REPORT ON BLUENOSE-EAST CARIBOU HERD 2018 ESTIMATE, IN NUNAVUT

Summary

This short document is a summary of the information provided in the report entitled: “Estimate of breeding females & adult herd size and analyses of demographics for the Bluenose-East herd of barren-ground caribou: 2018 calving ground photographic survey.”

The Government of Nunavut has jurisdiction for managing the harvest of caribou in Nunavut and participates in research and monitoring (population surveys), with the Government of the Northwest Territories, to inform management of the Bluenose East herd. This report provides scientific information for decision-makers managing the Bluenose-East caribou herd.

Introduction

This section of the report puts the research program into context. It provides a description of the species, and some historical information, including previous population numbers.

The Bluenose-East caribou herd (BNE) plays an essential role in the lives of Inuit people and is highly valued from a spiritual, economic, cultural, and harvesting perspective. The community of Kugluktuk subsists mainly on this herd, along with several communities in the Northwest Territories.

The BNE are part of the tundra migratory Barren-ground caribou. One of its particular behaviors is its large migration from the treeline in Northwest Territories to the calving ground in Nunavut, where the females group together to calve. Since the BNE is an inter-jurisdictional herd, the Government of Northwest Territories (GNWT) has the lead on monitoring.

The earlier post-calving survey (2000-2010) method was replaced by a calving ground photo-survey method in 2010 to count the caribou when the group pattern is not dependent on the weather and insect harassment, which are highly variable, but during peak of calving. The 2010 calving survey indicated an estimate of 120,000 adult caribou, then the BNE declined at a rate of approximatively 20 percent per year, reaching an estimate of 38,000 adult caribou in 2015.

The recent rate and decline of the BNE raised concerns from harvesting communities and this has put an emphasis on increasing the monitoring effort on the BNE herd.

Objectives

This project aimed to address concerns of Inuit, as well as to provide new scientific information, by establishing a new 2018 population estimate, and baseline on demographic indicators.

Methods

This project followed the 2010 to 2015 methodology. Thirty-two collared caribou locations were used to assess timing and location of peak calving, and systematic reconnaissance survey transects were flown at 10 kilometer (km) intervals on June 1, 6, and 7 to delineate the annual calving ground location and allocate survey effort to visual sections (Figure1).

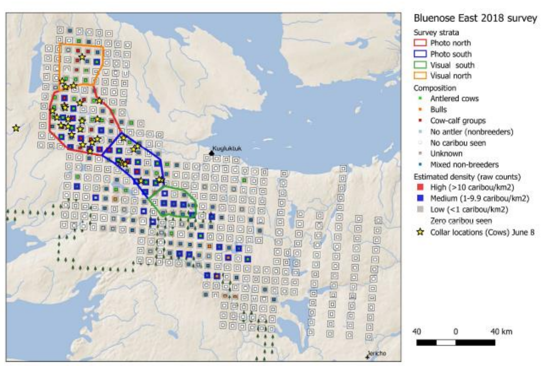

Figure 1: Survey tracks of the reconnaissance survey coverage and visual strata (orange, red, blue and green) based on caribou composition and density.

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Based on caribou distribution and density, effort for survey sections was allocated using a proportional allocation methodology similar to other calving ground surveys of Barren-ground caribou herds. Two areas (red and blue) of higher caribou densities were photo-surveyed, with two lower-density areas (orange and green) designated for visual surveys with two observers on each side, using the double observer method (Figure2). The visual survey occurred on June 8, when caribou movement is minimal, at the peak of calving. All visual transects were surveyed at a speed of 160 km/hr, at an altitude of about 120 meters, and all caribou within the pre-determined transect width of 800 meters were recorded.

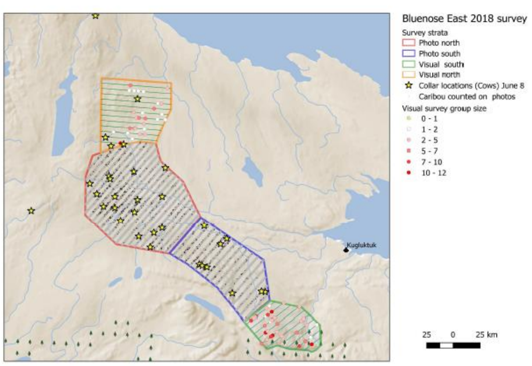

Figure 2: Visual survey strata with transect lines and collared caribou locations. Collar south and north of Bluenose Lake were Bluenose-West females.

On June 8, a composition survey was done by helicopter to allow for a more detailed estimate of breeding females, and other sex and age classes on the calving ground.

Results

Population estimate, 2018

The resulting estimate of BNE herd size in 2018 was 19,294 adult caribou (Figure 3). Comparisons between the 2015 and 2018 estimates suggest a gross reduction of 49% in adult females and 33% in breeding females. This decline is statistically significant.

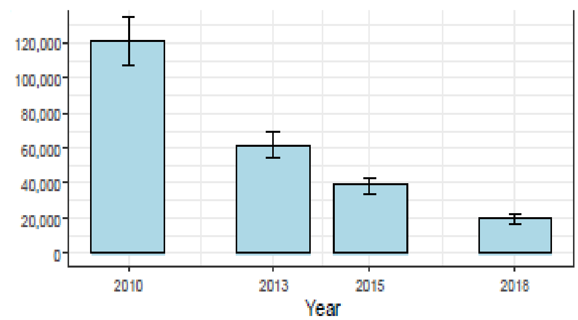

Figure 3: Estimates of Bluenose-East herd size (adult caribou) using proportion of females method from 2010-2018.

Demographic indicators

The analysis of the BNE demography suggests that low calf productivity of 19% observed in 2018, as indicated by declining calf survival rates and pregnancy rates, combined with low adult female survival rates, contributed to the continuing decline. The cow survival rate was 72% (CI = 0.60-0.83), where cow survival of 92% is required for stability, if productivity remains low.

These demographic indicators show no sign of recovery in the BNE herd since the last survey.

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Discussion

Results from the Bluenose- East calving photo survey documented a significant decline since 2015, and an ongoing decline since 2010 at an annual rate of about 20%. The analysis of cow movement and migration conducted as part of this study indicates that there is little chance the changes in abundance observed during surveys are attributable to movement of Bluenose-East caribou to other calving grounds. This concerning decline in numbers was also accompanied by a decline in the number of breeding females coupled with lower estimated survival rates and lower calf:cow ratios. Low natural survival rates might reflect significant bear and wolf predation. Large-scale weather patterns having negative impacts on vegetation, summer drought, and high warble fly indices are also known to be correlated with the observed declines in population abundance.

In response to the ongoing decline and poor demographic indicators observed, increased monitoring and research should take place to detect any further changes in the herd trend and status. Appropriate management actions need to be implemented to account for the high level of decline of Bluenose East caribou herd.