

REPORT ON BATHUST 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 Bathurst herd of barren-ground caribou: 2018 calving ground photographic survey.”

The Government of Nunavut has jurisdiction for managing the harvest of Bathurst caribou in Nunavut, and conducts research and monitoring (calving ground surveys) with the Government of the Northwest Territories, to inform the management process. This report provides scientific information critical for sustainable management of the Bathurst caribou herd.



Introduction

The Bathurst caribou herd is at the center of many Nunavut and Northwest Territories communities, which rely on this herd for spiritual, economic, cultural, and subsistence needs.

The Bathurst herd are tundra migratory barren-ground caribou (*Rangifer tarandus groenlandicus*). This herd undertakes a large migration from the treeline in the Northwest Territories to the calving ground in Nunavut, where cows aggregate to calve. As the Bathurst caribou herd is an inter-jurisdictional herd, the Government of Northwest Territories (GNWT) leads the monitoring of this herd, which is done in cooperation with the Government of Nunavut.

In 1986, the Bathurst herd peaked in numbers with an estimate of 472,000 animals. The herd has been declining since the 1990s, with the most rapid decline between 2006 and 2009, when the herd plummeted from 100,000 to 32,000 animals in 3 years. The decline of this herd and harvest restrictions have resulted in hardships in several communities.

The recent rate and continuous decline of the Bathurst caribou herd raised concerns from harvesting communities and resulted in increased monitoring efforts.

Objectives

This project aims to track the continuous decline of the Bathurst caribou herd, as well as to provide new scientific information on the estimated number of breeding females, adult females, and adults in the herd to compare with results of previous calving ground surveys of this herd.

Methods

Since 1996, the Bathurst caribou have been calving east of Bathurst Inlet. Since 2003, calving ground photographic surveys have occurred at 3 year intervals. Seventeen collared caribou were used to assess peak calving, and a systematic reconnaissance survey (transect at 5 and 10 kilometer (km) interval) was flown on June 4, 5, 6, and 10, 2018, to delineate the annual calving ground location and allocate survey effort to visual strata (Figure1). The 10 km transect lines on the east side of Bathurst Inlet were flown by the Government of Nunavut survey crew to delineate the extent of the Bathurst and the Beverly caribou distribution.

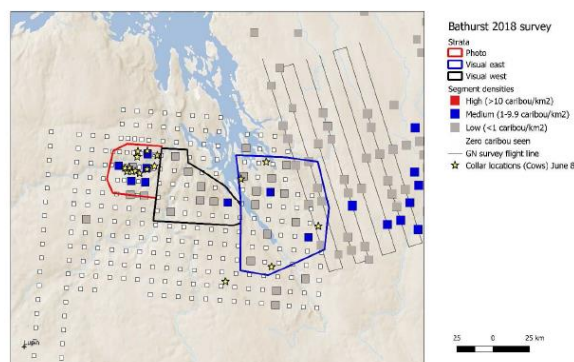


Figure 1: Survey tracks of the reconnaissance survey coverage and visual strata (red, black, and blue) based on caribou composition and density.

Based on caribou distribution and density, effort for survey strata was allocated using a proportional allocation methodology similar to other calving ground surveys of barren-ground caribou herds. The red area, higher caribou densities, was surveyed by photo plane, and the black and blue ones were designated for visual surveys with two observers on each side of the plane (the double observer method, Figure2). The visual survey occurred on June 8 and 9, 2018, when caribou movement was 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 widths of 800 meters were recorded.

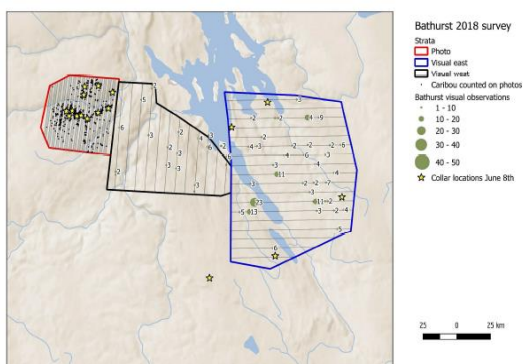


Figure 2: Visual survey strata with transect lines and collared caribou locations (star). The relative group sizes for the visual blocks are shown as varying sizes of circles.

On June 8, 2018, composition surveys were done by helicopter to obtain 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 Bathurst caribou herd size in 2018 was 8,207 adult caribou (Figure 3). Comparison between the 2015 and 2018 estimates suggests a reduction of 58.5% overall herd size, 61% in adult females and 55% in breeding females. This decline is statistically significant and cannot be attributed to the survey methods.

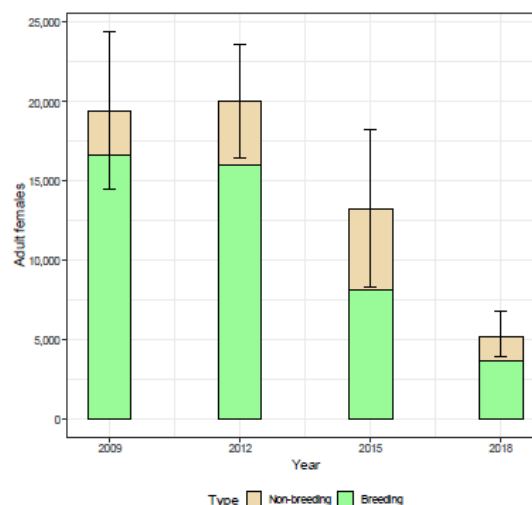


Figure 3: Estimates of Bathurst caribou herd (adult caribou) using proportion of females method from 2009-2018.

Demographic indicators

The demographic analysis of the Bathurst suggests low calf productivity in the 2011-2018 periods with a mean productivity of 0.25. The cow survival rate was 0.82 (CI = 0.69-0.92), where a cow survival rate of 0.88 is considered to be required for population stability.

In response to the ongoing decline, increased monitoring and research should take place to detect any further changes in