NWT WILDLIFE RESEARCH PERMIT APPLICATION 2022

ONGOING PROJECT: [ongoing]

APPLICANT:

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SPONSOR(S):

GNWT Environment and Natural Resources

FUNDING SOURCE(S):

GNWT Environment and Natural Resources would be the main source for funding; Environment and Climate Change Canada (ECCC) may help fund surveys.

ADDITIONAL LICENSES REQUIRED:

NWT Wildlife Care Committee Permit for capture/collaring caribou.

Nunavut Wildlife Research Permit application has been submitted. This permit covers composition surveys flown on the calving grounds in June and July and any possible composition flying surveys that may be in NU during the spring and fall surveys.

PROJECT TITLE:

Monitoring of the Bathurst, Bluenose-East, and Beverly caribou herds.

RATIONALE:

To ensure that barren-ground caribou herds remain healthy, a number of monitoring actions must be undertaken on an annual basis to provide decision makers with relevant information to assess herd status and the effectiveness of management actions. In 2019 the Tłı̨chǫ Government (TG) and ENR proposed closer monitoring of the Bathurst and Bluenose-East herds given the large continuing declines found in 2018 calving ground photo surveys for these 2 herds. The increased monitoring included: reducing the interval between population surveys from 3 years to 2; increasing the collar numbers to a maximum of 70 (50 cows, 20 bulls) on the 2 herds; and carrying out composition surveys annually in June (calving), October (fall rut) and March/April (late winter). The WRRB reviewed the proposed monitoring and agreed to the increased monitoring.

Additionally July composition surveys of the Bathurst and Bluenose-East herds are bring proposed (funding permitting).

Composition surveys were carried out in July 2020 and resulted in calf:cow ratios of 44:100 in the Bathurst herd and 47:100 in the Bluenose-East herd. These results suggested that most of the calf mortality occurred in the first 4-5 weeks after calving. A further pair of surveys for July 2022 would confirm whether this trend is consistent. Surveys planned for 2021 were cancelled due to lack of aircraft availability.

Monitoring of the Beverly herd is shared between GNWT and GN (Government of Nunavut); the GN has conducted population surveys while GNWT has conducted composition surveys and placed collars (up to 50, including 30 females and 20 males). As this herd was last estimated at about 103,000 in 2018, monitoring is not as intensive as for the Bathurst and Bluenose-East herds. However, the herd was declining at about 5% per year as of 2018, thus core monitoring has included up to 50 collars and annual/periodic late-winter and fall composition surveys. Composition surveys for this herd are somewhat constrained by accessibility as the herd, or portions of the herd, are sometimes in very remote areas far from the NWT.

A) Satellite collars: ENR plans to deploy additional collars in winter 2023 to reach the agreed-on maximum of 70 collars each on the Bathurst and Bluenose-East herds (50 on cows and 20 on bulls) and 50 (30 on cows and 20 on bulls) on the Beverly herd. Deployment plans for 2023 will depend on the number of collars which release and die over the winter of 2022/23 but it can be estimated that we may be deploying up to 45 new collars over the three North Slave herds in spring 2023. Mixing of herds in the winter can create challenges to targeting particular herds for collar placement.

Satellite collars are needed for many purposes, which include: 1) follow movement and distribution of caribou, 2) quantify cow mortality and survival rates, 3) plan the design of various caribou surveys including the calving ground photographic survey, 4) assess harvest of caribou and plan for no-harvest (Bathurst) or reduced harvest (Bluenose-East), and 5) assess caribou responses to mines and roads.

B) Composition surveys:

1) The July 2022 composition surveys would provide an estimate of calf:cow

ratios in these herds about a month after the peak of calving. As noted earlier, these were carried out for the first time for these herds in July 2020 and the results suggested relatively high calf mortality in the first 4-5 weeks.

2) The fall survey is conducted during the rut (mid-October 2022) and is designed to assess the ratio of bulls to cows in the herd. Usually a herd in decline and/or at low numbers will have a low sex ratio. Knowing the sex ratio is also needed to extrapolate to the total population estimate when a calving ground photographic survey is conducted. This survey also provides a calf:cow ratio that is an index of how many calves born in June survived the first 4-5 months. Bull:cow ratios in October 2020 and 2021 suggested an increasing trend for both herds, potentially a correlate of improving population trend.

3) The late winter calf survival survey (also called the spring recruitment survey) provides a measure of calf survival as they reach 9-10 months of age and is an index of recruitment for the herd. Normally, this survey is conducted in late March or early April every year, to provide a long term trend assessment of calf productivity. Year to year patterns can be quite variable and there is often a saw-tooth pattern (higher-lower-higher), thus annual monitoring is preferable.

4) Composition surveys in June have been carried out in years of calving photo surveys as part of the survey methodology. Their main purpose is to define proportions of cows, bulls, yearlings and newborn calves in the calving ground survey blocks, and to estimate the proportion of breeding females (a proxy for the pregnancy rate) among the overall female population. As part of increased monitoring of the Bathurst and Bluenose-East herds in 2019, conducting these surveys annually in June was proposed by TG and ENR and accepted by WRRB.

TIME PERIOD:

May 1 2022- April 30, 2023.

LOCATION:

Monitoring areas will extend from Deline, South of Great Bear Lake, Keller Lake and Grandin Lake, and all areas between the communities of Behchoko, WhaTi, Gameti, Wekweeti, Dettah, Lutsel K’e and the area between Great Slave Lake and the mining locations of Snap and Kennady Lake, and over to Aylmer Lake, Clinton-Colden, and Artillery Lake to Whitefish Lake and possibly Penylan Lake. June and July surveys would be entirely or primarily in Nunavut.

SPECIES:

Barren-ground caribou

Project Leads:

Jan Adamczewski and Judy Williams

PROJECT PERSONNEL:

Dean Cluff and Stefan Goodman, North Slave ENR
Other ENR staff as needed, from HQ and regions
Community caribou monitors, elders and youth, as practical
depending on aircraft and logistic constraints.

OBJECTIVES:

1. To continue to acquire location data from satellite collars currently deployed on up to fifty (50) cows and twenty (20) bulls on each of the Bathurst and Bluenose-East Caribou herds, and thirty (30) cows and twenty (20) bulls for the Beverly herd.

2. To estimate the numbers of breeding females and overall females in the Bathurst and Bluenose-East herds in June 2023, and to derive estimates of overall herd size for these herds by adding in males based on estimated sex ratios. Part of the June surveys would be composition surveys that would estimate the proportions of females and breeding females on the 2 calving grounds.

3. To estimate annual calf survival in the first 4-5 weeks of life in July 2022 for the Bathurst and Bluenose-East herds.

4. To estimate fall sex ratio and calf:cow ratio for the Bathurst, Bluenose-East and Beverly herds in October 2022.

5. To estimate calf:cow ratios in March-April 2023 for the Bluenose-East, Bathurst and Beverly herds**.**

METHODS:

1) Satellite collars are programmed to transmit locations throughout the year. These locations are mapped weekly using ArcGIS software and locations of the Bathurst herd are used during the hunting season to create boundaries for the mobile conservation zone.

   An experienced helicopter pilot and capture crew will be employed to conduct collaring operations. Each day of the capture operation will likely include on average 6-7 captures. The capture crew (net-gunner and handler) are not yet identified but we will be using extensive and current experience net-gunning caribou in our selection criteria.

   A group of caribou is approached so that one animal can be isolated from the others. Pursuit will be kept short (≤1 min of running), and will be terminated if the target animal show signs of fatigue (stumbling, open mouth breathing). A net-gun is fired over the isolated caribou cow or bull. The preferred terrain is snow-packed frozen lakes, which provide good footing and soft snow. Captures are not attempted in rugged terrain or in thickly forested areas. The net is fired over the caribou, which then usually tangles itself and drops to the ground. At least two

loaded nets will be available to the gunner for each capture to reduce chase duration if the first net missed the target animal or to re-net an animal if the first net did not provide adequate restraint**.** The helicopter lands immediately and two people approach the animal to hold it down. The legs are tied to minimize struggling, the eyes are covered to reduce visual stress, and the pulse and breathing rate are visually monitored throughout the handling. The animal is restrained laterally and the head and neck are positioned so that the animal can breathe normally and belch gas from its belly. The animal's age class is assessed from the state of its incisors. The capture crew will minimize conversation and try to keep as quiet as possible to reduce stress.

Handling of most caribou lasts 15 minutes or less. First the condition is quickly visually assessed, and the animal checked for any capture-related injuries. The net is removed. Only caribou in good physical condition (based on fatness) are collared. The satellite-collar is fastened around the animal's neck and photos will be taken of the caribou's head with the collar number displayed in the image and the incisor teeth (to assess approximate age). Once the collar is fitted, the animal is ready to be released, the legs are untied, the blindfold removed, and the animal is released. Once released, the caribou usually springs to its feet and runs off. Further monitoring is not usually needed. All collars deployed have a breakaway device that drops the collar on the ground at a pre-determined time. The caribou does not need to be handled again.

No immobilizing drugs will be used. Handling of caribou will comply with the NWT Wildlife Care Committee (NWTWCC) Caribou Capture Standard Operating Procedure (SOP). To reduce handling time, no measurements will be taken; however, blood, hair and fecal samples will be collected to assess pregnancy status and for other testing and possible genetic studies.

Capture operations will be terminated if temperatures are below -30°C or above -5°C.

Contingencies include injuries during the net gunning. The handler and net-gunner will assess the injuries. A broken antler would be re-cut with a hand saw to smooth the broken edge. A broken leg or other broken bones will require that the caribou be shot (helicopter will carry a firearm).

2) Local information as well as the satellite-collared caribou locations will determine the areas to be sampled during composition surveys in June, July, October and March. Caribou will be classified as calves, cows (including breeding and non-breeding cows in June) and bulls mostly from the air with image stabilizing binoculars, but classification from the ground using a spotting scope may also occur.

CURRENT CONSULTATION:

Monitoring proposed here, including collars and surveys for the Bathurst and Bluenose-East herds, were part of joint management proposals from TG and ENR in 2019, and

approved by the WRRB. The exception is the July composition surveys, which were not in those proposals or the reports from WRRB. We note that there is a working group reviewing status and potential management of grizzly bears on Bathurst and Bluenose-East herds, which identified early calf mortality and predation as potential limiting factors for these herds. The July surveys were proposed to gain insight into early calf mortality in the 2 herds. This wildlife research application will also be sent to other regional Indigenous organizations for their comments, including DKFN, LKDFN, YKDFN, TG, NWTMN and NSMA; the WRRB will also be sent this application for review.

FUTURE COMMUNITY CONSULTATION PLAN:

Information collected will be shared with Indigenous governments and communities at least once a year at the times and locations determined by community leaders.

PROPOSED USE OF LOCAL KNOWLEDGE:

Information from the communities will be used to interpret movements and distribution of caribou for the spring, summer and fall composition counts.

OPPORTUNITIES FOR LOCAL PARTICIPATION:

Elders and hunters may be invited to participate in the late winter classification surveys, as practical for the aircraft and logistic constraints.

MANAGEMENT OR RECOVERY PLANS:

The monitoring actions described above are identified in the joint Tłı̨chǫ Government & ENR proposals (2019) for the recovery of the Bathurst and Bluenose-East Caribou and approved by the WRRB.

There is a draft overall management plan for the Bathurst herd developed by the Bathurst Caribou Advisory Committee in 2021 which calls for the kinds of monitoring proposed in this document.

The 2020 Recovery Strategy for Barren-Ground Caribou under the NWT Conference of Management Authorities recognizes the importance of adequate information about the status of herds and the value of further research on factors affecting caribou health and abundance.

Current monitoring actions proposed for Bluenose-East caribou herd are also identified in the Cape Bathurst, Bluenose-West and Bluenose-East Management Plan (Taking Care of Caribou 2014).