NWT WILDLIFE RESEARCH PERMIT APPLICATION 2023

ONGOING PROJECT: [ongoing]

APPLICANT:

Jan Adamczewski
Biologist (Ungulates)
Wildlife Division
Environment and Natural Resources
GNWT, Yellowknife

Judy Williams
Biologist (Ungulate Studies)
Wildlife Division
Environment and Natural Resources
GNWT, Yellowknife

ADDRESS:
P.O. Box 1320
Yellowknife, NT
X1A 2L9

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. Some survey work has been collaborative and cost-shared with the Government of Nunavut.

ADDITIONAL LICENSES REQUIRED:

NWT Wildlife Care Committee Permit for capture/collaring caribou.

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

PROJECT TITLE:

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

RATIONALE:

A number of monitoring actions have been undertaken for barren-ground caribou herds in the North Slave region on an annual basis or at regular intervals 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 each of the 2 herds; and carrying out composition surveys annually in June (calving), October (fall rut) and March/April (late winter). The WRRB in 2019 reviewed the proposed monitoring and agreed to this survey schedule.

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 2024 (likely March) 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. Collar deployments in March 2023 are covered under an existing NWT research permit. Deployment plans for 2024 will depend on the number of collars which release and die over the winter of 2023/24. 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 surveys, 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 fall survey is conducted during the rut (late October 2023) 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 (<40 bulls: 100 cows), while increasing herds will have a bull:cow ratio over 60:100. Knowing the sex ratio is needed to extrapolate to the total population estimate when a calving ground photographic survey is conducted, as very few bulls are on the calving grounds. 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 (>60:100)

suggested an increased bull:cow ratio for the Bathurst and Bluenose-East herds, potentially a correlate of improving population trend. Further fall surveys of the Bluenose-East herd in 2021 and 2022 showed similar bull:cow ratios as in 2020; in the Bathurst herd, mixing with the much larger Beverly herd created challenges in estimating a Bathurst-only sex ratio. Recent fall calf:cow ratios in the Bluenose-East herd have been very healthy, ranging between 49 and 52 calves:100 cows 2020-2022.

2) 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 mid-late March or occasionally 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.

3) 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.

C. Calving Ground Photo and Reconnaissance Surveys 2023

Calving ground photo surveys have been used for the Bathurst and Bluenose-East herds to estimate the numbers of females (breeding and non-breeding) in the herd, which can then be used to extrapolate to a herd estimate by adding in the males, based on a fall sex ratio estimate. For the Bluenose-East herd, the last calving photo survey was in 2021, and the next photo survey is planned for June 2023; this would be a 2-year interval.

For the Bathurst herd, a calving ground photo survey is not planned for 2023, however a reconnaissance survey with regularly spaced flight lines is planned for June 2023. This would be used to document relative abundance and composition of caribou on the expected main calving concentration west of Bathurst Inlet and across the Inlet to the east side. The rationale for this is that calving ground surveys in June 2021 and 2022 at Bathurst Inlet showed very different patterns of caribou distribution and movement east of Bathurst Inlet. In June 2021 there were more caribou east of the Inlet than west of it, and most of these caribou were likely from the Beverly herd; this was associated with emigration eastward to the Beverly calving ground in June-July 2021 of 6 of 34 known Bathurst collared cows. In June 2022 there were very few caribou east of Bathurst Inlet and emigration east of Bathurst collared cows was not documented. Since 2018, emigration of Bathurst caribou to the much larger Beverly distribution, based on collared caribou and surveys, has shown that continued emigration is a significant threat to the persistence of the Bathurst herd on the landscape.

These calving ground surveys would both be flown in Nunavut, although occasionally the

southern fringe of the Bathurst and Bluenose-East survey areas may extend into the NWT.

TIME PERIOD:

May 1 2023 - April 30, 2024. Field work planned for March 2023 (collar placements and composition surveys) is covered under an existing NWT permit to the end of April 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. This large area is involved because the fall and winter ranges of the 3 herds (Bathurst, Bluenose-East and Beverly) span a large part of the NWT. June 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 observers 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 Bluenose-East herd in June 2023, and to derive estimates of overall herd size for this herd 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. For the Bathurst herd, the objective of fixed-wing reconnaissance flying will be to document relative abundance and composition of caribou west of Bathurst Inlet in the expected main calving area and across the Inlet to the east side.

3. To estimate fall sex ratio and calf:cow ratio for the Bathurst, Bluenose-East and Beverly herds in October 2023.

4. To estimate calf:cow ratios in March-April 2024 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, 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. 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. Consultation on surveys in NU will occur through the GN's wildlife permit application process and involve regional wildlife organizations such as the Kugluktuk Hunters and Trappers Organization.

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 and co-management boards. In recent years, updates on monitoring of the Bluenose-East herd have occurred at annual early-winter status meetings of the ACCWM (Advisory Committee for Cooperation on Wildlife Management, a group of co-management boards), including Nov. 2022 in Inuvik. Updates on Bathurst caribou monitoring have occurred at annual status meetings of the Bathurst Caribou Advisory Committee (BCAC), including Jan. 2023. Updates on monitoring of the Beverly herd have been provided twice annually at meetings of the Beverly and Qamanirjuaq Caribou Management Board (BQCMB).

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. In recent years, information has been gained on caribou health and condition in the Bathurst and Bluenose-East herds, including calf:cow ratios, through the Ekwǫ̀ Nàxoèdee K'è caribou monitoring carried out by the Tłı̨chǫ Government in summer and fall using ground-based observation. These observations have been used to complement and build on information gained from GNWT ENR scientific monitoring of these herds.

OPPORTUNITIES FOR LOCAL PARTICIPATION:

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

MANAGEMENT OR RECOVERY PLANS:

The 2020 Recovery Strategy for Barren-Ground Caribou under the NWT Conference of Management Authorities (CMA) recognizes the importance of adequate information about the status of herds and the value of further research on factors affecting caribou health and abundance. Barren-ground caribou are classified as Threatened under the CMA in the NWT (excepting the Porcupine herd). This recovery strategy recognizes the importance of herd-specific management plans and sets overall goals for barren-ground caribou management in the NWT. Classification of barren-ground caribou under federal Species at Risk legislation is pending.

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 herd was assessed by the BCAC in 2022 and 2023 as being in the Critical Low phase (below 30,000 caribou) where monitoring is more intensive.

Current monitoring actions proposed for Bluenose-East caribou herd are identified in the Cape Bathurst, Bluenose-West and Bluenose-East Management Plan (Taking Care of Caribou 2014), developed by the ACCWM. An action plan for each of the 3 herds is updated annually by the ACCWM.

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 herds and approved by the WRRB in 2019.