Information Request #17:

The wolf feasibility assessment in 2017 indicated risks that include limited information about wolf numbers (as abundance is difficult to estimate aerially), wolf predation rates, and overlapping Bathurst ranges with neighbouring herds. How are these risks being considered/mitigated in this proposal?

Submitted by: Łutsel K'e Dene First Nation

Parties Responsible: Government of the Northwest Territories

Response:

Risk is the future uncertainty about an expected outcome of the wolf (dìga) management actions. The main areas of uncertainty identified above related to wolf abundance, overlapping Bathurst winter range with neighbouring herds (and implications for wolf abundance), and

predation rates of wolves on caribou, contribute collectively to the sources of potential risk. The sources of potential risk and mitigation strategies are presented in the table below.

Source of Potential Risk	Considerations / Mitigation Strategies
<p>Not enough wolves(dìga) are removed within a caribou winter range to maintain low relative wolf (dìga) abundance</p>	<ul style="list-style-type: none"> • Wolves (dìga) will be removed annually on caribou winter ranges by a combination of ground-based hunting and aerial removals. • For ground-based hunting, there are several strategies to maintain and improve wolf (dìga) harvesting efforts that include the following: a) the Enhanced North Slave Wolf Harvest Incentive Program will be maintained and provide financial compensation to successful wolf (dìga) hunters; b) TG and ENR will provide annual wolf (dìga) trapper training workshops; c) ENR will provide regular updates to wolf (dìga) hunters on general caribou and wolf (dìga) collar movement patterns to identify trends in winter range areas of Bathurst and Bluenose-East caribou herds through the wolf (dìga) harvest season; and d) ENR and TG will work with wolf (dìga) hunters to develop consistent participation for monitoring hunter-effort. • A consistent level of effort for wolf (dìga) removals will be maintained throughout the duration of the proposed wolf (dìga) management program, if required to a) systematically search and remove wolves (dìga) from Bathurst and Bluenose-East caribou winter range areas that may be variable in accessibility to hunters and variable patterns of winter range overlap b) monitor trends in relative abundance of wolves(dìga), i.e., sighting rates and density, within search and removal areas of caribou winter range areas; and c) monitor trends in observed pack sizes, sex and age structure, body condition and diet composition of wolves (dìga) removed.
<p>Monitoring data are insufficient to detect an effect of wolf (dìga) management</p>	<ul style="list-style-type: none"> • As outlined above, monitoring data on wolf (dìga) removals will be achieved through evaluating effort from ground-based harvesting and aerial removals, if required. • Enhanced caribou (ekwò)-centric monitoring will include: a) biennial population surveys for BNE and BAH herds, i.e., occurring every two years, b) maintaining a sample of collared caribou on Bluenose-East, Bathurst, and Beverly caribou herds to monitor adult female survival (include sample sizes?), c) conducting additional composition surveys for Bluenose-East and Bathurst herds to assess trends in calf

	<p>survival and recruitment, i.e., spring (June – when feasible), summer (July-August observations from Ekwò Nàxoèhdee K'è program program), fall (October), and late winter (March) (see IR#1).</p> <ul style="list-style-type: none"> • Integrated population modeling approaches will be used to test empirical field data for relationships that may link wolf (dìga) removals, caribou demography, environmental co-variates, and landscape disturbance metrics (see IR#1).
<p>Incorrect conclusions on the effect of wolf (dìga) management</p>	<ul style="list-style-type: none"> • In summary, and in the context of the proposed management approach for undertaking wolf (dìga) removals in winter, there are two types of errors that may arise in assessing effectiveness of wolf (dìga) management actions. The first is falsely concluding that wolf (dìga) management had a beneficial effect on caribou demography when wolf (dìga) removals had limited to no effect and/or some other factor(s) were primarily responsible for the observed changes in caribou demography. The second potential error is falsely concluding that wolf (dìga) removals had no impact on caribou populations, when in reality wolf (dìga) management actions had a beneficial effect on a caribou population(s). • In general, the first type of error may be reduced by improving sample sizes and precision of field datasets and monitoring other potential key factors that may independently influence caribou demography and/or interact with wolf (dìga) predation, i.e., environmental conditions, biting insect severity, disease occurrence, anthropogenic disturbance and caribou harvesting. A key approach is to improve precision of a comprehensive suite of caribou (ekwò)-centric metrics and other key co-variates (see IR#1). • The second error is also reduced by precision in empirical data, but a key strategy is to ensure a large potential effect size by maximizing annual and cumulative winter wolf (dìga) removals within available resource constraints through the management period. A key approach to reducing this potential source of error is to establish and monitor dìga-centered metrics (see IR#1).

Information Request #18:

Recent literature by Bongelli et al. (2020), Harding et al., (2020), Proulx (2017) and others provide research that suggest that the removal of wolves for caribou recovery is unnecessary/ineffectual. How will ENR and TG address the possibility that a wolf cull may be an unnecessary action?

Submitted by: Łutsel K'e Dene First Nation

Parties Responsible: Government of the Northwest Territories

Response:

There is a diversity of information and views on how reduction of wolf (dìga) numbers can benefit survival rates and population trend in caribou (ekwò) and other species like moose. This includes the papers that are cited above. There are also other recent papers that conclude that wolf (dìga) reduction can be effective under certain conditions (e.g. Bridger 2019, Serrouya *et al* 2019) and if the wolf (dìga) population is reduced sufficiently over a large enough area and for several years (see McLaren 2016). Conversely, wolf (dìga) reductions of insufficient magnitude or duration have often been ineffective, as several papers have concluded. GNWT and Tłı̄chǫ Government suggest that the conclusions reached by a 1997 (NRC 1997) review of wolf (dìga) and bear reduction programs in Alaska, Yukon and elsewhere are still valid, and below are quoted a number of the key conclusions. More recent studies have largely corroborated these conclusions and provided greater detail on effective and ineffective wolf (dìga) reduction programs.

- **Conclusion 1:** Wolves and bears in combination can limit prey populations.
- **Conclusion 2:** Wolf control has resulted in prey increases only when wolves were greatly reduced over a large area for at least 4 years.
- **Conclusion 5:** Modeling of population dynamics will enhance the use of data already collected and enable more efficient use of limited resources.

ENR's approach to wolf (dìga) reduction on the Bathurst and Bluenose-East caribou (ekwò) ranges has been developed with consideration of the conclusions reached by the NRC in 1997 and by more recent studies and reviews including McLaren 2016 and Russell 2010. Population modeling and wolf (dìga) density/prey biomass equations have been used to provide estimates of wolf (dìga) numbers associated with each herd and potential responses of caribou (ekwò) survival rates to different levels of wolf (dìga) reduction. Working with partners through an adaptive management process, the GNWT suggests that an annual review of the wolf (dìga) removal program and associated wolf (dìga)-centered and caribou (ekwò)-centered metrics (see response to IR#1) should provide a comprehensive picture of what has been accomplished, the status of the two caribou (ekwò) herds, whether wolf (dìga) removals have been effective, and whether the program needs to be adjusted.

References:

- Bridger, M. 2019. South Peace caribou recovery following five years of experimental wolf reduction. British Columbia Ministry of Forests, Lands, Natural Resource Operations and Rural Development. 29 pp.
- Gau, R., R. Case, D.F. Penner and P.D. McLoughlin. 2002. Feeding Patterns of Barren-Ground Grizzly Bears in the Central Canadian Arctic. *Arctic* 55:339-344.
- Kelsall, J. P. 1968. The migratory barren-ground caribou of Canada. Canadian Wildlife Service. Queen's Printer, Ottawa (pages 253-260 on poisoning program 1950s and 1960s).
- McLaren, A. 2016. Wolf Management Programs in Northwest Territories, Alaska, Yukon, British Columbia, and Alberta: A Review of Options for Management on the Bathurst Caribou Herd Range in the Northwest Territories. Report prepared for the Department of Environment and Natural Resources, Yellowknife, NT. 32 pp.
- NRC (National Research Council). 1997. Wolves, bears and their prey in Alaska. Biological and social challenges in wildlife management. Committee on management of wolf and bear populations in Alaska. National Academy Press, Washington, DC.
- Serrouya, R., D. Seip, D. Hervieux, B.N. McLellan, R. S. McNay, R. Steenweg, D.C. Heard, M. Hebblewhite, M. Gillingham and S. Boutin. 2019. Saving endangered species using adaptive management. *Proceedings of the National Academy of Sciences USA* 117(13): 6181-6186.
- Russell, D. 2010. A review of wolf management programs in Alaska, Yukon, British Columbia, Alberta and Northwest Territories. Unpublished Report, Whitehorse, YT. 47 pp.
- Wolf Feasibility Assessment Technical Working Group (WFATWG). 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'èezhìi Renewable Resources Board, 102A, 4504 – 49 Avenue, Yellowknife, NT, X1A 1A7.