

July 2007 Productivity Survey Field Summary  
Tuktoyaktuk Peninsula, Cape Bathurst, and Bluenose-West Herds  
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As part of a monitoring program for the Tuktoyaktuk Peninsula (TP), Cape Bathurst (CB), and Bluenose-West (BW) Caribou Herds, a post-calving survey was conducted in July of 2007, approximately a month after peak calving. This time period was chosen in order to minimize disturbance on the calving grounds of these caribou. The first month of calf mortality has occurred by the time our survey is conducted, therefore the actual number of calves born is not known. Productivity in this survey is the numbers of calves born that survive the first month.

On the CB and BW range, collared caribou were located first by aerial telemetry from a Cessna 206 aircraft. A Bell 206 Helicopter then landed near the groups and classification of the caribou was done using a spotting scope. Caribou were classified as cows, calves, yearlings, young bulls and mature bulls. On the Tuktoyaktuk Peninsula all work was done by helicopter (no fixed wing flights) and animals were identified as either caribou or reindeer. There were a few groups on the Tuktoyaktuk Peninsula that were not classified because they were too skittish; moving when the helicopter was still quite far from them.

A fixed wing survey was conducted over a portion of the winter ranges on the 9<sup>th</sup> of July to locate any collared caribou that may have died over winter. The post-calving ranges of the Bluenose-West and Cape Bathurst Herd were then flown on the 10<sup>th</sup> to 13<sup>th</sup> of July. The areas flown by fixed wing is shown in Figure 1. Tracks are not available for all the survey because of problems with the GPS's track log. The areas flown during this time are depicted roughly on Figure 1.

The classification of animals by helicopter occurred on July 3<sup>rd</sup> and 4<sup>th</sup> on the Tuktoyaktuk Peninsula, July 12<sup>th</sup> and 13<sup>th</sup> on the range of the Bluenose-West and July 14<sup>th</sup> on the range of the Cape Bathurst. Flight lines for the classification are shown in Figure 2. The locations where Tuktoyaktuk Peninsula and Cape Bathurst Herd groups

where classified are shown in Figure 3. Figure 4 shows the locations where classification of Bluenose-West groups was done. Identification to herd is based on the location where the group was found compared to the defined post-calving range of the herds. One cow, which was on the Tuktoyaktuk Peninsula calving last year and found on the TP in March, was located this year alone with no calf on the Cape Bathurst range. This was not the same animal that was found during the recruitment survey mixed with Cape Bathurst animals (That animal had returned to the Tuktoyaktuk Peninsula).

There were a total of 58 groups classified in all three areas. Group size ranged from single caribou to 845 caribou. Table 1 shows the number of groups, and average group size. The number of groups used for the productivity analysis is also shown in Table 1. The productivity analysis does not use groups of all bulls. The reindeer on Tuktoyaktuk Peninsula were included in the productivity analysis.

There were 21 groups with individuals identified as reindeer in them. Eleven percent of all animals seen (834 animals) on the Tuktoyaktuk Peninsula were identified as reindeer. Of the reindeer that were seen 80% were adults and 60% of the adult reindeer were male.

There were a total of 67 collars located in the groups classified. The number of collars that were being looked for, heard on mortality signal, and released this spring is shown in Table 2. Not as many collared caribou were located on the Tuktoyaktuk Peninsula because many scattered groups were spotted between the collared caribou, and locating collars was not needed to find caribou. Since only a portion of the herd is needed to do a productivity estimate it was not the goal of this survey to locate all of the collars. If we assume that the collars are spread out evenly within the herd, the number of collars in groups classified gives us a proportion of the entire herd classified to ensure enough are classified to get a representative sample of the herd. It is also important to ensure that the groups classified are spread out over the post calving areas to get a representative sample of the herd. Collars that provide information to ENR through satellites were used to plan a sampling effort prior to the survey.

The number of calves per 100 cows for Bluenose-west was  $86.7 \pm 9.9$  (Standard Error of Mean), Cape Bathurst was  $52.6 \pm 1.6$ , and Tuktoyaktuk Peninsula was  $75.3 \pm 3.6$ . The trend of productivity over time by herd is shown in Figure 5. This is the first productivity survey conducted on the Tuktoyaktuk Peninsula.

All the previous surveys were conducted in June (Figure 5); and therefore do not include the first month of mortality. The 2000 survey was conducted slightly early, with many cows still looking pregnant, causing the Bluenose-West number and to a lesser extent the Cape Bathurst number of calves to be low. The difference in timing of productivity surveys makes it difficult to directly compare previous data with the data collected this year. It is uncertain what the mortality of calves during their first month of life on these calving grounds.

This year's productivity for the Bluenose-West Herd is the higher than any June productivity survey. This shows that the productivity was high for the Bluenose-West Herd this year. The productivity for the Cape Bathurst is the lowest of the herds this year, however has increased from previous surveys in 2001 and 2002. Cape Bathurst productivity seems to be stable for the last three years as the percent of all animals that are calves is within the range of 2005 and 2006 photocensus as shown in Table 3. Comparing the Tuktoyaktuk Peninsula productivity to the past productivity for the other herds indicates that productivity is good.

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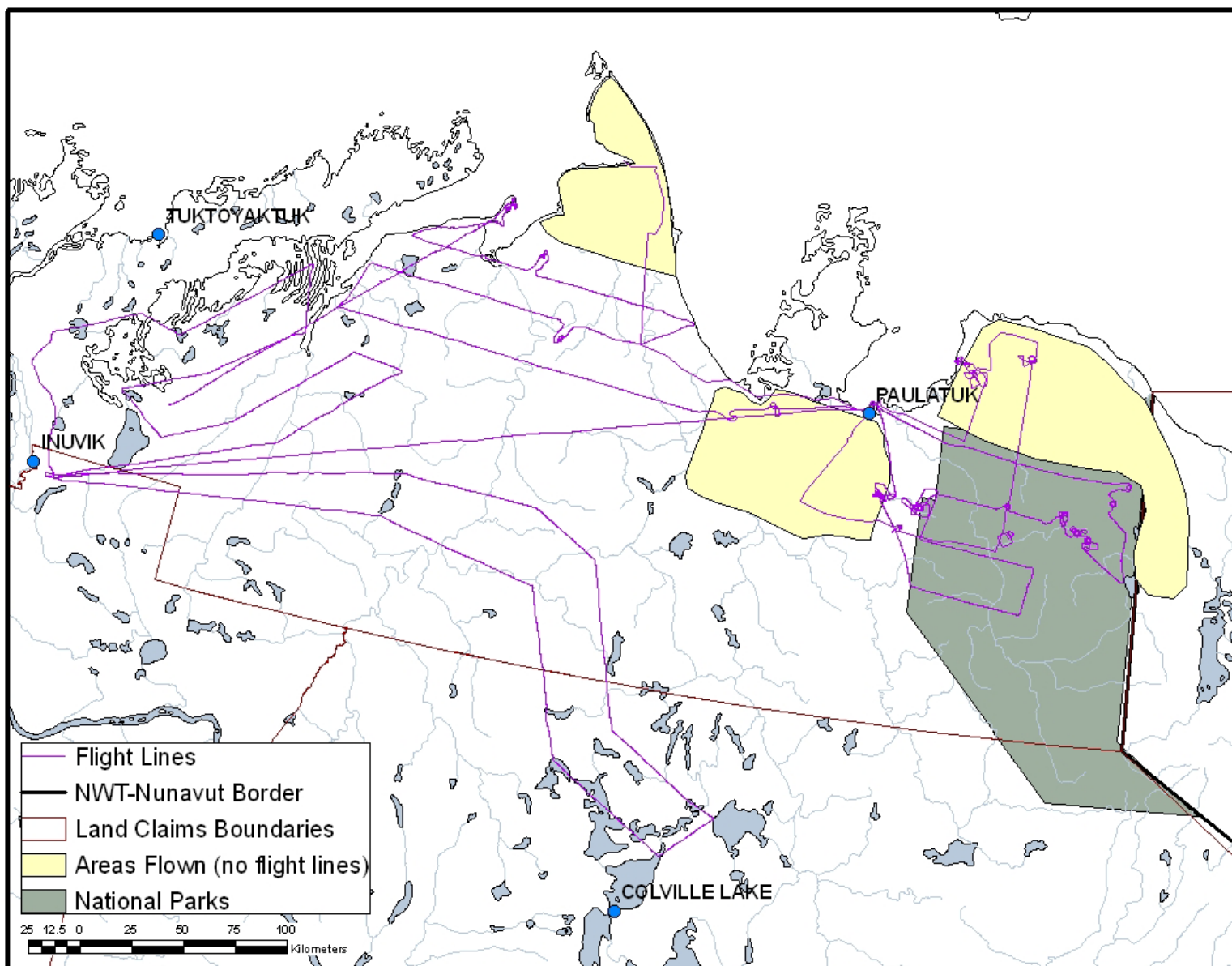


Figure 1: Flight lines and areas flown by the fixed-wing aircraft to locate collars.

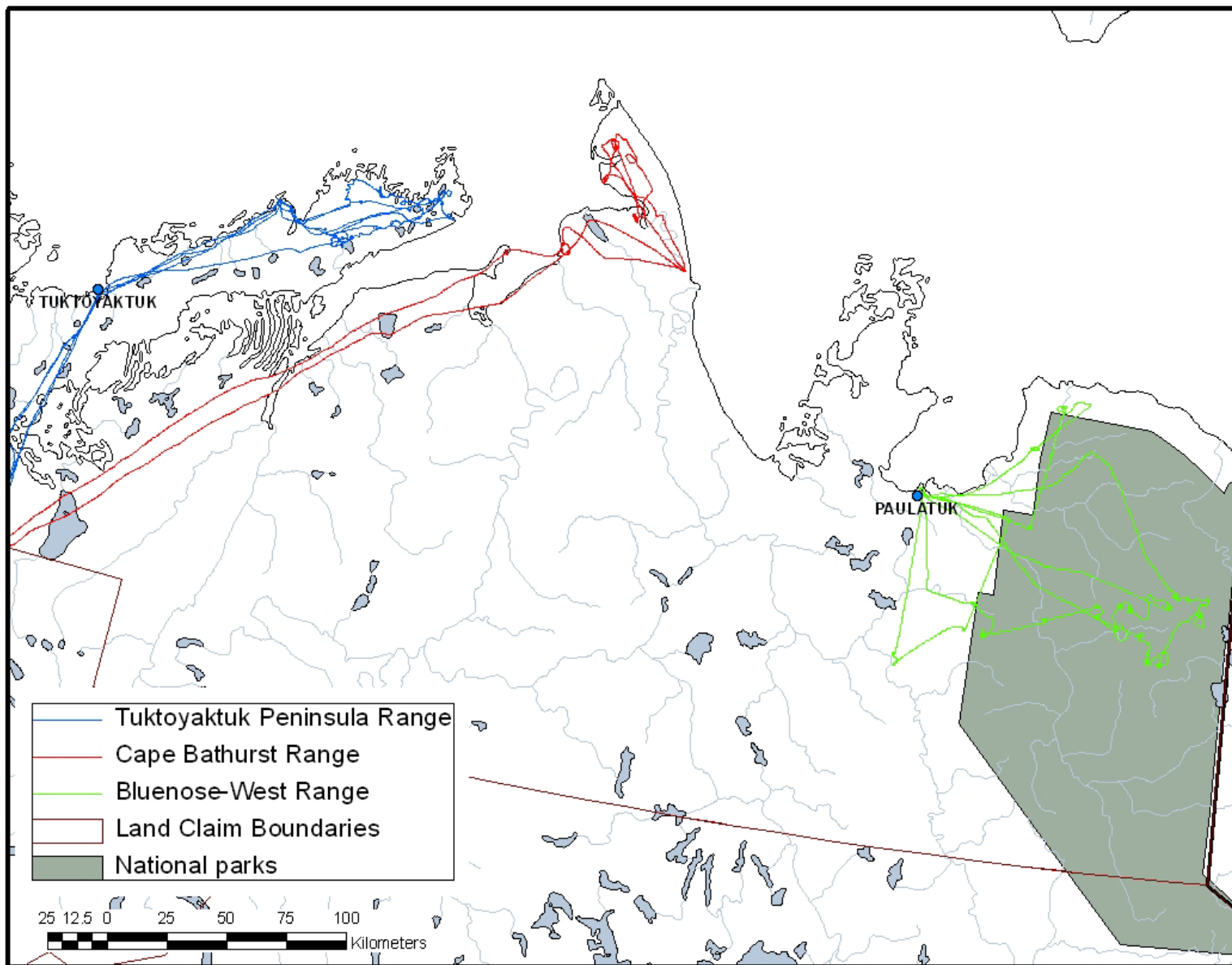


Figure 2: Flight lines for the Helicopter during classification.

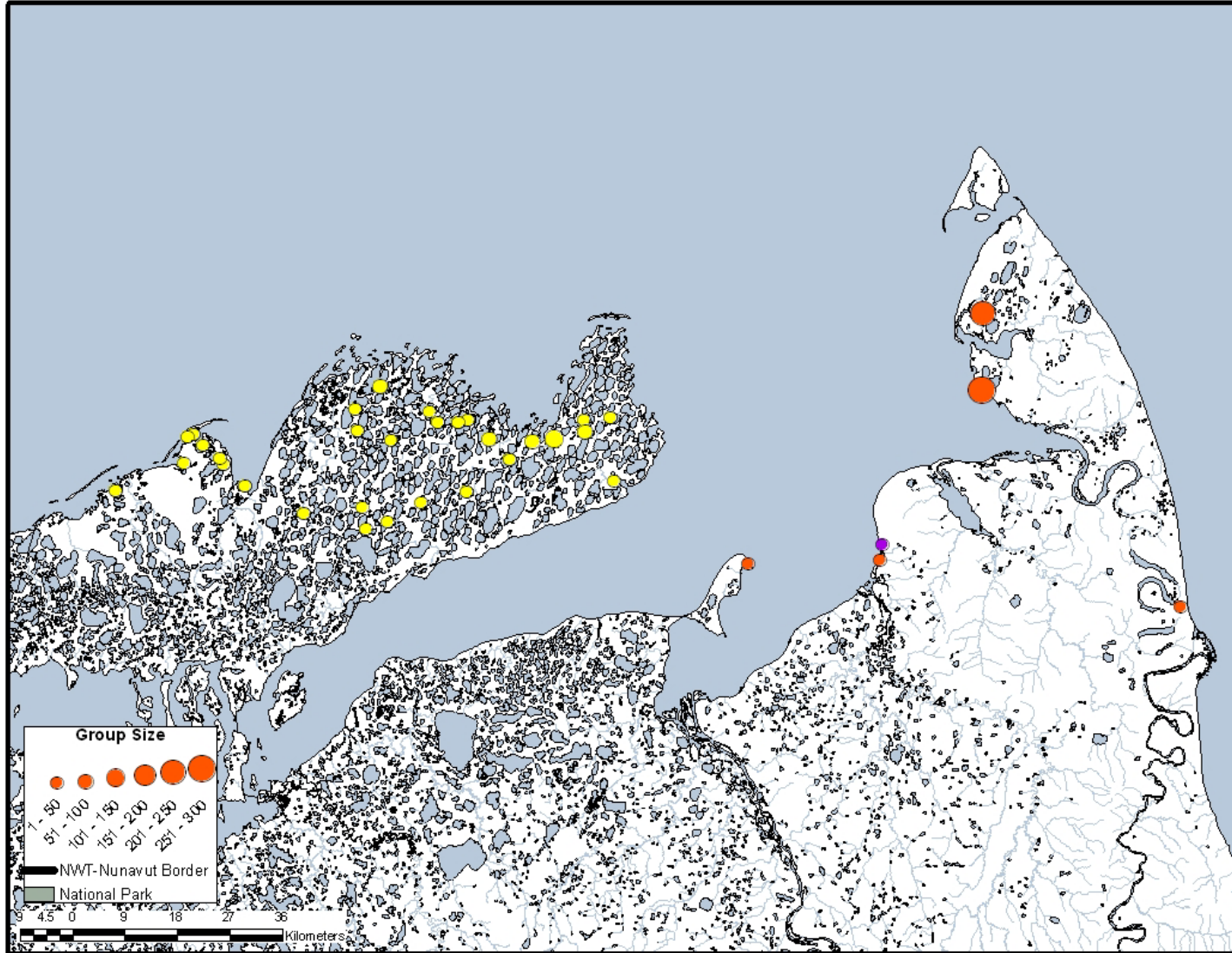


Figure 3: Locations where classified caribou on Tuktoyaktuk Peninsula and Cape Bathurst range were found with group size. The purple dot represents the one collared caribou that was on the Tuktoyaktuk Peninsula during last year's calving period.



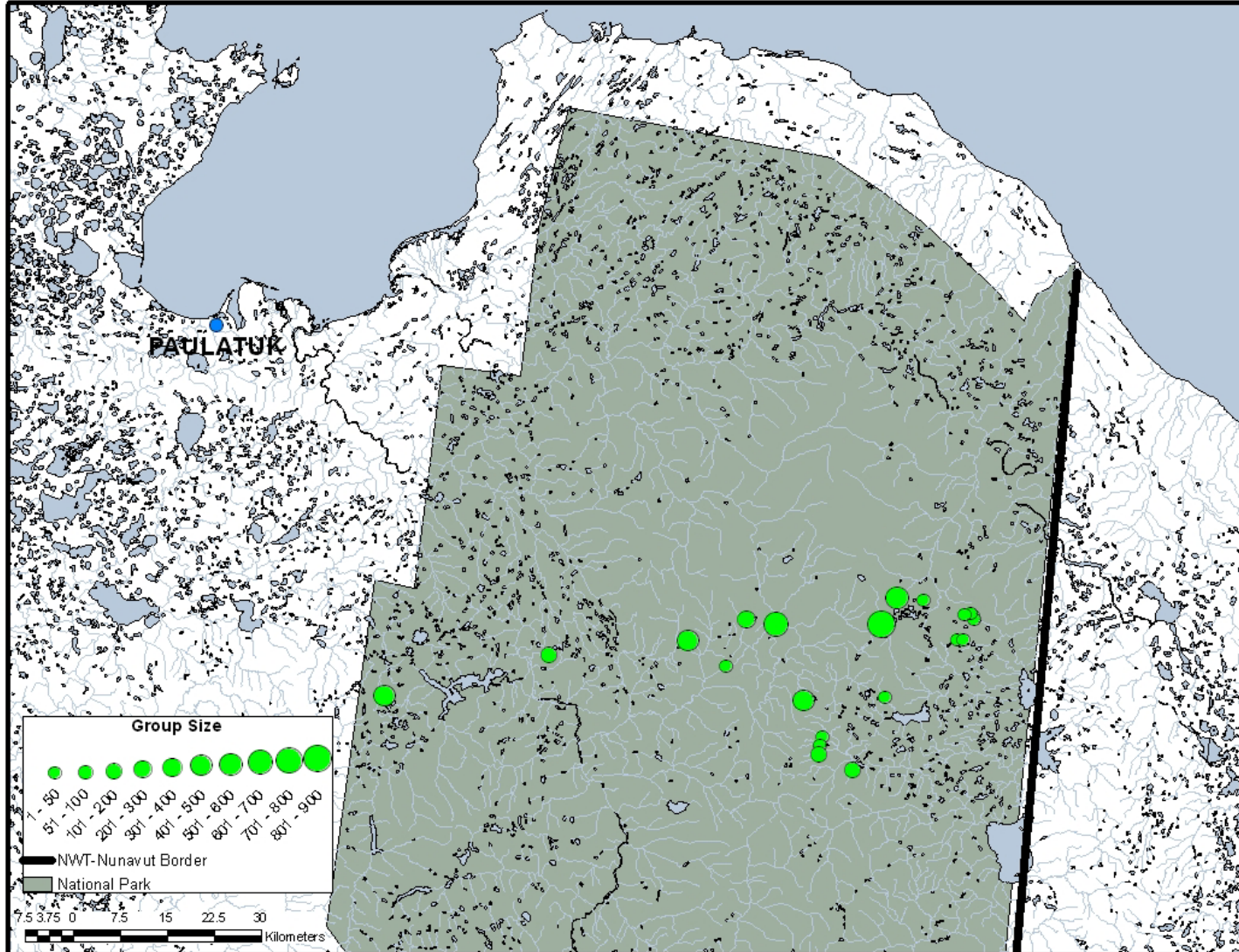


Figure 3: Locations where classified caribou on the Bluenose-West range were found with group size.



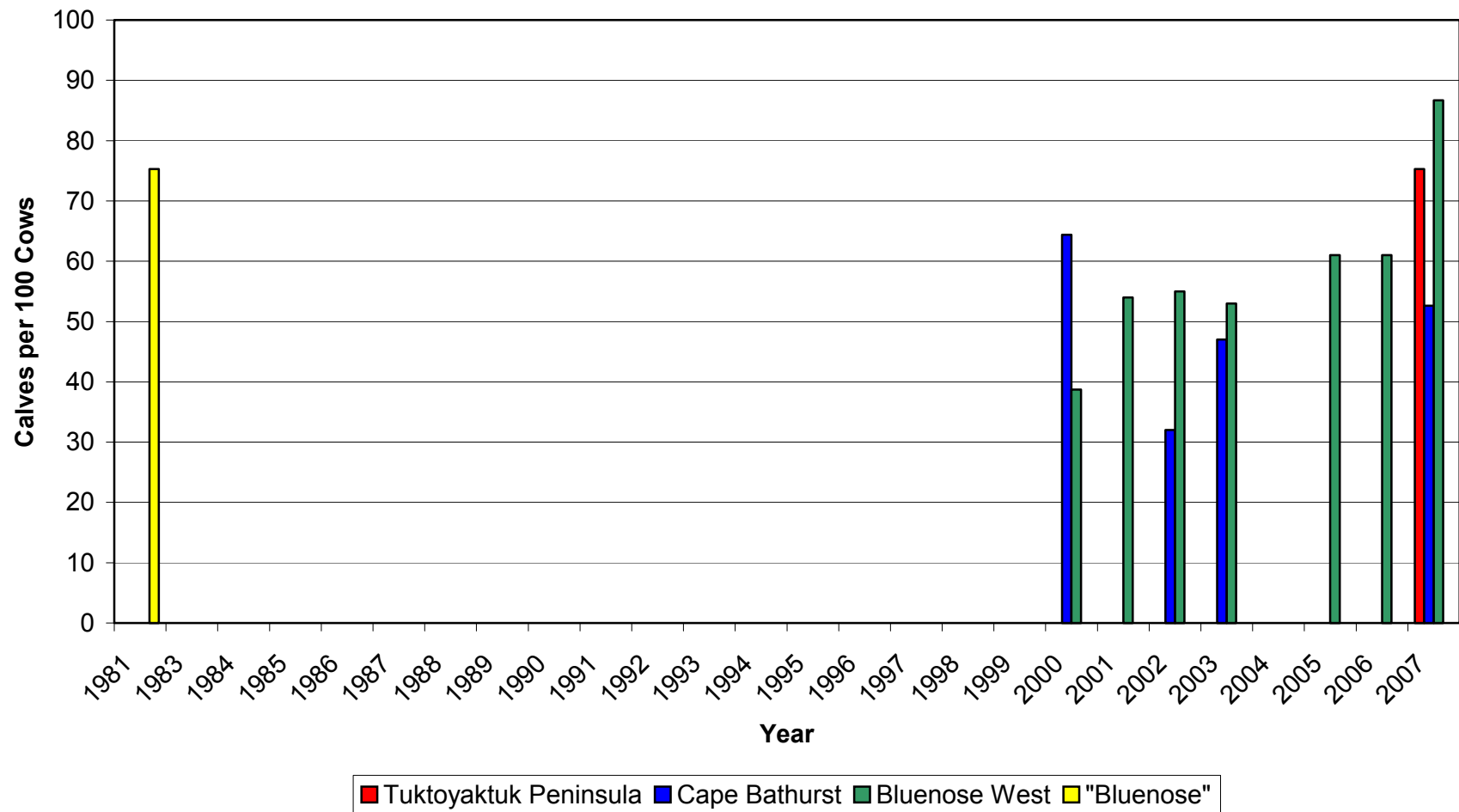


Figure 5: Trend in productivity of the Cape Bathurst and Bluenose-West Herd. All but 2007 are June productivity, where 2007 is July productivity (Department of Renewable Resources 1996, Theberge and Nagy 2001, Parks Canada 2002, Parks Canada 2003).

Table 1: Groups classified split by herd.

Herd	Total Number of groups	Total seen	Number of groups used for productivity	Total classified for Productivity	Group size		
					Average	Min	Max
Tuktoyaktuk Peninsula	32	834	19	741	26.1	1	128
Cape Bathurst	5	568	4	373	113.6	1	270
Bluenose-West	21	4232	20	4231	201.5	1	845

Table 2: Numbers of Collars split by herd.

Herd	Total Searching For	In Groups Classified	Heard but not Classified	Mortality		Released	Not found
				Signal	Confirmed		
Tuktoyaktuk Peninsula	26	6	9	7	0	0	4
Cape Bathurst	44	34*	1	3	0	3	3
Bluenose-West	74	27	18	0	1	0	28

\*includes one Tuktoyaktuk collar found on Cape Bathurst Range

Table 3: Percent of the total animals counted on the Cape Bathurst post-calving range in July that were calves. In 2006 the herd was counted and classified 3 times giving a range (Nagy and Johnson 2006).

	2005	2006	2007
% Calves	13.5%	24.1-27.3%	18.0%