

## **JUNE 2019 CALVING GROUND COMPOSITION SURVEYS OF BATHURST AND BLUENOSE-EAST BARREN-GROUND CARIBOU HERDS**

**Summary August 6, 2019**

**Jan Adamczewski, Judy Williams and John Boulanger**

This report describes the results of calving ground composition surveys of the Bathurst and Bluenose-East caribou herds conducted in June of 2019 near Bathurst Inlet and west of Kugluktuk in Nunavut (NU). The main purpose of the surveys was to estimate the proportion of breeding females (cows that gave birth as a proportion of all cows) which indicates the initial calf productivity on the two calving grounds. In addition, the surveys estimated the relative distribution of breeding caribou on each calving ground as well as relative abundance of predators.

The Bathurst survey was carried out June 8, 10 and 11 with an A-Star helicopter based at the Lupin Mine at Contwoyto Lake, and the Bluenose-East survey was carried out June 12, 13 and 14 with the aircraft based at Kugluktuk. Locations of collared caribou females (Bathurst 25 collars, Bluenose-East 31 collars) were used as the main way of defining survey blocks, with flight lines spaced more closely in blocks with more collared cows. A few large groups were classified from the ground with a spotting scope, and most groups were classified from the air using motion-stabilized binoculars.

For the Bathurst calving ground, three survey blocks were defined: a central high density block where most of the collared females were concentrated, a low density block to the west and a low density block to the east, where there were fewer collared cows. Greater effort (flight lines closer together) was allocated where more caribou were expected. There were 25 female collared caribou in the area of the survey and 24 of these were contained within the survey area or checked on with the helicopter. Observations during the survey indicated more than half the cows with a newborn calf at heel, suggesting that the peak of calving had likely occurred just before our survey began. Most calves appeared small and just a few days old. Assessment of daily movement rates in collared cows showed a reduction to less than 5 km/day on June 4, suggesting a likely peak of calving around June 4-6, with low movement rates continuing for the next 10 days.

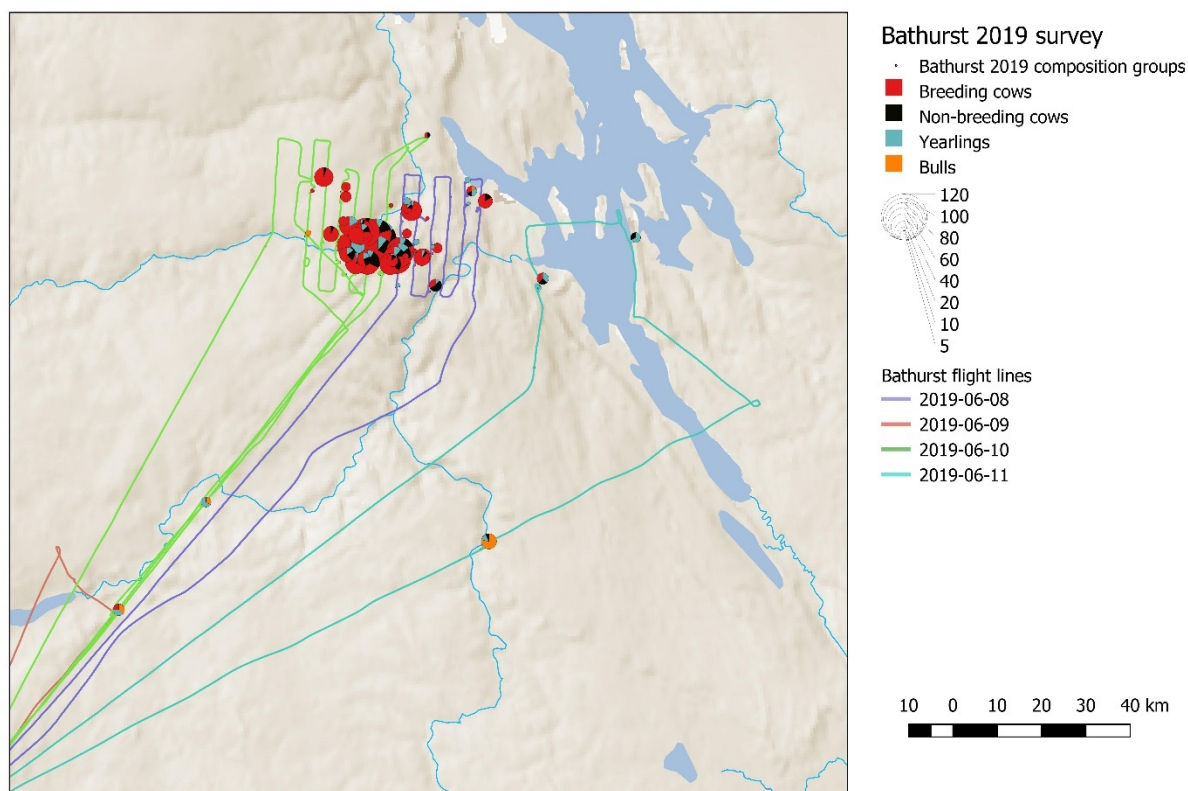
For the Bluenose-East survey, three survey blocks were also defined: a central high density block with most of the collared cows, a northern low density block and a southern low density block. As with the Bathurst survey, more effort (lines closer together) was allocated to the higher density area. There were 31 collared female caribou in the area of the survey and 30 of these were contained within the survey area or checked on with the helicopter. Observations during the survey indicated that well over half the cows had a newborn calf at heel and most calves appeared small, suggesting that the survey was timed just past the peak of calving. Assessment of daily movement rates in collared cows showed a reduction to less than 5 km/day on about June 4, with low movement rates continuing for the next 10 days, and indicating a likely peak of calving around June 4-6, similar to the Bathurst herd.

For the Bathurst herd, 52 groups, 754 caribou at least one year old and 407 newborn calves were classified. There were 55.5 calves: 100 adult cows (64.3 calves: 100 breeding cows), and the percentage of cows considered breeders was 86.0%. For the Bluenose-East herd, 451 groups, 3,157 caribou at least one year old and 2,190 newborn calves were classified. There were 69.8 calves: 100 cows (79.8 calves: 100 breeding cows), and the percentage of cows considered breeders was 87.5%. In both cases, these results indicate that the proportion of cows that were pregnant in winter 2018-2019 was higher than recorded between 2009 and 2018 during calving photo surveys. Observations from Allen Niptanatiak, long-time wildlife officer in Kugluktuk, indicate that the summer of 2018 was relatively cool and wet and the insect season was not severe, which could have contributed to good summer feeding conditions, leading to good condition in caribou cows and a high pregnancy rate in the fall 2018 breeding season.

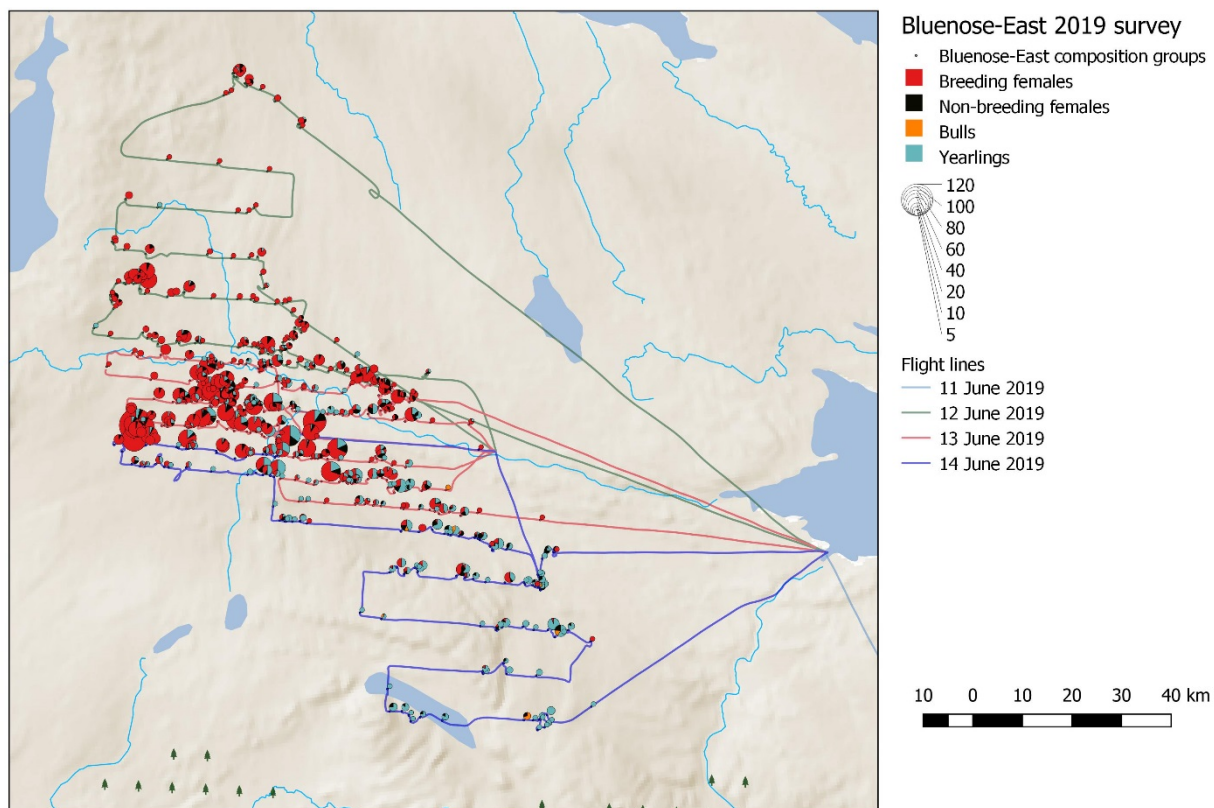
In 2019, we monitored the movements of 17 Bathurst collared whose June 2018 locations were on the Bathurst calving ground. Of the 17 known Bathurst collared cows, 14 were on the Bathurst calving ground in June 2019 and 3 (17.6%) moved to the main Beverly calving ground in June, well east of Bathurst Inlet.

**Table 1.** Summary numbers of caribou classified on June 2019 Bathurst and Bluenose-East calving grounds.

Category	Bathurst Herd	Bluenose-East Herd
Number of Groups Classified	52	451
Number of Caribou Classified	1,161	5,347
Adults Total	754	3,157
Cows Total	733	3,135
Breeding Cows	633	2,744
Non-Breeding Cows	100	390
Bulls	21	22
Yearlings	107	829
Calves (New-Born)	407	2,190
Calves: 100 Cows	55.5:100	69.8:100
Calves: 100 Breeding Cows	64.3:100	79.8:100
% of Cows Breeding	86.0	87.5

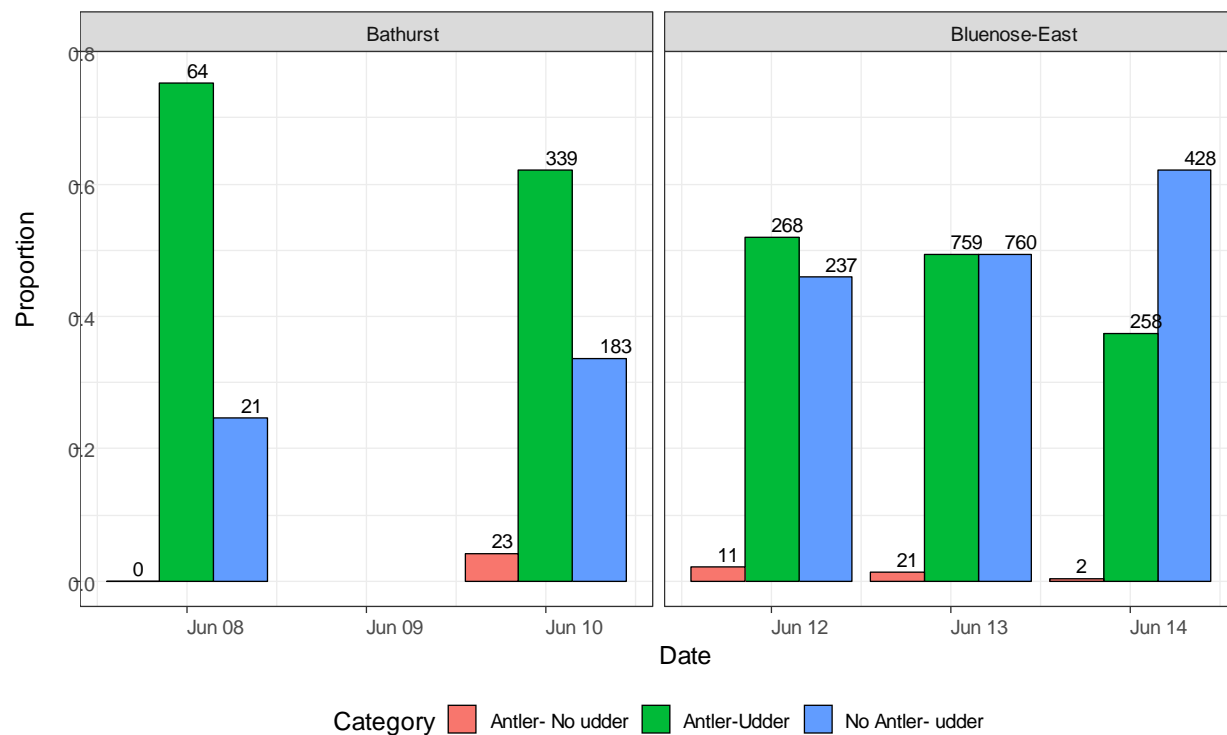


**Figure 1.** Bathurst June 2019 composition survey flight lines June 8-11, 2019 and groups of caribou classified. Pie charts are sized in proportion to group size and pie sections reflect proportions of categories of caribou shown in the legend (breeding cows, non-breeding cows, yearlings and bulls).

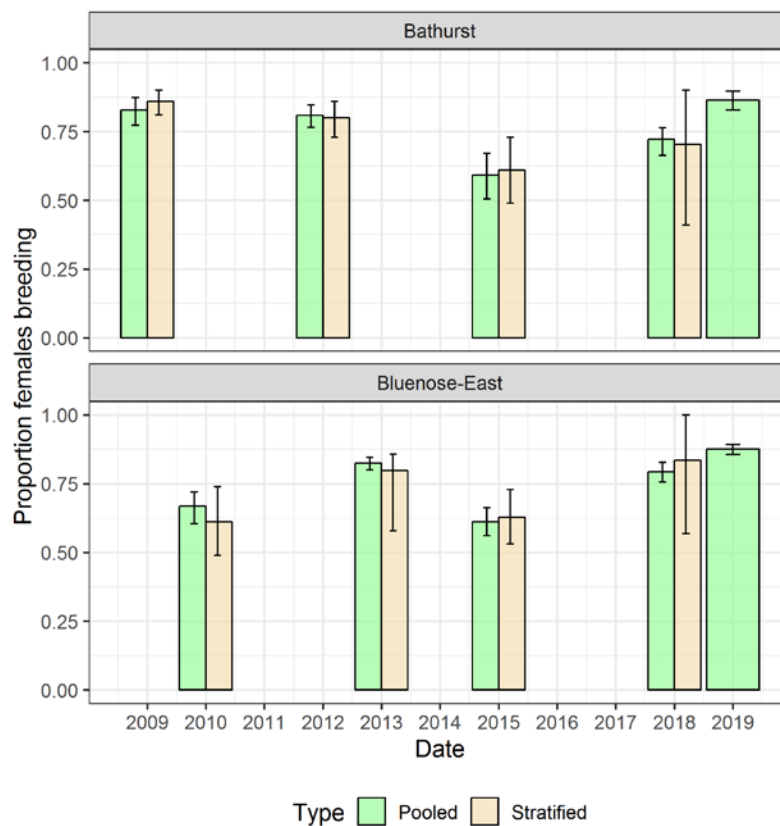


**Figure 2.** Bluenose-East June 2019 composition survey flight lines June 12-14, 2019 and groups of caribou classified. Pie charts are sized in proportion to group size and pie sections reflect proportions of categories of caribou shown in the legend (breeding cows, non-breeding cows, yearlings and bulls).

## June 2019 Calving Ground Composition Surveys Bathurst and Bluenose-East Caribou



**Figure 3:** Proportions of breeding female categories by date for the Bathurst and Bluenose-East herds. The sample size of each category is given above each bar. Observations recorded on June 11 for the Bathurst herd are not included as only 3 groups were seen and they had very few breeding cows. A flight on June 9 was cut short with no caribou observations, due to poor weather.



**Figure 4:** Comparison of stratified estimates of proportion of females breeding (used in previous calving ground surveys) and pooled estimates (used in this analysis) for the Bathurst and Bluenose-East herds from June calving composition surveys. The green bars are the most directly comparable across surveys, including the 2019 results.