



Dehcho Boreal Caribou Study Progress Report, April 2017

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Government of the Northwest Territories



Photo: GNWT/D. Allaire, ENR



The Dehcho boreal caribou study was initiated in 2004 with the deployment of ten satellite collars on adult female caribou at the request of, and after consultation with Sambaa K'e Dene Band (SKDB). Extensive consultations in response to requests from other First Nations since have increased the study area and number of First Nations partners in this study. From 2004-2017 a total of 158 collars (mostly ARGOS DS or GPS) have been deployed on 153 adult female boreal caribou and five adult male boreal caribou (Appendix 1, Figure 1). Males were first collared in 2017; their movements and locations during the rut being of particular interest. A more detailed background history of the program, the collars used, and the deployment procedures can be found in Larter and Allaire (2010). This report provides a reanalysis of some historical demographic data based upon corrected information and an update based upon information collected over the past year.

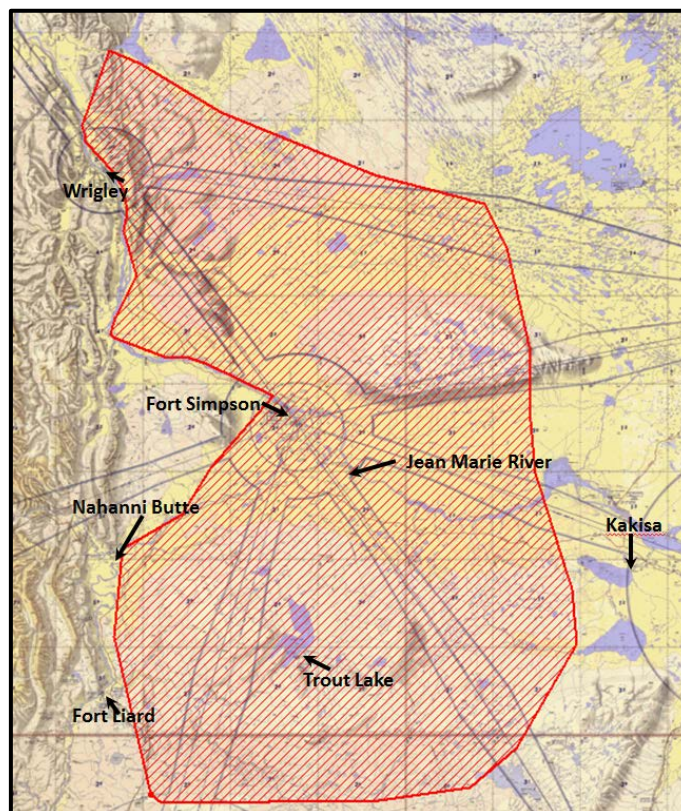


Figure 1. The Dehcho boreal caribou study area, based upon the locations of satellite/GPS collared adult female boreal caribou.

Home Ranges

To date, 110 collared (DS or GPS) caribou have provided locations for ≥ 12 months and 71 collared caribou have provided locations for ≥ 24 months. We used all locations for each of these 110 caribou to calculate 100% minimum convex polygons (MCP) (Figure 2). The MCP is a line connecting all of the outside points where a specific caribou has been located and represents the cumulative range used by individual female caribou. Mean range size was 3,080.0 km² (median 2,764.89 km²; range 260.6-14,419.9 km²). One of these home ranges belongs to a caribou originally collared in the Cameron Hills (Johnson 2007) and recaptured near Trainor Lake in February 2007. Her collar released in June 2010; we calculated her home range only from locations after she had been recaptured. The largest home range is from a female collared for about 28 months from 2010-2013. She was collared north of Trout Lake but ranged across an area as far

east as Redknife River and as far west as Netla River. She reared three calves in three successive years. Home range sizes we report are similar to those reported for other study areas in the Northwest Territories (NWT) including the Cameron Hills and Hay River Lowlands (Kelly and Cox 2011) and Gwich'in study areas (means of *ca.* 3,000 km²; Nagy 2011). Eleven caribou crossed into northeastern British Columbia (NEBC) and one into northwestern Alberta (Figure 2). As many as nine caribou collared in NEBC have crossed the border south of Trout Lake (Brad Culling personal communication).

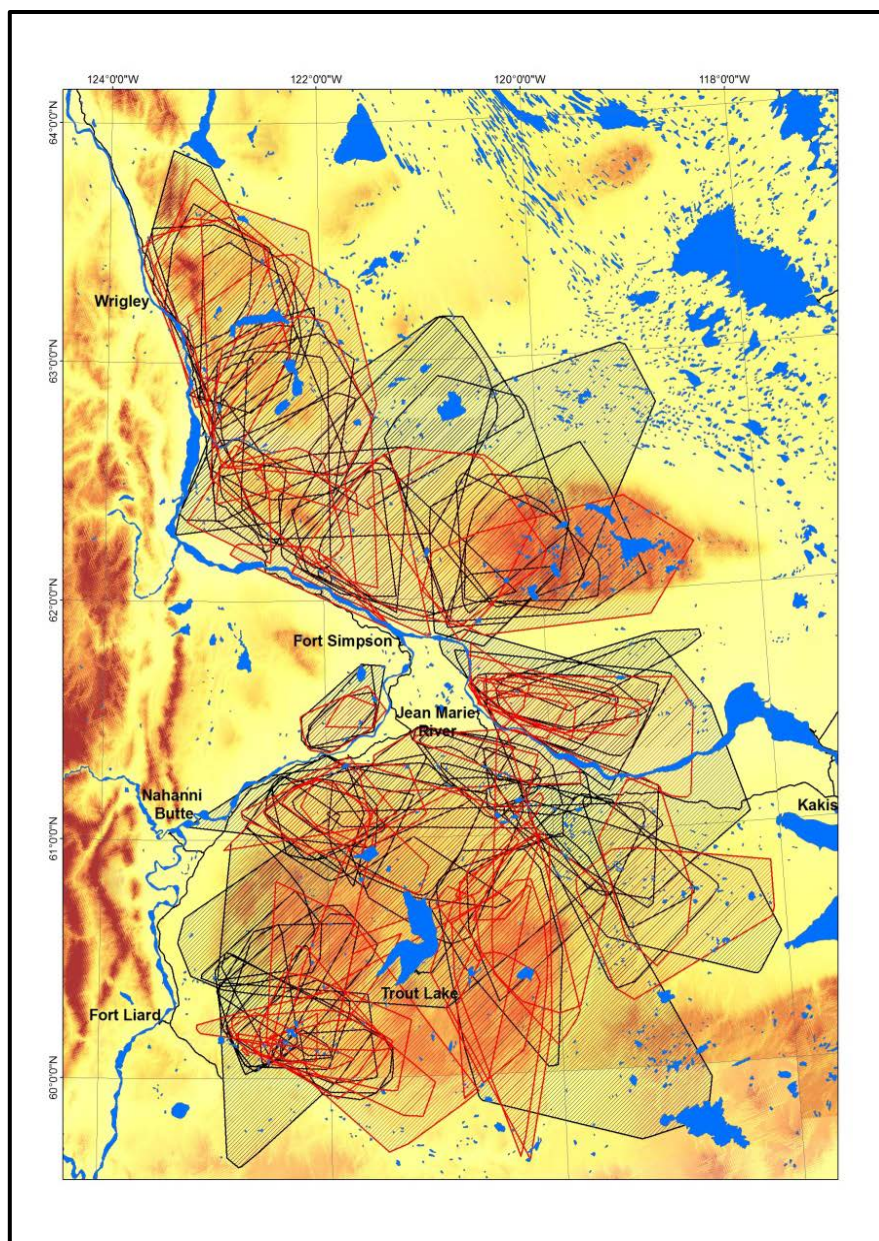


Figure 2. Cumulative ranges (100% MCP) of 110 collared female boreal caribou. ARGOS DS (red); ARGOS GPS

(black); Vectronic Iridium GPS (purple).

Calving and Calving Events

Boreal caribou, like other deer, have a high probability of conceiving after reaching maturity at two to three years old. Based upon the level of progesterone in blood serum, 93% (142 of 153) of collared females were pregnant; six (4.0%) not pregnant and the remaining five borderline (Table 1). For 2017, all eight captured females tested positive for pregnancy. Similarly high levels of pregnancy based upon blood progesterone have been found in boreal caribou females residing in the South Slave (Kelly and Cox 2013). The high number of births and pregnancies from collared females implies that capture and wearing a collar has not prevented females from becoming pregnant nor bearing calves.

Table 1. The number of blood samples indicating pregnant, borderline, and not pregnant for collared boreal caribou females over time. Pregnancy determination based upon progesterone levels in blood serum. No collaring occurred in 2011.

	2004	2005	2006	2007	2008	2009	2010	2012
Pregnant	10	12	10	16	7	7	17	14
Borderline	0	0	2	1	0	0	1	0
Not Pregnant	0	1	1	0	1	1	0	2
Total	10	13	13	17	8	8	18	16

	2013	2014	2015	2016	2017
Pregnant	10	12	11	8	8
Borderline	0	0	0	1	0
Not Pregnant	0	0	0	0	0
Total	10	12	11	9	8

Female boreal caribou spread out during the calving period, likely to avoid predation (Figure 3). Daily movement rates drop dramatically from *ca.* 6 km/day two days prior to calving, to *ca.* 0.2 km/day on the day of calving, and remain at ≤ 1 km/day for about a week post-calving (Nagy 2011). We can analyze daily movement patterns of collared female caribou to determine when and where a female boreal caribou calved or not; a reliable non-invasive way to monitor calving (Nagy 2011, Demars et al. 2013). Using movement data instead of flying aerial survey(s) reduces disturbance during the calving period, and does not risk surveying before calves are born or after newborn calves may have died, thus getting a more accurate assessment of calf production. Based upon 315 calving events, the peak of calving in our study area is 15 May ± 7 days.



Using movement data, we determined the potential calving events for all collared caribou (2004-2016) where we had location data from 1 May to 1 June. Of 336 potential calving events (from 130 females), there were 315 births (94%) and 15 times (4%)

when a caribou did not give birth. In six cases we were unable to determine the presence or absence of a calf.

In May 2016, 29 of 31 collared females calved, one did not calve, and one we could not determine if she calved based upon movement data. Calves were born from 7-23 May with 62% born by 15 May.

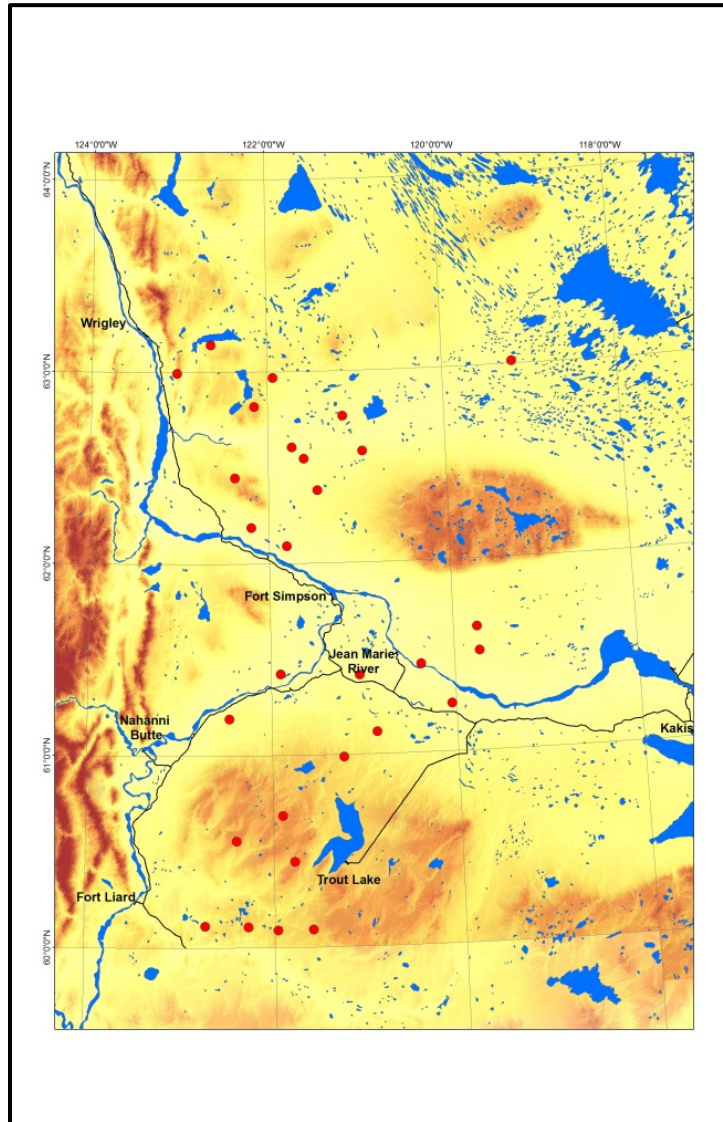


Figure 3. Calving locations of collared boreal caribou ● during 7-23 May, 2016. Note the wide dispersal throughout the range.

Timing and Fidelity of Calving

Individual females have remarkable consistency in calving dates. Of two females that calved successfully for six consecutive years, one had all of her calves within a four day period. Twenty-eight females have calved successfully for four consecutive years: two females had three calves born on the same date and five females had all of their calves

born within a four-day span. In most years as many as five calves are born to collared caribou on the same day.

Whether or not collared caribou show fidelity to calving location is a topic of great debate. From this study we know that female caribou can live to 22 years, have a calf as early as two years and as late as 21 years, and have an average home range of *ca.* 3,000 km². We have four consecutive calving events for 28 females and six consecutive calving events for two females. This provides information for only up to about one-quarter of a potential maximum 19 calving events in a lifetime. However, fidelity to an area for calving for a four to six year period may have implications related to disturbance mitigation.

Some females calve in the same general area while others do not. For the 28 females that calved successfully for four consecutive years, we measured the distance between each successive and all calving events. Five females had successive calving locations <300 m distant; 12 females <1,300 m distant. The average distance between four calving locations for one female was <500 m and for seven other females <6 km. Contrastingly, for five females the average distance between four calving locations was >30 km.

February/March Classification Survey

This survey is conducted with a helicopter because we need to see all collared caribou and determine the sex/age class of all other caribou we see. Caribou are classified into calves (9-10 months old), yearlings (21-22 months old), females (≥ 32 months old), and males (≥ 32 months old), based upon antler size and shape, and animal size. There is the potential for some yearlings to be mistakenly classified as females or males ≥ 32 months old. Photographs of caribou groups are used to verify classification and the presence of calves. We assume that calves of the year observed in this survey are recruited into the population.

The survey was flown 26 February to 1 March, 2017. Conditions for the survey were ideal, a large snowfall immediately prior to the survey and sunny conditions made fresh tracks highly visible for most of the survey. Collared caribou were widely dispersed throughout the Dehcho, from Bulmer Lake to NEBC. We needed our longest flight line (*ca.* 2,845km) to complete the survey, observing 337 boreal caribou, 20 moose, and two bison (Table 2). This was the most caribou we have classified in any survey.



Table 2. The total number of caribou classified, and other wildlife observed, during sex/age classification surveys conducted in February-March, 2006-2017.

	2006	2007	2008	2009	2010	2011	2012
#of active collars	24	33	35	37	39 ¹	24 ²	30
Total # of caribou observed	170	216	241	291	235	161	197
# of females (≥32 mo.)	94	114	145	160	128	74	104
# of calves (8-10 mo.)	27	26	34	50	45	33	40
# of yearlings (20-22 mo.)	13	6	1	1	1	2	1
# of males (≥32 mo.)	35	70	61	80	61	50	52
# unknown sex/age caribou	1	0	0	0	0	2	0
# of calves per 100 females	28.7	22.8	23.4	31.3	35.2	44.6	38.5
# of moose observed	18	38	15	31	23	22	25
# of wolves observed	2	1	0	0	0	0	0
Flight line length (km)	1,200	1,600	1,700	2,000	1,750	1,655	1,900

	2013	2014	2015	2016	2017
#of active collars	35 ²	32 ²	39 ¹	34	30 ¹
Total # of caribou observed	282	196	303	213	337
# of females (≥32 mo.)	153	106	139	119	150
# of calves (8-10 mo.)	43	29	63	37	62
# of yearlings (20-22 mo.)	2	1	2	2	1
# of males (≥32 mo.)	84	59	99	53	117
# unknown sex/age caribou	0	1	0	2	7
# of calves per 100 females	28.1	27.4	45.3	31.1	41.3
# of moose observed	18	23	11	17	20
# of wolves observed	0	2	0	13	0
Flight line length (km)	1,865	1,787	2,242	1,966	2,845

¹ One collared animal located during the South Slave classification survey.

² Two collared animals located during the South Slave classification survey.

Caribou collared as part of the Dehcho and South Slave studies move back and forth between study areas. As in the previous four years, the Dehcho survey was conducted immediately prior to the South Slave survey and used some of the same observers for consistency in classification. For survey efficiency we relocated one South Slave-collared caribou during our survey. No Dehcho collared caribou were in the South Slave survey area (Table 2).

Eleven of 29 collared females were observed with calves, estimating 37.9 calves per 100 adult females. Using all females observed in classification survey the estimate was slightly higher at 41.3 (Table 2). Although the number of calves per 100 adult females can change substantially between years and the number of collared females changes each year the average estimate of calves per 100 adult females based on both methods is similar over the course of the survey (Appendix 3).

Location data prior to the survey showed that for the second consecutive winter caribou did not become sedentary for extended periods of time during January and February, which has been considered “the norm” in most years. According to local harvesters, the mild temperatures and lack of snow this winter made it easy for wolves to move around. Consequently, caribou were less likely to remain in areas for extended periods. Caribou group size increases with increased snow depth (Larter et al. submitted). This year 39 of 56 groups we observed were ≤ 4 in size.

Calf Survival/Recruitment

Larter et al. (2017) used the estimated number of calves per 100 adult females from all caribou observed on surveys (Table 2) to investigate whether the depth of snow in late winter had a significant effect on recruitment over 11 years (2006-2016). They found no significant effect over snow cover ranging from 41-89 cm. They found a similar result when using the estimated number of calves per 100 adult females based upon only collared animals.



Of the 21 collared females that had calves in May 2016, nine of them were accompanied by calves in the March 2017 classification survey. This is an estimated 43% survival. Local harvesters commented that winter 2016/17 was another relatively mild winter; however March was a “lion”. Snow cover was minimal until March and temperatures had rarely dropped to -35°C until March. Nonetheless, similar to last winter boreal caribou moved around more than in previous winters.

Caribou Deaths

Since the start of the study in March 2004, 75 collared caribou have died. Most female caribou deaths occur between late-March and mid-July (74%; $n=52$). We have visited 55 death sites successfully retrieving collars. Based on death site visits, suspected wolf predation ($n=43$; 78%) has been the greatest mortality factor. Six caribou were harvested (11%), five died of natural causes associated with malnutrition (9%), and one was black bear predation (Table 3). Collars at 19 death sites will have active VHF transmissions through summer 2017 and potentially could be retrieved pending their location and the availability of helicopters.

We have age at death for 27 of the 75 caribou that have died during the study. Age at death is determined by counting stained cementum annuli on teeth (preferably the incisor), similar to counting the rings of a tree (Figure 4). June 1 has historically been used as the birth date for caribou (Matson 1981). Some boreal caribou in our study area live very long lives. The oldest caribou died at 22 years old after bearing calves at 20 and 21 years. This is one of the oldest caribou ever aged in North America (Larter and Allaire 2016). Seven other caribou have died as teenagers in our study (age range 4-22, mean 10.5, median 10 years; Figure 4).

Table 3. The number of collared caribou deaths and the suspected cause for each year of the study. Yearly percentages are reported in parentheses. The maximum number of collared animals for each calendar year is indicated.

April-March Year	Max Collars	Total Deaths	Suspect Wolf (%)	Suspect Bear (%)	Harvest (%)	Natural Causes ¹ (%)	Unknown ² (%)
04/05	10	2	2 (100)	0	0	0	0
05/06	21	8	7 (87.5)	0	0	1 (12.5)	0
06/07	27	8	7 (87.5)	0	0	1 (12.5)	0
07/08	35	4	2 (50)	1 (25)	1 (25)	0	0
08/09	36	5	2 (40)	0	2 (40)	0	1 (20)
09/10	39	7	5 (71)	0	2 (29)	0	0
10/11	40	5	3 (60)	0	0	0	2 (40)
11/12	26	5	2 (40)	0	1 (20)	0	2 (40)
12/13	33	4	3 (75)	0	0	0	1 (25)
13/14	37	8	1 (12.5)	0	0	3 (37.5)	4 (50)
14/15	32	1	1 (100)	0	0	0	0
15/16	43	10	7 (70)	0	0	0	3 (30)
16/17	45	8	1 (12.5)	0	0	0	7 (87.5)
TOTAL		75	43	1	6	5	20

¹ This includes four caribou suspected of succumbing to malnourishment.

² These death sites have never been investigated.

Wolves have greater access to boreal caribou habitat by using seismic lines (Neufeld 2006). Increased access has resulted in more caribou mortalities (McLoughlin et al. 2003). In the NWT boreal caribou use areas ≤ 400 m from anthropogenic linear features less than other areas, and travel faster when they encounter linear features (Nagy 2011). The remains of 17 of 44 (39%) caribou predated by wolves or black bears in this study were located ≤ 400 m from anthropogenic linear features.

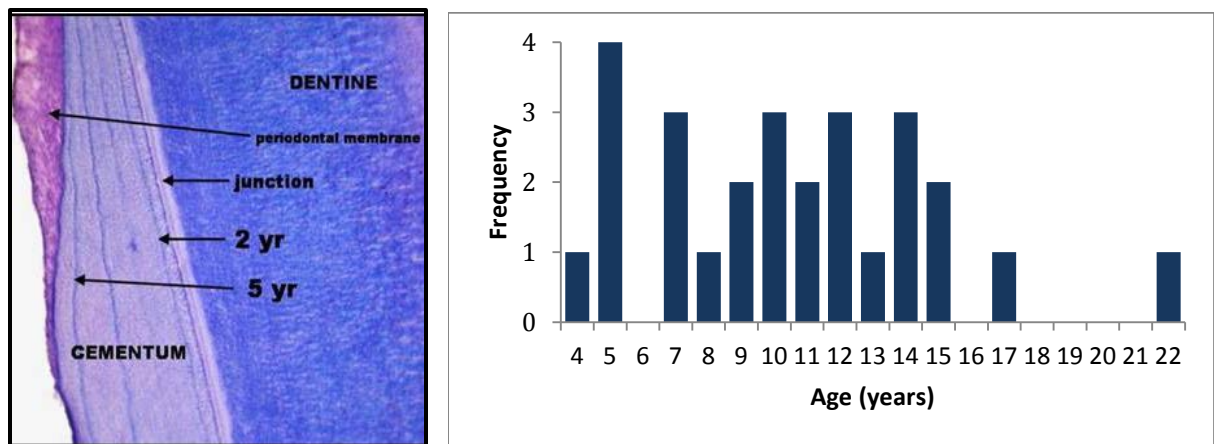


Figure 4. *Left:* The stained section of a tooth root. The dark blue lines are stained cementum. *Right:* The frequency of age at death for 27 female boreal caribou. Age was determined by counting cementum annuli.

Released Collars

To date, 45 of 143 collars have remained on female caribou until their scheduled date of release (none of the ten collars deployed in 2004 had release mechanisms). Collars often release in isolated locations, far from communities, and inaccessible even by helicopter. We have retrieved only 13 of the 45 released collars; two of the eight released this year were retrieved. One released collar will remain active until December 2018. Retrieved collars are refurbished if possible.

Adult Female Survival

Annual adult female survival of collared females was based upon 31 females that were alive with functioning collars on 1 April 2016 and determined following Kaplan and Meier (1958) and Pollock et al. (1989). Five collars released in the summer and one collar had poor transmission during the winter and they were not included in the analysis. Annual adult female survival estimated for 2016/17 was 74.2% (Table 4); lower than our best conservative estimate (geometric mean) over the past 12 years of 78.6% (see Figure 5). We did not include the estimates from 2004/05 due to a small sample size (ten collars) and the restricted area of deployment. Estimated adult female survival rate we report is similar to that reported for the Cameron Hills (81% average from five years; Kelly and Cox 2011), but lower than that reported for the Hay River Lowlands (86% average from seven years; Kelly and Cox 2011), the Gwich'in ($\geq 95\%$ average from three years; Nagy 2011) areas of the Lower Mackenzie, and for most populations in Alberta (range 78-91%; Hervieux et al. 2013). Low adult female survival reduces the population rate of increase.

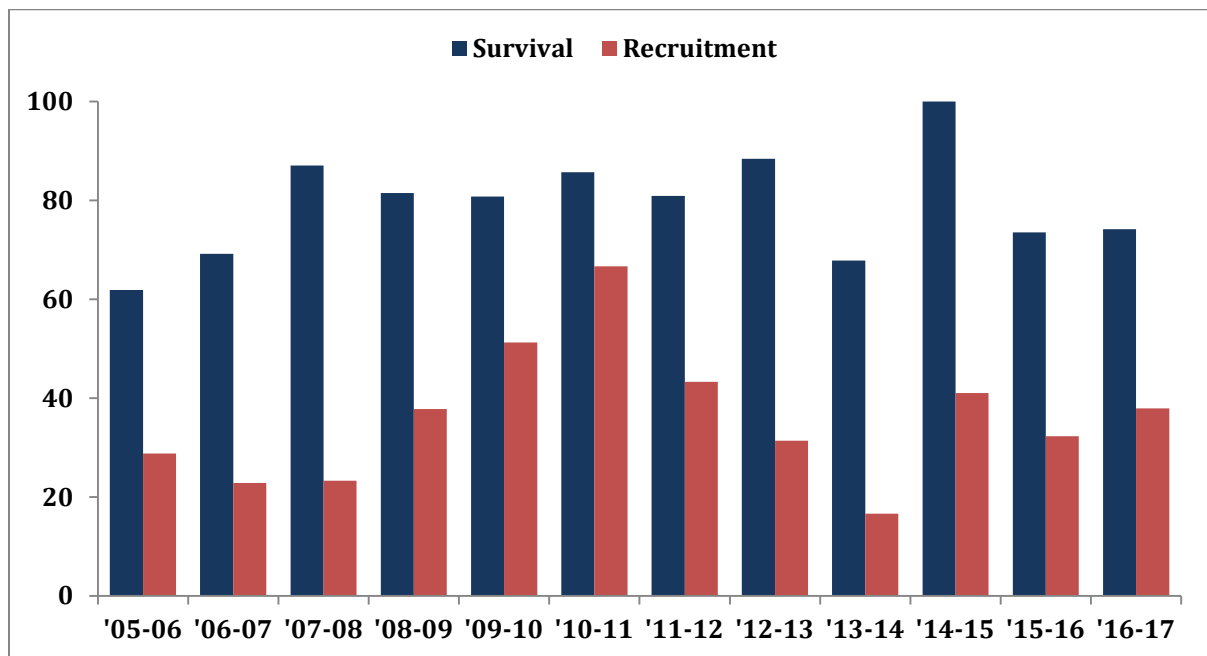


Figure 5. Adult female survival (%) and calves:100 adult females in March (recruitment) for the Dehcho study area from 2005-06 to 2015-16 based on radio collared female caribou.

Table 4. The estimated annual population rate of increase (λ) for 12 successive years. Rates for the south Dehcho are calculated for caribou collared south of the Mackenzie River, rates for the north Dehcho for caribou collared north of the Mackenzie River.

South Dehcho

Year	Female Survival Rate	Calf:100 Females	Rate of Increase (λ)
2005-2006	0.6250	25.87	0.7179
2006-2007	0.6429	26.16	0.7396
2007-2008*	0.9412	25.84	1.0808
2008-2009*	0.9333	39.13	1.1604
2009-2010*	0.9375	45.83	1.2162
2010-2011*	0.7333	58.33	1.0353
2011-2012	0.8750	24.43	0.9968
2012-2013	0.9231	55.55	1.2781
2013-2014	0.6429	20.00	0.7143
2014-2015	1.0000	42.11	1.2667
2015-2016	0.6875	23.53	0.7792
2016-2017	0.7647	33.33	0.9176

North Dehcho

Year	Female Survival Rate	Calf:100 Females	Rate of Increase (λ)
2005-2006	0.6000	33.18	0.7193
2006-2007	0.7500	19.99	0.8333
2007-2008*	0.7857	19.64	0.8713
2008-2009*	0.6667	35.71	0.8116
2009-2010*	0.6000	60.00	0.8571
2010-2011*	1.0000	75.00	1.6000
2011-2012	0.7692	62.50	1.1189
2012-2013	0.8462	5.88	0.8718
2013-2014	0.7143	13.33	0.7653
2014-2015	1.0000	40.00	1.2500
2015-2016	0.7778	41.18	0.9794
2016-2017	0.7143	42.86	0.9091

Dehcho Combined

Year	Female Survival Rate	Calf:100 Females	Rate of Increase (λ)
2005-2006	0.6191	28.81	0.7232
2006-2007	0.6923	22.86	0.7817
2007-2008*	0.8710	23.35	0.9861
2008-2009*	0.8148	37.83	1.0049
2009-2010*	0.8077	51.28	1.0862
2010-2011	0.8571	66.67	1.2857
2011-2012	0.8095	43.33	1.0334
2012-2013	0.8846	31.43	1.0496
2013-2014	0.6786	16.67	0.7403
2014-2015	1.0000	41.03	1.2581
2015-2016	0.7353	32.35	0.8772
2016-2017	0.7419	37.93	0.9156

*indicates years where values changed from previous reports based upon reanalysis with corrected data.

Estimated Population Rate of Increase

We estimated the population rate of increase (λ) measured from April 1 - March 31 for 12 successive years for all caribou collared throughout the entire study area. We made separate estimates for caribou collared north and south of the Mackenzie River (Table 4; Figure 5). We based the λ estimate on annual female survival and the ratio of calves per 100 adult females (calf:cow) reported in March (Hatter and Bergerud 1991). Of note is that prior to 2009, the March ratio of calf:cow was estimated from all animals observed during the classification surveys. From 2009 to present, we had a larger sample size of collared and therefore known females. Because it is collared females that are used to estimate adult survival, and adult females are harvested, we estimated calf:cow solely from the collared females. We feel this is the most appropriate estimation of recruitment assuming that the collared females are a representative sample of all females. A rate of increase, or λ , of one indicates population stability, <1 indicates population decrease, and >1 indicates population increase. Small sample sizes affect the confidence of the estimate.

A comparison of the calf:cow estimations derived from only the collared females and from all females classified in the surveys showed annual variation as expected. The mean values from years with both estimates were similar, 39.8 vs. 35.9, respectively (Appendix 3).

We completed a reanalysis of all historical demographic data after we discovered that five collared females had been assigned incorrectly in the south and north study areas (Table 4; Appendix 4). The reanalysis showed the differences between the north and south Dehcho were not that great (See 2016 Annual Report-Table 3 for comparison). Mean calf recruitment was somewhat higher in the north, but mean adult female survival was somewhat higher in the south. The resulting difference in λ was 0.94 for the north and 0.96 for the south (geometric means).

Even with relatively high estimated annual rates of increase during years 2009/10-2010/11 and 2014/15, the average estimated rate of increase over the past 12 years remains <1 ($\lambda = 0.96$) (Table 4). If we had a population of 1,000 adult female caribou in 2004, and used our estimated annual population rates of increase we would expect there to be 641 ± 133 adult females today (Figure 6). Figure 6 also demonstrates how a single year with a combination of both low adult female survival and low recruitment, or conversely, high adult female survival and high recruitment, can have a major impact on annual population rates of increase. For 2016/17, the combination of average calf recruitment with below average adult survival, resulted in an estimated annual $\lambda < 1$ (0.92; Table 4).

The population rate of increase we report ($\lambda = 0.96$ geometric mean over 12 years) is similar to the Hay River Lowlands (HRL; $\lambda = 0.96$ mean over seven years) but greater than the Cameron Hills (CH; $\lambda = 0.87$ mean over five years) study areas, (Kelly and Cox 2011) and greater than most boreal caribou populations in Alberta (Hervieux et al. 2013).

Adult female survival is higher in HRL, CH, and most populations in Alberta, but calf recruitment in these areas is generally much lower than in the Dehcho. Low calf recruitment appears to be reducing λ in HRL, CH, and in Alberta boreal caribou populations regardless, of >80% adult female survival. The past years' increased recruitment in the HRL should have a positive influence on λ for that study area. The population rate of increase reported for the Gwich'in areas in the Lower Mackenzie over two to three years was $\lambda = 1.08-1.20$ (Nagy 2011); here both female survival and late winter calf:cow were higher.

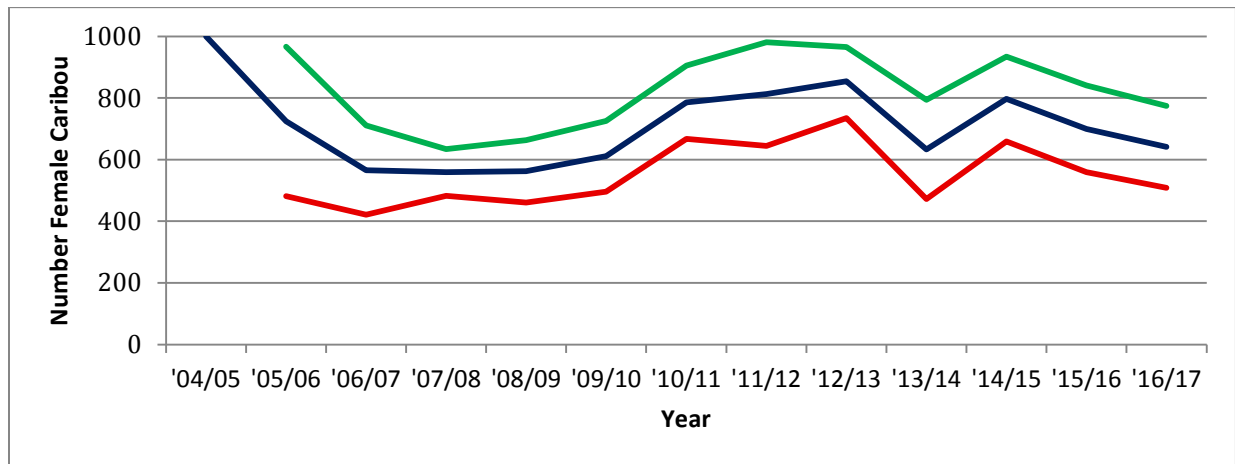


Figure 6. The estimated number of female caribou in each year of the study starting with a population of 1,000 and using the annual rates of increase (λ) calculated for the 12 successive years. The green and red lines represent the upper and lower 95% confidence intervals.

Animal Fatness

As part of a larger study on fatness of female boreal and mountain caribou from different parts of their range, we measured the layer of rump fat of captured female caribou using a portable ultrasound. This measure can be used to estimate the ingesta-free body fat following Cook and Cook (2017). This is the third consecutive year that we and the South Slave have collected these measurements as part of the capture and collar operation. Similar measurements have been taken from

boreal caribou populations in NEBC and across Ontario from 2009-2016. Late-winter body fat levels of boreal caribou in both the Dehcho and South Slave are high and have remained remarkably stable over the three years of measurements. Females that entered the winter in relatively good condition exited the winter in relatively good condition. These findings suggest that caribou are surprisingly resilient to the winter weather conditions they have experienced. Fatter caribou are more likely to become pregnant and have calves. Pregnancy rates of caribou in the Dehcho remain high (Table 1).



Disease and Parasites

Boreal caribou in the Dehcho are relatively disease and parasite free with low numbers of parasites and disease antibodies; none were a cause of concern (Johnson et al. 2010). However, winter ticks (*Dermacentor albipictus*) were found for the second consecutive year on boreal caribou during the 2017 capture operation. Ticks were found on seven caribou: three of five males and four of eight females. Winter ticks have been documented on boreal caribou females in both the South Slave and North Slave regions (Brad Culling personal communication).



The bacterium *Erysipelothrix rhusiopathiae* has been reported in boreal caribou populations in NEBC. This bacterium has the potential to adversely affect survival and reproduction (Schwantje et al. 2014). In order to determine if *E. rhusiopathiae* is present in boreal caribou in the Dehcho, we have provided 73 serum samples from caribou captured in 2010, 2012-2016 for testing. The full diagnosis is pending but there is evidence of exposure to the bacterium from seven of these samples (Bryan Macbeth personal communication). Fecal samples from the 13 captured caribou in February 2017 were analyzed for disease and parasites; none were positive for *Giardia* spp. or *Cryptosporidium* spp. and there were just two occurrences of one common parasite (a trichostrongyle). There continues to be a low prevalence of common diseases and parasites.

Present and Future of the Study

We continue to work collaboratively with other researchers conducting boreal caribou studies, see Deliverables. Data from this study have been incorporated into various territorial-wide analyses, and used as part of a Master's program at the University of Alberta. Data are being used by ENR in the development of Range Management Plans for Boreal Caribou. The boreal caribou program was endorsed by delegates of the 8th biannual regional wildlife workshop, in October 2016. They support the continued monitoring of boreal caribou in the region by maintaining an adequate number of collared female and male boreal caribou. Program results will be updated and the program critiqued at the 9th biannual Dehcho regional wildlife workshop, in Fort Simpson, October, 2018.

We assisted with a summer 2016 study to expand on the work of animal fatness. With the assistance of John Cook a general survey of the forage quality and quantity found in common boreal caribou habitats was conducted. Plant and lichen species known to be palatable to boreal caribou were collected from sites at different times during the summer. The forage quality, abundance, and composition will be used to provide estimates of nutritional value.

We continue to make every attempt to retrieve collars so they can be refurbished for re-deployment. We hope to visit more mortality sites this summer. We deploy only GPS collars, the majority have been Telonics ARGOS with a few GPS-PLUS from Vectronics

Aerospace. However, recently we have been deploying more Telonics Iridium collars; unit and data acquisition costs being lower with the Iridiums.

Deliverables

ENR provides this annual progress report to its First Nations partners, to the Western Northwest Territories Biophysical Study, and to the Cumulative Impacts Monitoring Program. The report is posted on the ENR website. ENR provides quarterly maps to its First Nations partners. The maps show the ranges used by individual collared female caribou over the previous three months.

Dehcho caribou data are being used by Environment and Climate Change Canada to conduct further meta-analyses at a national scale to better understand the relationship between habitat disturbance and population response by boreal caribou to support range planning and action planning:

https://www.registrelep-sararegistry.gc.ca/virtual_sara/files/Enhanced%20analysis%20to%20support%20regional%20caribou%20range%20and%20action%20planning.pdf

A presentation titled “Variation in nutritional condition and pregnancy among and within caribou populations in Ontario, British Columbia, and Northwest Territories” was made by our collaborators at the 16th North American Caribou Workshop in Thunder Bay, May 2016.

A presentation of the boreal caribou program and open critique of it occurred as part of the 8th Biannual Dehcho Regional Wildlife Workshop in Fort Simpson, October 2016. A copy of the presentation and program discussion can be found at:

http://www.enr.gov.nt.ca/sites/enr/files/2016_dehcho_regional_wildlife_workshop_report.pdf

Two scientific papers from the study were published and circulated.

Larter, N.C. and D.G. Allaire. 2016. Longevity and mortality of boreal woodland caribou (*Rangifer tarandus caribou*) of the Dehcho Region, Northwest Territories. Canadian Field-Naturalist 130: 222-223.

Larter, N.C., T.S. Jung and D.G. Allaire. 2017. Snow depth does not affect recruitment in a low-density population of boreal woodland caribou (*Rangifer tarandus caribou*). European Journal of Wildlife Research 63: 25. Doi: 10.1007/s10344-017-1085-6.

Collaborative use of boreal caribou location data was included in “Progress Report 2 – Sensitivity of estimates of range condition and integrated assessments of self-sustainability to variation in woodland caribou local population range delineation” Prepared for Tolko Industries Ltd. by S. Wilson, G. Sutherland and T. Nudds.

Collaborative use of the January 2016 wolf survey results and our boreal caribou demographic data was included in a report by the Alberta Biodiversity Monitoring

Institute titled “Human footprint, habitat, wolves and boreal caribou growth rates” by R. Serrouya, H. van Oort, C. DeMars and S. Boutin.

We continue our collaborative work with the South Slave and Trent University to look at the genetic structure of boreal caribou and the genetic diversity of boreal caribou across the southern Northwest Territories. A report on the preliminary findings was submitted in January 2017 by M. Manseau, P. Priadka, C. Klütsch and P. Wilson.

We continue our collaborative work on nutritional condition of boreal caribou in western Canada with the South Slave and the National Council for Air and Stream Improvement. A progress report was submitted by John and Rachel Cook.

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Ashley McLaren, Allicia Kelly and Karl Cox provided comparative data from the South Slave region. Brad and Diane Culling provided comparative data from northeastern British Columbia. Forest Management, Department of Environment and Natural Resources (ENR), Fort Simpson, provided access to helicopter fuel for collar deployment and the March survey. CLS America, JouBeh and Vectronics Aerospace provide satellite location data. Telonics and Vectronics Aerospace provided GPS collars. Matson's Lab aged caribou teeth. Great Slave Helicopters provided aircraft for the March classification survey. Diversified Environmental deployed collars. The Dehcho Land Use Planning Board provided digital linear feature data. Funding for the past year came from Wildlife Division, ENR, and the Western Northwest Territories Biophysical Study (GNWT).

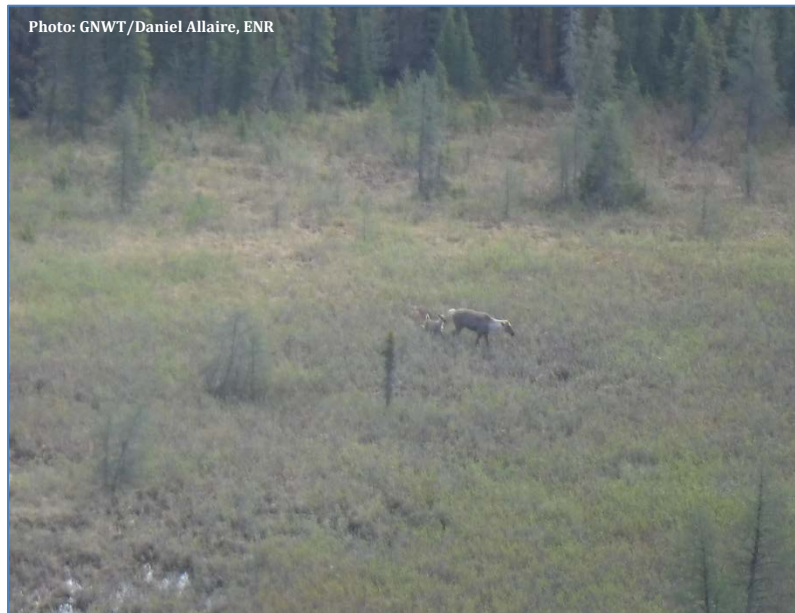
Personal Communications

Brad Culling, Diversified Environmental Services, Fort St. John, BC
Bryan Macbeth, DVM, PhD., University of Calgary, Calgary, AB

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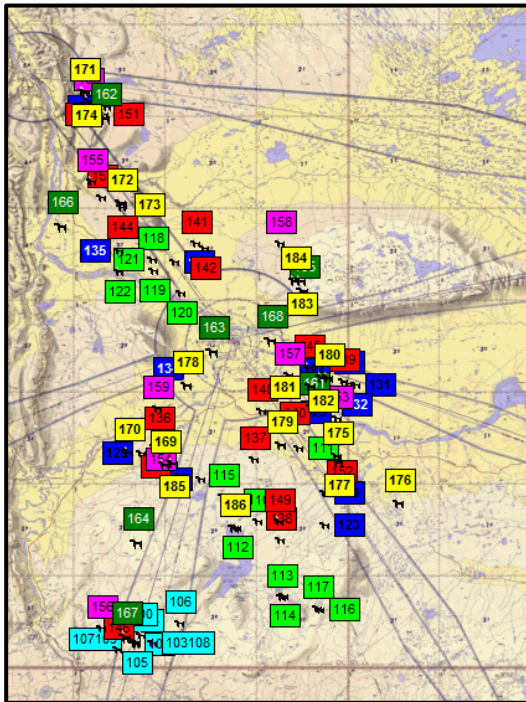
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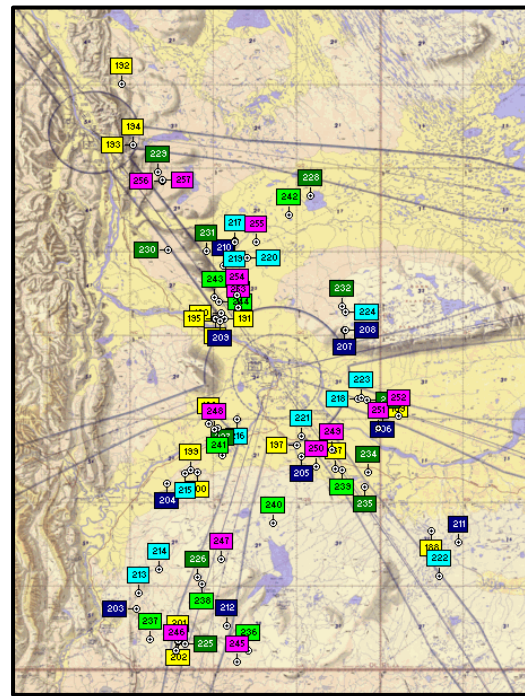


Appendix 1. The number and type of collars deployed on adult females during the study are shown in the table. Note that all Recon 4660-3 collars were deployed on adult males. The locations where collars were deployed on individual caribou during the study are shown in the figures.

Date caribou collared	Satellite (ST-20-3610 or TAW-4610H)	GPS (TGW-3680 or TGW-4680)	GPS (TGW-4570) Iridium	VHF (Mod 600)	Vectronic GPS-PLUS 2	Recon (4660-3) *males	Totals
March 2004	10						10
March 2005	13						13
January 2006	9			4			13
January 2007	8	9					17
February 2008	4	4					8
February 2009	1	7					8
February 2010	9	9					18
February 2012	2	14					16
February 2013	1	8			1		10
February 2014		12					12
February 2015		9			2		11
February 2016		5	3		1		9
February 2017			8			5	13
TOTAL	57	77	11	4	4	5	158



Locations of 87 female boreal caribou collared in 2004, 2005, 2006, 2007, 2008, 2009, 2010 (see colour for



Locations of 71 female boreal caribou collared in 2012, 2013, 2014, 2015, 2016, 2017 (see colour for locations).

Appendix 2. Collar retrievals during the past year.

- 20 October, 2016 helicopter across the Mackenzie River retrieved collar from caribou #209. Helicopter to Jean Marie River and retrieved collar from caribou #197. Flew over sites where caribou #233 and caribou #222 collars were located but it was determined that neither collar was retrievable.
- 28 October, 2016 helicopter east of Ebbutt Hills retrieved collars that had released from caribou #191 and #196.

Appendix 3. A comparison of the cow:calf ratios derived from only collared females with ratios derived from all caribou classified in spring air surveys. n/a indicates no value calculated because of small sample size ($n < 12$).

Year	05/06	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14
Collars	n/a	n/a	n/a	37.83	51.28	66.67	43.33	31.43	16.67
All	28.81	22.86	23.35	31.25	35.16	44.59	38.46	28.11	27.36

Year	14/15	15/16	16/17
Collars	41.03	32.35	37.93
All	45.32	31.09	41.33

Appendix 4. The five caribou with incorrect original study area associations (south and north). The correct associations are provided. South - #153, #154, #163, #164; North - #157.

Appendix 5. A timeline of each collared caribou since 2004. The collar type (GPS, Sat = Satellite, VHF) is noted as well as whether most recently only VHF signals are being received. **Black font** indicates currently active collars on caribou. **Blue font** indicates released caribou collars. **Green font** indicates unknown status/no release mechanisms on caribou collars. **Red font** indicates collars of known dead caribou. **Orange font** indicates collars of known dead caribou where death was natural causes which included being related to malnutrition. **Purple** indicates collars of known harvested caribou.

Caribou #257 (GPS, Iridium)

- 8 Feb/17 collared
- 27 Feb/17 seen in group of 2 with calf

Caribou #256 (GPS, Recon, male)

- 8 Feb/17 collared
- 27 Feb/17 seen in group of 4

Caribou #255 (GPS, Iridium)

- 7 Feb/17 collared
- 27 Feb/17 seen in group of 5 without calf

Caribou #254 (GPS, Recon, male)

- 7 Feb/17 collared
- 27 Feb/17 seen in group of 7

Caribou #253 (GPS, Iridium)

- 7 Feb/17 collared
- 27 Feb/17 seen in group of 7 without calf

Caribou #252 (GPS, Iridium)

- 7 Feb/17 collared
- 27 Feb/17 seen in group of 8 with calf

Caribou #251 (GPS, Recon, male)

- 7 Feb/17 collared
- 27 Feb/17 seen in group of 3

Caribou #250 (GPS, Recon, male, died)

- 7 Feb/17 collared
- 1 Mar/17 seen in group of 3

- Died 23 April/17
- 11 May/17 collared retrieved

Caribou #249 (GPS, Iridium)

- 7 Feb/17 collared
- 1 Mar/17 tried locating caribou, no luck, thought it was a mortality, but movement proved otherwise

Caribou #248 (GPS, Iridium)

- 6 Feb/17 collared
- 26 Feb/17 seen in group of 10 without calf

Caribou #247 (GPS, Iridium)

- 6 Feb/17 collared
- 28 Feb/17 seen in group of 3 without calf

Caribou #246 (GPS, Iridium)

- 6 Feb/17 collared
- 28 Feb/17 seen in group of 8 without calf

Caribou #245 (GPS, Recon, male)

- 6 Feb/17 collared
- 28 Feb/17 seen in group of 3

Caribou #244 (GPS, died)

- 15 Feb/16 collared
- 29 Feb/16 seen in group of 7 with calf
- Died 16 Oct/16

Caribou #243 (GPS, Iridium)

- 15 Feb/16 collared
- 29 Feb/16 seen in group of 2 with calf
- 27 Feb/17 seen in group of 10 with calf

Caribou #242 (GPS, Iridium)

- 15 Feb/16 collared
- 29 Feb/16 seen in group of 3 with calf
- 27 Feb/17 seen in group of 2 without calf

Caribou #241 (GPS, Iridium)

- 9 Feb/16 collared
- 1 Mar/16 seen in group of 12 with calf
- 26 Feb/17 seen in group of 7 without calf

Caribou #240 (GPS)

- 9 Feb/16 collared
- 1 Mar/16 seen in group of 11 with calf
- 27 Feb/17 seen in group of 6 with calf

Caribou #239 (GPS-PLUS 2)

- 9 Feb/16 collared
- 2 Mar/16 seen in group of 4 with #221 without calf
- 1 Mar/17 seen in group of 2 without calf

Caribou #238 (GPS, died)

- 8 Feb/16 collared
- 1 Mar/16 seen in group of 4 without calf
- Died 20 April/16

Caribou #237 (GPS)

- 8 Feb/16 collared
- 1 Mar/16 seen in group of 9 with #212 without calf

- 28 Feb/17 seen in group of 7 without calf

Caribou #236 (GPS)

- 8 Feb/16 collared
- 1 Mar/16 seen in group of 2 without calf
- 28 Feb/17 seen in group of 2 without calf

Caribou #235 (GPS-PLUS 2, died)

- 20 Feb/15 collared
- 4 Mar/15 seen in group of 6 without calf
- Died 30 June/15 at age 8 years
- 18 Aug/15 collar retrieved, five wolves still at kill site

Caribou #234 (GPS, died)

- 20 Feb/15 collared
- 4 Mar/15 seen in group of 3 with calf
- Died 15 July/15 at age 7 years
- 18 Aug/15 collar retrieved

Caribou #233 (GPS-PLUS 2)

- 20 Feb/15 collared
- 3 Mar/15 seen in group of 8 with #218, #223 without calf
- 2 Mar/16 seen in group of 4 with calf
- Died 25 May/16

Caribou #232 (GPS)

- 19 Feb/15 collared
- 3 Mar/15 seen in group of 3 without calf
- 29 Feb/16 seen in group of 6 with calf
- 1 Mar/17 seen in group of 9 without calf

Caribou #231 (GPS)

- 19 Feb/15 collared
- 2 Mar/15 seen in group of 6 with calf

- 29 Feb/16 seen in group of 4 with calf
- 27 Feb/17 seen in group of 5 with calf

Caribou #230 (GPS)

- 19 Feb/15 collared
- 2 Mar/15 seen in group of 13 without calf
- 29 Feb/16 seen in group of 4 without calf
- 27 Feb/17 seen in group of 14 without calf

Caribou #229 (GPS, died)

- 19 Feb/15 collared
- 2 Mar/15 seen in group of 10 without calf
- 29 Feb/16 seen in group of 7 without calf
- Died 16 Nov/16

Caribou #228 (GPS)

- 19 Feb/15 collared
- 2 Mar/15 seen in group of 15 without calf
- 2 Mar/16 seen alone without calf
- 26 Feb/17 seen in group of 14 without calf

Caribou #227 (GPS, harvested)

- 18 Feb/15 collared
- 3 Mar/15 seen in group of 2 with calf
- 1 Mar/16 seen in group of 10 without calf
- Died 11 April/17, was harvested by TL harvester, shot with 5 other caribou.
- 13 April/17 collar retrieved

Caribou #226 (GPS)

- 18 Feb/15 collared
- 3 Mar/15 seen in group of 6 with calf

- 1 Mar/16 seen in group of 8 without calf
- Unable to locate during 2017 survey, no GPS locations

Caribou #225 (GPS, died)

- 18 Feb/15 collared
- 3 Mar/15 seen in group of 10 with calf
- 1 Mar/16 seen alone without calf
- Died 12 July/16

Caribou #224 (GPS, died)

- 10 Feb/14 collared
- Unable to relocate 3 Mar/14, GPS didn't initialize properly during deployment
- Received transmissions in April
- Unable to relocate 3 Mar/15, no VHF signal at waypoint
- Died 31 May/15 at 15 years
- 21 Aug/15 collar retrieved

Caribou #223 (GPS)

- 10 Feb/14 collared
- 5 Mar/14 seen in group of 2 with #206 without calf
- 3 Mar/15 seen in group of 8 with #218, #233 without calf
- 2 Mar/16 seen in group of 4 without calf
- 27 Feb/17 seen in group of 4 without calf

Caribou #222 (GPS, died)

- 8 Feb/14 collared
- 5 Mar/14 seen in group of 3 without calf
- 4 Mar/15 seen in group of 8 without calf
- 2 Mar/16 seen in group of 6 without calf
- Died 10 April/16

Caribou #221 (GPS)

- 8 Feb/14 collared
- 4 Mar/14 seen in group of 2 without calf
- 3 Mar/15 seen in group of 4 without calf
- 2 Mar/16 seen in group of 6 with #239 without calf
- 1 Mar/17 seen in group of 3 without calf

Caribou #220 (GPS)

- 8 Feb/14 collared
- 3 Mar/14 seen in group of 3 without calf
- 2 Mar/15 seen in group of 7 with calf
- 29 Feb/16 seen in group of 3 without calf
- 27 Feb/17 seen in group of 9 with calf

Caribou #219 (GPS, died)

- 8 Feb/14 collared
- 3 Mar/14 seen in group of 5 without calf
- 2 Mar/15 seen in group of 5 with calf
- Died 28 April/15 at age 7 years
- 19 Aug/15 collar retrieved

Caribou #218 (GPS)

- 7 Feb/14 collared
- 5 Mar/14 seen in group of 5 without calf
- 3 Mar/15 seen in group of 8 with #223, #233 without calf
- 2 Mar/16 seen in group of 2 with calf
- 27 Feb/17 seen in group of 7 with calf

Caribou #217 (GPS)

- 7 Feb/14 collared
- 3 Mar/14 seen in group of 4 without calf
- 2 Mar/15 seen in group of 8 without calf
- 29 Feb/16 seen alone without calf
- 1 Mar/17 seen in group of 4 without calf

Caribou #216 (GPS)

- 6 Feb/14 collared
- 3 Mar/14 seen in group of 12 without calf
- 3 Mar/15 seen in group of 12 with calf
- 1 Mar/16 seen in group of 4 without calf
- 26 Feb/17 seen in group of 8 with calf

Caribou #215 (GPS, died)

- 6 Feb/14 collared
- 4 Mar/14 seen in group of 9 with #204 without calf
- 3 Mar/15 seen in group of 3 with #204 without calf
- Died 21 May/15
- 9 Sept/15 collar retrieved

Caribou #214 (GPS, died)

- 6 Feb/14 collared
- 4 Mar/14 seen in group of 6 with #202 without calf
- 3 Mar/15 seen in group of 3 without calf
- 1 Mar/16 seen in group of 2 without calf
- Died 29 April/16

Caribou #213 (GPS)

- 6 Feb/14 collared
- 4 Mar/14 seen in group of 3 without calf

- 3 Mar/15 seen in group of 10 with #212 without calf
- 1 Mar/16 seen in group of 4 without calf
- 28 Feb/17 seen in group of 5 with calf

Caribou #212 (GPS)

- 27 Feb/13 collared
- 5 Mar/13 seen in group of 7 with calf
- 4 Mar/14 seen in group of 5 without calf
- 3 Mar/15 seen in group of 10 with #213 without calf
- 1 Mar/16 seen in group of 9 with #237 with calf
- 28 Feb/17 seen in group of 4 with calf

Caribou #211 (Sat, died)

- 14 Feb/13 collared
- 6 Mar/13 seen in group of 5 with calf
- 5 Mar/14 seen in group of 6 without calf
- 4 Mar/15 seen in group of 12 without calf
- Died 18 Aug/15

Caribou #210 (GPS, died)

- 12 Feb/13 collared
- 4 Mar/13 seen in group of 16 without calf
- 3 Mar/14 seen alone without calf
- 2 Mar/15 seen alone without calf
- Died 27 June/15

Caribou #209 (GPS-PLUS 2, died)

- 12 Feb/13 collared
- 4 Mar/13 seen in group of 6 with #196 without calf
- 3 Mar/14 seen in group of 2 with calf
- 4 Mar/15 seen in group of 23 without calf

- 29 Feb/16 seen in group of 3 without calf
- Died 7 Oct/16

Caribou #208 (GPS, died, non-predation)

- 12 Feb/13 collared
- 5 Mar/13 seen in group of 8 without calf
- Died 30 June/13 at age 12 years, death related to malnutrition
- 11 Sept/13 collar retrieved

Caribou #207 (GPS, died)

- 12 Feb/13 collared
- 4 Mar/13 seen alone without calf
- Died 15 Nov/13

Caribou #206 (GPS, died)

- 12 Feb/13 collared
- 5 Mar/13 seen in group of 4 without calf
- 5 Mar/14 seen in group of 2 with #223 without calf
- 3 Mar/15 seen in group of 2 with calf
- Died 17 July/15 at age 22 years
- 18 Aug/15 collar retrieved

Caribou #205 (GPS, died, non-predation)

- 11 Feb/13 collared
- 5 Mar/13 seen in group of 5 without calf
- Died 30 June/13
- 9 Oct/14 collar retrieval

Caribou #204 (GPS)

- 11 Feb/13 collared
- 5 Mar/13 seen in group of 10 with #169, #170 with calf
- 4 Mar/14 seen in group of 9 with #215 with calf
- 3 Mar/15 seen in group of 3 with #215 with calf

- 1 Mar/16 seen in group of 6 with calf
- 28 Feb/17 seen in group of 5 without calf

Caribou #203 (GPS)

- 11 Feb/13 collared
- 5 Mar/13 seen in group of 7 without calf
- 4 Mar/14 seen in group of 7 with calf
- 3 Mar/15 seen in group of 3 with calf
- 1 Mar/16 seen in group of 2 without calf
- 28 Feb/17 seen in group of 6 with calf

Caribou #202 (GPS, no visual, released)

- 14 Mar/12 collared
- Did not relocate in 2012, was collared after survey
- 5 Mar/13 seen in group of 6 without calf
- 4 Mar/14 seen in group of 6 with #214 without calf
- Unable to relocate 3 Mar/15, waypoint was older, no VHF signal
- 1 July/16 collar released

Caribou #201 (GPS, no visual, released)

- 14 Mar/12 collared
- Did not relocate in 2012, was collared after survey
- 5 Mar/13 seen in group of 11 without calf
- 4 Mar/14 seen in group of 6 with calf
- Unable to relocate 3 Mar/15, no GPS locations during survey
- Active GPS in April
- 1 July/16 collar released

Caribou #200 (GPS, died)

- 17 Feb/12 collared
- 2 Mar/12 seen with #199 but without calf
- 5 Mar/13 seen in group of 4 with calf
- 4 Mar/14 seen alone without calf
- 3 Mar/15 seen in group of 2 with calf
- Died 17 Mar/15

Caribou #199 (Sat, no visual, released)

- 17 Feb/12 collared
- 2 Mar/12 seen with #200 but without calf
- 5 Mar/13 seen in group of 13 without calf
- 4 Mar/14 seen in group of 4 without calf
- 3 Mar/15 seen in group of 5 without calf
- Unable to relocate 2 Mar/16, no GPS locations during survey
- 15 June/16 collar released

Caribou #198 (GPS, died)

- 17 Feb/12 collared
- 2 Mar/12 seen in group of 4 without calf
- 5 Mar/13 seen in group of 13 with calf
- Died 14 July/13 at age 12 years
- 21 Oct/13 collar retrieved

Caribou #197 (GPS, died)

- 17 Feb/12 collared
- 1 Mar/12 seen in group of 6 without calf
- 5 Mar/13 seen in group of 2 with calf
- 4 Mar/14 seen alone without calf
- 3 Mar/15 seen alone without calf
- Died 9 Sept/15

Caribou #196 (GPS, released)

- 16 Feb/12 collared
- 29 Feb/12 seen in group of 4 with calf
- 4 Mar/13 seen in group of 6 with #209 without calf
- 3 Mar/14 seen in group of 2 with calf
- 2 Mar/15 seen in group of 7 with calf
- 29 Feb/16 seen in group of 4 without calf
- 1 July/16 collar released

Caribou #195 (GPS, unknown status, released)

- 16 Feb/12 collared
- 29 Feb/12 seen in group of 7 without calf
- 4 Mar/13 seen in group of 4 without calf
- 3 Mar/14 seen in group of 8 without calf
- No GPS locations last 6 months
- 1 July/16 collar released

Caribou #194 (Sat, died)

- 16 Feb/12 collared
- 29 Feb/12 seen in group of 4 without calf
- 4 Mar/13 seen in group of 3 without calf
- Died 20-22 Dec/13

Caribou #193 (GPS, released)

- 16 Feb/12 collared
- 29 Feb/12 seen in group of 7 with calf
- 4 Mar/13 seen in group of 4 without calf
- 3 Mar/14 seen in group of 5 without calf
- 2 Mar/15 seen in group of 5 with calf
- 29 Feb/16 seen in group of 3 without calf

- 1 July/16 collar released

Caribou #192 (GPS, died)

- 16 Feb/12 collared
- 29 Feb/12 seen alone
- 4 Mar/13 seen in group of 5 without calf
- Died 11 Jan/14
- 14 Jan/14 collar retrieved by trapper

Caribou #191 (GPS, released)

- 15 Feb/12 collared
- 29 Feb/12 seen in group of 4 with calf
- 4 Mar/13 seen in group of 5 without calf
- 3 Mar/14 seen in group of 7 without calf
- 2 Mar/15 seen in group of 19 without calf
- 29 Feb/16 seen in group of 4 without calf
- 1 July/16 collar released

Caribou #190 (GPS, died)

- 15 Feb/12 collared
- 29 Feb/12 seen in group of 3 with calf
- Died 25 Mar/12
- 19 June/13 collar retrieved

Caribou #189 (GPS, VHF only, released)

- 15 Feb/12 collared
- 1 Mar/12 could not relocate in area
- 15 Mar/12 relocated in fixed-wing weak VHF signal
- 21 June/12 no satellite location
- 1 July/16 collar released

Caribou #188 (GPS, died, non-predation)

- 15 Feb/12 collared

- 1 Mar/12 seen in group of 3 without calf
- 6 Mar/13 seen in group of 3 with #151.790 without calf
- Died 27 June/13 at age 13 years, death related to malnutrition
- 11 Sept/13 collar retrieved

Caribou #187 (GPS, died)

- 15 Feb/12 collared
- 1 Mar/12 seen in group of 4 without calf
- 6 Mar/13 seen in group of 4 with #151.980 without calf
- Died 10 July/13

Caribou #186 (GPS, released)

- 27 Feb/10 collared
- 2 Mar/10 seen with calf
- 2 Mar/11 seen in group of 5 with calf
- 2 Mar/12 seen in group of 4 with calf
- 5 Mar/13 seen in group of 13 without calf
- 15 June/13 released
- 11 Sept/13 collar retrieved

Caribou #185 (GPS, died)

- 27 Feb/10 collared
- 2 Mar/10 seen alone, collar is resetting
- 3 Aug/10 located, no visual
- 2 Mar/11 seen in group of 4 with calf
- Died 22 Apr/11
- 24 Aug/12 unsuccessful retrieval attempt
- 11 Sept/13 collar retrieved

Caribou #184 (GPS, released)

- 26 Feb/10 collared
- 1 Mar/10 seen in group of 6 with calf
- 1 Mar/11 seen in group of 7 with calf

- 1 Mar/12 seen in group of 4 with calf
- 4 Mar/13 seen in group of 4 without calf
- 15 June/13 released

Caribou #183 (Sat)

- 26 Feb/10 collared
- 1 Mar/10 seen in group of 6 without calf
- 1 Mar/11 seen in group of 13 without calf
- 29 Feb/12 seen in group of 2 without calf
- 4 Mar/13 seen in group of 5 without calf
- 3 Mar/14 seen alone without calf
- 3 Mar/15 seen in group of 9 without calf
- 15 June/15 released

Caribou #182 (GPS, died)

- 26 Feb/10 collared
- 1 Mar/10 seen with cow
- 1 Mar/11 seen in group of 7 with calf
- 1 Mar/12 seen in group of 3 with calf
- Died 5 Aug/12 at age 4 years
- 2 Oct/12 collar retrieved

Caribou #181 (Sat, died)

- 26 Feb/10 collared
- 1 Mar/10 seen in group of 3 without calf
- 1 Mar/11 seen in group of 4 with calf
- Died 25 Apr/11

Caribou #180 (Sat, died)

- 26 Feb/10 collared
- 1 Mar/10 seen in group of 8 with calf
- 1 Mar/11 seen in group of 5 with calf

- 29 Feb/12 seen in group of 3 without calf
- Died 12 July/12

Caribou #179 (GPS, died)

- 25 Feb/10 collared
- 2 Mar/10 seen in group of 11 with calf
- Died 25 Nov/10
- 22 Feb/11 collar retrieved on Trout Lake

Caribou #178 (Sat, died)

- 25 Feb/10 collared
- 1 Mar/10 seen in group of 3 with calf
- Died 8 Oct/10
- 1 Mar/11 no signal at location

Caribou #177 (GPS, released)

- 25 Feb/10 collared
- 2 Mar/10 seen alone
- 25 Feb/11 seen with calf
- 1 Mar/12 seen in group of 9 without calf
- 6 Mar/13 seen in group of 2 with calf
- 15 June/13 released
- 11 Sept/13 collar retrieved

Caribou #176 (Sat, died)

- 25 Feb/10 collared
- 2 Mar/10 seen in group of 3 without calf
- 25 Feb/11 seen in group of 7 without calf
- 1 Mar/12 seen with calf
- Died 13 Aug/12 at age 10 years
- 2 Oct/12 collar retrieved

Caribou #175 (Sat, died)

- 25 Feb/10 collared
- 2 Mar/10 seen in group of 5 without calf
- Died 6 Sep/10

- 23 Nov/10 no caribou at signal location - inaccessible

Caribou #174 (GPS, released)

- 24 Feb/10 collared
- 1 Mar/10 seen with cow
- 1 Mar/11 seen in group of 5 with calf
- 29 Feb/12 seen in group of 8 with calf
- 4 Mar/13 seen in group of 11 without calf
- 15 June/13 released
- 11 Sept/13 collar retrieved

Caribou #173 (GPS, died)

- 24 Feb/10 collared
- 1 Mar/10 seen in group of 8 with calf
- 1 Mar/11 seen in group of 5 without calf
- Died 16 Apr/11 at age 9 years
- 24 Apr/12 collar retrieved

Caribou #172 (Sat)

- 24 Feb/10 collared
- 1 Mar/10 seen with calf
- 1 Mar/11 seen in group of 3 with calf
- 29 Feb/12 seen in group of 4 without calf
- 4 Mar/13 seen in group of 15 without calf
- 3 Mar/14 seen in group of 2 without calf
- 2 Mar/15 seen in group of 5 with calf
- 15 June/15 released

Caribou #171 (Sat)

- 24 Feb/10 collared
- 1 Mar/10 seen in group of 13 with #160 with calf
- 1 Mar/11 seen in group of 7 with calf

- 29 Feb/12 seen in group of 5 with calf
- 4 Mar/13 seen in group of 3 with calf
- 3 Mar/14 seen in group of 4 without calf
- 2 Mar/15 seen in group of 5 with calf
- 15 June/15 released

Caribou #170 (Sat, died)

- 23 Feb/10 collared
- 2 Mar/10 seen in group of 7 with #137 with calf
- 2 Mar/11 seen in group of 7 without calf
- 2 Mar/12 seen in group of 4 with #169 but without calf
- 5 Mar/13 seen in group of 10 with #169, #204 with calf
- 5 Mar/13 seen in group of 10 with #169, #204 with calf
- Died 29-31 Oct/13

Caribou #169 (GPS, released)

- 23 Feb/10 collared
- 2 Mar/10 seen alone
- 2 Mar/11 seen with calf
- 2 Mar/12 seen in group of 4 with #170 but without calf
- 5 Mar/13 seen in group of 10 with #170, #204 with calf
- 15 June/13 released

Caribou #168 (GPS, released)

- 19 Feb/09 collared
- 2 Mar/09 seen in group of 5 without calf
- 1 Mar/10 seen in group of 4 with calf
- 1 Mar/11 seen in group of 9 with calf
- 1 Jan/12 ceased satellite transmissions
- 29 Feb/12 seen in group of 4 with calf

- 10 June/12 released

Caribou #167 (GPS, died)

- 18 Feb/09 collared
- 3 Mar/09 seen in group of 7 without calf
- Died 22 Mar/09
- 5 Jun/09 collar retrieved

Caribou #166 (GPS, died)

- 19 Feb/09 collared
- 2 Mar/09 seen in group of 10 with #155 but without calf
- 1 Mar/10 seen in group of 4 without calf
- 1 Mar/11 seen alone
- Died 30 Oct/11

Caribou #165 (GPS, released)

- 19 Feb/09 collared with calf
- 2 Mar/09 seen in group of 14 with calf
- 1 Mar/10 seen in group of 10 with calf
- 1 Mar/11 seen in group of 9 with calf
- 29 Feb/12 seen with calf
- 10 June/12 released

Caribou #164 (GPS, released)

- 18 Feb/09 collared
- 3 Mar/09 seen in group of 4 without calf
- 2 Mar/10 seen in group of 3 without calf
- 2 Mar/11 seen with calf
- 2 Mar/12 seen in group of 6 without calf
- 10 June/12 released

Caribou #163 (GPS, died)

- 19 Feb/09 collared
- 3 Mar/09 seen in group of 9 without calf
- 1 Mar/10 seen with calf
- Died 15 April/10

- 14 Jun/10 signal from under ice on Liard River
- 3 Aug/10 collar unfrozen, ice has melted
- 5 Aug/10 collar retrieved

Caribou #162 (GPS, harvested)

- 19 Feb/09 collared
- 2 Mar/09 seen in group of 11 without calf
- 3 May/09 shot by harvester
- 24 May/09 collar retrieved

Caribou #161 (Sat, released)

- 18 Feb/09 collared
- 2 Mar/09 seen in group of 5 without calf
- 2 Mar/10 seen with cow
- 12 Nov/10 satellite transmission ceased
- 2 Jun/11 released

Caribou #160 (Sat, released)

- 17 Feb/08 collared with calf
- 3 Mar/08 seen in group of 5 with calf
- 28 May/08 no visual
- 2 Mar/09 seen in group of 14 without calf
- 1 Mar/10 seen in group of 13 with #171 and with calf
- 1 Mar/11 seen alone
- 29 Feb/12 seen in group of 6 with calf
- 4 Mar/13 seen in group of 4 without calf
- 7 Mar/13 released

Caribou #159 (Sat, released)

- 16 Feb/08 collared
- 4 Mar/08 seen in group of 24 without calf
- 21 Apr/08 located with 134
- 28 May/08 seen without calf
- 3 Mar/09 seen in group of 8 without calf

- 1 Mar/10 seen in group of 10 without calf
- 2 Mar/11 seen in group of 16 with #134 but without calf
- 2 Mar/12 seen in group of 7 without calf
- 5 Mar/13 seen in group of 8 with calf
- 7 Mar/13 released

Caribou #158 (Sat, died)

- 17 Feb/08 collared
- 3 Mar/08 seen with cow
- 28 May/08 seen with calf
- 2 Mar/09 seen in group of 6 with calf
- Died 2 June/09, couldn't find death date, was underwater
- 2 Jun/09 collar retrieved

Caribou #157 (Sat, released)

- 17 Feb/08 collared
- 3 Mar/08 seen in group of 5 without calf
- 23 May/08 lost satellite signal
- 29 May/08 seen in group of 3 with calf
- 2 Mar/09 seen in group of 5 with calf
- 1 Mar/10 seen in group of 5 without calf
- 30 Sep/10 collar released

Caribou #156 (GPS, died)

- 18 Feb/08 collared with calf
- 4 Mar/08 seen in group of 4 with calf
- 29 May/08 seen without calf
- 3 Mar/09 seen in group of 14 with calf
- Died 14 Apr/09
- 13 Jul/09 collar retrieved

Caribou #155 (GPS, harvested)

- 17 Feb/08 collared

- 3 Mar/08 seen in group of 6 without calf
- 28 May/08 seen with calf
- 2 Mar/09 seen in group of 10 with #166 but without calf
- Died 29 Jul/09 shot by harvester
- 21 Sep/09 collar retrieved

Caribou #154 (GPS, released)

- 17 Feb/08 collared
- 5 Mar/08 seen in group of 19 without calf
- 29 May/08 seen with calf
- 4 Mar/09 seen in group of 5 with calf
- 2 Mar/10 seen in group of 7 with calf
- 2 Mar/11 seen with calf
- 1 Jul/11 collar released

Caribou #153 (GPS, released)

- 16 Feb/08 collared with calf
- 4 Mar/08 seen in group of 4 without calf
- 29 May/08 seen without calf
- 2 Mar/09 seen in group of 5 with calf
- 2 Mar/10 seen in group of 4 with calf
- 2 Mar/11 seen in group of 6 without calf
- 1 Jul/11 collar released

Caribou #152 (GPS, died)

- 23 Jan/07 collared
- 27 Feb/07 seen in group of 6 without calf
- 30 May/07 seen with calf
- 4 Mar/08 seen with cow
- 30 May/08 seen with calf
- 3 Mar/09 seen in group of 10 without calf
- 2 Mar/10 seen in group of 9 with calf
- Died 25 Mar/10

- 21 May/10 tried to relocate by helicopter, too much water
- 22 Feb/11 ground relocation attempt but no signal
- 28 Aug/12 collar retrieved, VHF stopped working

Caribou #151 (GPS, harvested)

- 22 Jan/07 collared
- 26 Feb/07 seen in group of 6 without calf
- 29 May/07 seen with calf
- 3 Mar/08 seen in group of 8 without calf
- 28 May/08 seen with calf
- Died 9 Aug/08 by Fish Lake likely shot by harvester
- 2 Jun/09 collar retrieved

Caribou #150 (GPS, harvested)

- 22 Jan/07 collared
- 26 Feb/07 seen in group of 2 without calf
- 29 May/07 seen with calf
- 3 Mar/08 seen with cow
- Died 15 May/08 likely shot by harvester
- 17 Jun/08 collar retrieved

Caribou #149 (GPS, released)

- 24 Feb/07 collared
- 27 Feb/07 seen in group of 7 without calf
- 30 May/07 seen with calf
- 4 Mar/08 seen in group of 10 without calf
- 29 May/08 seen with calf
- 3 Mar/09 seen in group of 9 with calf
- 3 Mar/10 seen in group of 12 without calf
- 2 Jun/10 collar released
- 8 Oct/10 collar retrieved

Caribou #148 (Sat, released)

- 24 Jan/07 collared

- 26 Feb/07 seen in group of 12 without calf
- 30 May/07 seen without calf
- 4 Mar/08 seen with calf
- 29 May/08 seen with calf
- 2 Mar/09 seen in group of 3 without calf
- 30 Sep/09 collar released
- 2 Mar/10 collar located from air in inaccessible area

Caribou #147 (Sat, died)

- 22 Jan/07 collared
- 26 Feb/07 seen in group of 8 without calf
- 30 May/07 seen without calf
- 3 Mar/08 seen in group of 9 without calf
- 28 May/08 seen with calf
- Died 17 July/08
- 17 Aug/09 collar retrieved

Caribou #146 (Sat, released)

- 21 Jan/07 collared
- 27 Feb/07 see in group of 11 with calf
- 30 May/07 seen with calf
- 4 Mar/08 seen in group of 4 with calf
- 29 May/08 seen without calf
- 2 Jul/08 lost satellite signal
- 3 Mar/09 seen in group of 3 with #108 but without calf
- 2 Mar/10 seen in group of 4 with calf
- 30 Sep/10 collar released

Caribou #145 (Sat, released)

- 21 Jan/07 collared
- 27 Feb/07 seen in group of 3 without calf
- 30 May/07 seen without calf
- 3 Mar/08 seen in group of 4 with calf
- 29 May/08 seen with calf

- 2 Jul/08 lost satellite signal
- 2 Mar/09 seen in group of 5 with calf
- 1 Mar/10 seen in group of 4 with calf
- 30 Sep/10 collar released

Caribou #144 (Sat, harvested)

- 23 Jan/07 collared
- 26 Feb/07 seen in group of 10 without calf
- Died 4 Apr/07 shot by harvester
- 12 Apr/07 collar retrieved

Caribou #143 (Sat, released)

- 21 Jan/07 collared
- 26 Feb/07 seen in group of 6 without calf
- 29 May/07 seen with calf
- 20 Nov/07 seen in group of 4
- 04 Sep/07 lost satellite transmission
- 4 Mar/08 seen in group of 6 without calf
- 26 Mar/08 located, no visual
- 21 Apr/08 located, no visual
- 29 May/08 not located, no signal
- 3 Mar/09 seen in group of 2 without calf
- 14 May/09 located, no visual
- 1 Jun/09 seen with calf
- 9 Jul/09 located, no visual
- 12 Aug/09 located, no visual
- 2 Sept/09 located, no visual
- 28 Oct/09 located, no visual
- 22 Nov/09 located, no visual
- 22 Feb/10 located, no visual
- 2 Mar/10 seen in group of 4 without calf
- 3 Aug/10 located, no visual
- 30 Sep/10 collar released
- 23 Nov/10 no caribou at collar location
- 31 Jan/11 no caribou at signal location

Caribou #142 (Sat, unknown status)

- 22 Jan/07 collared
- 26 Feb/07 seen in group of 10 without calf
- 29 May/07 seen with calf
- 3 Mar/08 seen in group of 4 without calf
- Died before 9 May/08
- 28 May/08 no VHF signal from last known satellite location, collar likely underwater

Caribou #141 (Sat, died)

- 23 Jan/07 collared
- 26 Feb/07 seen in group of 2 without calf
- Died 16 Apr/07
- 13 Jul/07 collar retrieved
-

Caribou #140 (GPS, died)

- 24 Jan/07 collared
- 26 Feb/07 seen in group of 3 without calf
- 30 May/07 seen without calf
- Died 28 Oct/07 at age 5 years
- 25 Apr/08 collar retrieved

Caribou #139 (GPS, died)

- 21 Jan/07 collared
- 27 Feb/07 seen in group of 6 without calf
- 30 May/07 seen in group of 4 with calf
- 3 Mar/08 seen with calf
- 29 May/08 seen with calf
- 2 Mar/09 seen in group of 3 without calf
- Died 7 July/09 at age 9 years
- 10 Aug/09 collar retrieved

Caribou #138 (GPS, released)

- 23 Jan/07 collared
- 27 Feb/07 seen in group of 4 without calf
- 30 May/07 seen without calf

- 4 Mar/08 seen in group of 8 without calf
- 29 May/08 seen with calf
- 3 Mar/09 seen in group of 17 without calf
- 2 Mar/10 seen in group of 3 without calf
- 2 Jun/10 collar released

Caribou #137 (GPS, released)

- 23 Jan/07 collared
- 27 Feb/07 seen in group of 5 without calf
- 29 May/07 seen with calf
- 5 Mar/08 seen with calf
- 29 May/08 seen in group of 3 with calf
- 3 Mar/09 seen in group of 13 with calf
- 2 Mar/10 seen in group of 7 with #170 with calf
- 2 Jun/10 collar released
- 3 Aug/10 no caribou at signal location
- 23 Nov/10 no caribou at signal location

Caribou #136 (GPS, released)

- 23 Jan/07 collared
- 26 Feb/07 seen in group of 5 without calf
- 29 May/07 seen without calf
- 5 Mar/08 seen in group of 19 without calf
- 29 May/08 seen with calf
- 7 Mar/09 seen in group of 7 without calf
- 2 Mar/10 seen in group of 3 without calf
- 2 Jun/10 collar released
- 3 Aug/10 no caribou at signal location

Caribou #135 (VHF, died)

- 21 Jan/06 collared

- 1 Mar/06 seen in group of 4 without calf
- 30 May/06 without calf
- 28 Sep/06 no visual
- 23 Feb/07 seen in group of 6 without calf
- Died 23-28 May/07
- 31 May/07 collar retrieved

Caribou #134 (VHF, released)

- 21 Jan/06 collared
- 1 Mar/06 seen in group of 3
- 29 May/06 seen with calf
- 16 Sep/06 seen in group of 4
- 26 Feb/07 seen in group of 2 without calf
- 29 May/07 seen without calf
- 15 Feb/08 seen in group of 13 without calf
- 4 Mar/08 seen in group of 24 without calf
- 26 Mar/08 located, no visual
- 21 Apr/08 located with #159
- 28 May/08 seen with calf
- 3 Mar/09 seen in group of 9 with calf
- 14 May/09 located, no visual
- 1 Jun/09 seen with calf
- 9 Jul/09 located, no visual
- 12 Aug/09 located, no visual
- 2 Sep/09 located, no visual
- 28 Oct/09 located, no visual
- 22 Nov/09 located, no visual
- 22 Feb/10 located, no visual
- 1 Mar/10 seen in group of 3 with calf
- 14 Jun/10 located, no visual
- 3 Aug/10 located, no visual
- 23 Nov/10 located, no visual
- 31 Jan/11 located, no visual
- 1 Mar/11 seen in group of 16 including #159 and with calf
- 4 July/11 collar released

Caribou #133 (VHF, unknown status)

- 21 Jan/06 collared
- 1 Mar/06 seen with calf
- 30 May/06 seen with calf
- 23 Jan/07 seen in group of 10 without calf
- 26 Feb/07 seen in group of 3 without calf
- 29 May/07 seen with calf
- Unable to relocate since Dec/07
- 4 July/11 collar released

Caribou #132 (VHF, released)

- 22 Jan/06 collared
- 1 Mar/06 seen in group of 9 with calf
- 29 May/06 approx. location not pregnant
- 16 Sep/06 seen in group of 2 without calf
- 26 Feb/07 seen in group of 3 without calf
- 30 May/07 seen with calf
- 15 Feb/08 seen in group of 5 without calf
- 4 Mar/08 seen in group of 5 without calf
- 26 Mar/08 located, no visual
- 21 Apr/08 located, no visual
- 29 May/08 not located
- 1 Mar/09 collar released
- 2 Mar/09 located collar in mortality mode, no caribou at signal location

Caribou #131 (Sat, released)

- 22 Jan/06 collared
- 1 Mar/06 seen with calf
- 29 May/06 without calf
- 16 Sep/06 seen in group of 3 cows without calf
- 21 Jan/07 seen in group of 5 with calf
- 27 Feb/07 seen in group of 5 without calf

- 30 May/07 seen with calf
- 03 Mar/08 seen in group of 8 with calf
- 29 May/08 seen with calf
- 2 Mar/09 seen in group of 4 with calf
- 15 Apr/09 collar released

Caribou #130 (Sat, died, non-predation)

- 22 Jan/06 collared
- 1 Mar/06 seen in group of 7 without calf
- 29 May/06 without calf
- Died 5 Jul/06 at age 5-6 years, death related to malnutrition
- 23 Aug/06 collar retrieved

Caribou #129 (Sat, died)

- 20 Jan/06 collared
- 1 Mar/06 seen in group of 6 without calf
- 30 May/06 seen with calf
- 16 Sep/06 with calf
- 21 Jan/07 seen in group of 4 with calf
- 26 Feb/07 seen in group of 10 with calf
- 29 May/07 seen with calf
- 05 Mar/08 seen without calf
- Died 27 May/08 at age 5 years
- 29 May/08 collar retrieved

Caribou #128 (Sat, released)

- 20 Jan/06 collared
- 2 Mar/06 seen in group of 5 without calf
- 30 May/06 seen in group of 4 with calf
- 16 Sep/06 seen in group of 3 without calf
- 27 Feb/07 seen in group of 5 without calf
- 29 May/07 seen with calf

- 04 Mar/08 seen in group of 10 with calf
- 29 May/08 seen with calf
- 22 Oct/08 collar finished transmitting
- 3 Mar/09 seen in group of 3 with calf
- 2 Mar/10 seen in group of 7 without calf
- 3 Mar/10 collar released

Caribou #127 (Sat, died)

- 22 Jan/06 collared
- 1 Mar/06 seen in group of 7 with calf
- 29 May/06 seen with calf
- Died 21 Jul/06 at age 7 years
- 16 Sep/06 confirm wolf predation
- 23 Oct/06 collar retrieved

Caribou #126 (Sat, died)

- 21 Jan/06 collared
- 1 Mar/06 seen in group of 5 with yearling
- 30 May/06 seen with calf
- 26 Feb/07 seen in group of 13 without calf
- 29 May/07 seen without calf
- 03 Mar/08 seen in group of 14 without calf
- 28 May/08 seen with calf
- 2 Mar/09 seen in group of 5 without calf
- Died 28 Apr/09 at age 12 years
- 8 Jun/10 collar retrieved

Caribou #125 (Sat, died)

- 22 Jan/06 collared
- 1 Mar/06 seen in group of 16 with yearling
- 29 May/06 seen with small calf
- Died 12-15 Jul/06, likely wolf predation
- 16 Sep/06 no visual

- 23 Oct/06 collar retrieved

Caribou #124 (Sat, died)

- 20 Jan/06 collared
- 2 Mar/06 seen in group of 7 without calf
- Died 10 April/06, likely wolf predation
- 23 Aug/06 collar retrieved

Caribou #123 (Sat, died)

- 20 Jan/06 collared
- 2 Mar/06 seen in group of 4 with calf
- 29 May/06 without calf
- 16 Sep/06 seen in group of 3
- Died 5 Nov/06 on Trainor Lake
- 15 Feb/07 locate collar in ice
- 27 Feb/07 collar retrieved

Caribou # 122 (Sat, harvested)

- 4 Mar/05 collared
- 21 Mar/05 seen in group of 3
- 30 Mar/05 seen in group of 3
- 1 Jun/05 seen alone without calf
- 4 Jun/05 no visual
- 23 Sep/05 no visual
- 10 Oct/05 no visual
- 31 Nov/05 no satellite signal
- 4 Apr/05 got satellite signal back
- 30 May/05 seen without calf
- 24 Nov/06 no satellite signal
- 15 Jun/07 collar went off air finishing transmissions
- 14 Apr/14 caribou shot by harvester
- 15 Apr/11 collar handed in by harvester

Caribou #121 (Sat, died)

- 4 Mar/05 collared
- 21 Mar/05 seen in group of 3
- Died 26-27 Mar/05 at age 10 years predated by wolves
- 30 Mar/05 collar retrieved

Caribou #120 (Sat, released)

- 4 Mar/05 collared
- 21 Mar/05 seen in group of 13
- 30 Mar/05 seen in group of 3
- 1 Jun/05 no visual
- 4 Jun/05 seen alone without calf
- 23 Sep/05 seen in group of 14
- 10 Oct/05 no visual
- 16 Jan/06 seen in group of 3
- 1 Mar/06 seen in group of 5
- 30 May/06 without calf
- 26 Feb/07 seen in group of 10 without calf
- 30 May/07 seen without calf
- 7 Dec/07 seen in group of 4 without calf
- 3 Mar/08 seen in group of 4 without calf
- 28 May/08 seen with calf
- 7 Oct/08 transmissions from collar ceased
- 2 Mar/09 see in group of 6 without calf
- 3 Mar/09 collar released
- 29 Aug/09 collar retrieved

Caribou # 119 (Sat, released)

- 4 Mar/05 collared
- 21 Mar/05 seen in group of ≥ 8
- 30 Mar/05 no visual
- 1 Jun/05 seen alone without calf
- 23 Sep/05 no visual
- 10 Oct/05 no visual
- 16 Jan/06 in group of 5 without calf
- 1 Mar/06 in group of 4
- 30 May/06 with calf
- 22 Jan/07 in group of 3 with calf
- 26 Feb/07 in group of 11 with calf
- 29 May/07 seen without calf
- 3 Mar/08 seen with cow
- 28 May/08 seen with calf
- 10 Sep/08 satellite transmission ceased

- 2 Mar/09 seen in group of 5 without calf
- 3 Mar/09 collar released
- 2 Jun/09 collar retrieved

Caribou # 118 (Sat, died)

- 4 Mar/05 collared
- 21 Mar/05 seen in group of 10
- 30 Mar/05 seen in group of 9
- 1 Jun/05 no visual
- 4 Jun/05 no visual
- Died 13 Jun/05 at age 15 years, likely wolf predation
- 6 Sep/05 collar retrieved

Caribou #117 (Sat, died)

- 3 Mar/05 collared
- 31 May/05 seen alone without calf
- 10 Jun/05 seen in thick brush
- 23 Sep/05 seen in group of at least 4
- 26 Jan/06 seen in group of 4 with calf
- 2 Mar/06 seen in group of 5 with calf
- Died 18 Apr/06
- 23 Aug/06 collar retrieved

Caribou #116 (Sat, released)

- 3 Mar/05 collared
- 31 May/05 seen alone without calf
- 10 Jun/05 no visual
- 23 Sep/05 seen in group of 3
- 26 Jan/06 seen in group of 7 with calf
- 2 Mar/06 seen in group of 4 with calf
- 29 May/06 seen with calf
- 16 Sep/06 seen in group of 2 without calf
- 23 Jan/07 seen in group of 12 without calf

- 27 Feb/07 seen in group of 6 without calf
- 30 May/07 seen in group of 3 with calf
- 4 Mar/08 seen with bull
- 29 May/08 seen with calf
- 13 Oct/08 satellite transmission ceased
- 3 Mar/09 seen in group of 17 without calf
- 3 Mar/09 collar released
- 7 Jul/09 collar retrieved

Caribou #115 (Sat, released)

- 3 Mar/05 collared
- 10 Apr/05 seen in group of 3
- 31 May/05 seen alone without calf
- 23 Sep/05 no visual
- 5 Oct/05 seen in group of 2 without calf
- 2 Mar/06 seen in group of 9 without calf
- 30 May/06 seen in group of 2 without calf
- 16 Sep/06 seen in group of 4 without calf
- 27 Feb/07 seen in group of 4 without calf
- 29 May/07 seen with calf
- 04 Mar/08 seen with 2 cows
- 30 May/08 seen with calf
- 1 Oct/08 satellite transmissions ceased
- 4 Mar/09 seen in group of 3 with calf
- 3 Mar/09 collar released
- 10 Aug/09 collar retrieved

Caribou #114 (Sat, released)

- 3 Mar/05 collared
- 10 Apr/05 seen in group of 9
- 31 May/05 no visual
- 10 Jun/05 seen alone without calf

- 23 Sep/05 no visual
- 2 Mar/06 seen in group of 6 without calf
- 29 May/06 seen in group of 3 without calf
- 16 Sep/06 seen in group of 3 without calf
- 27 Feb/07 seen in group of 6 without calf
- 30 May/07 seen with without calf
- 4 Mar/08 seen in group of 7 without calf
- 29 May/08 seen with calf
- 3 Jul/09 satellite transmissions ceased
- 3 Mar/09 seen in group of 13 with calf
- 3 Mar/09 collar released
- 1 Jun/09 collar retrieved

Caribou #113 (Sat, died)

- 3 Mar/05 collared
- 10 Apr/05 seen in group of 4
- 31 May/05 no visual
- 10 Jun/05 seen alone without calf
- Died 10 Sep/05 likely wolf predation
- 5 Oct/05 collar retrieved

Caribou #112 (Sat, released)

- 3 Mar/05 collared
- 10 Apr/05 seen with calf
- 31 May/05 seen with calf
- 10 Jun/05 seen with calf
- 23 Sep/05 no visual
- 1 Mar/06 seen in group of 6 with calf
- 30 May/06 seen in group of 4 with calf
- 16 Sep/06 seen with calf
- 27 Feb/07 seen in group of 5 with calf
- 29 May/07 seen with calf

- 5 Mar/08 seen with 2 bulls
- 30 Jun/08 located, no visual
- 22 Oct/08 satellite transmission ceased
- 3 Mar/09 collar released
- 6 Jul/09 collar retrieved

Caribou #111 (Sat, released)

- 3 Mar/05 collared
- 5 May/05 seen in group of 2
- 31 May/05 seen with calf
- 23 Sep/05 seen in group of 5 with calf
- 1 Mar/06 seen in group of 9 without calf
- 29 May/06 seen with calf
- 16 Sep/06 seen in group of 3
- 24 Jan/07 seen in group of 14
- 27 Feb/07 seen in group of 4 with calf
- 30 May/07 seen with calf
- 4 Mar/08 seen in group of 8 with calf
- 28 May/08 seen with calf
- 11 Nov/08 satellite transmission ceased
- 3 Mar/09 seen in group of 11 with calf
- 3 Mar/09 collar released
- 10 Jul/09 collar retrieved

Caribou #110 (Sat, died)

- 5 Mar/05 collared
- 5 May/05 seen alone without calf
- 31 May/05 seen alone without calf
- Died 2 Jun/05 at 17 years, likely wolf predation
- 29 Jul/05 collar retrieved

Caribou #109 (Sat, died)

- 1 Apr/04 collared
- 29 May/04 no visual
- 22 Sep/04 seen in group of 4 without calf

- 31 May/05 seen with calf
- 19 Jun/05 seen with calf
- 23 Sep/05 no visual
- 5 Oct/05 seen in group of 3 with calf
- Died 22 Apr/06, likely wolf predation
- 23 Aug/06 collar retrieved

Caribou #108 (Sat, observed alive, no Sat or VHF active)

- 1 Apr/04 collared
- 29 May/04 seen alone without calf
- 3 Jun/04 no visual
- 22 Sep/04 seen in group of 3 without calf
- 25 Jan/05 seen in group of 4 without calf
- 31 May/05 no visual
- 10 Jun/05 no visual
- 19 Jun/05 seen with calf
- 23 Sep/05 no visual
- 5 Oct/05 seen in group of 5 with calf
- 2 Mar/06 seen in group of 3 with yearling
- 30 May/06 seen with calf
- 23 Jan/06 seen in group of 5 with calf
- 27 Feb/07 seen in group of 11 with calf
- 30 May/07 seen in group of 3 with calf
- 15 Jun/07 satellite transmissions ceased
- 3 Mar/09 seen in group of 3 with #146, no VHF transmissions

Caribou #107 (Sat, died)

- 1 Apr/04 collared
- 29 May/04 no visual
- 22 Sep/04 seen in group of 3 with calf

- Died 22 Apr/05 likely wolf predation
- 4 May/05 collar retrieved

Caribou #106 (Sat, died)

- 30 Mar/04 collared
- 29 May/04 no visual
- 3 Jun/04 seen in group of 2 with calf
- 22 Sep/04 seen in group of 7 without calf
- 25 Jan/05 seen in group of 5 without calf
- 31 May/05 seen alone without calf
- 23 Sep/05 seen in group of 2 without calf
- Died 12 Nov/05, likely wolf predation
- 30 May/06 collar retrieved

Caribou #105 (Sat, died)

- 30 Mar/04 collared
- 29 May seen in group of 3 with calf
- 22 Sep/04 no visual
- 25 Jan/05 seen in group of 3 without calf
- 31 May/05 seen alone without calf
- 19 Jun/05 seen alone without calf
- 23 Sep/05 no visual
- 2 Mar/06 seen in group of 11 without calf
- Died 13 May/06 at age 14-15 years, likely wolf predation
- 23 Aug/06 collar retrieved

Caribou #104 (Sat, died, non-predation)

- 29 Mar/04 collared
- 29 May/04 seen in group of 3 without calf

- 3 Jun/04 seen in group of 3 without calf
- 22 Sep/04 no visual
- Died 13 Apr/05 age 11 years, a death related to malnutrition
- 4 May/05 collar retrieved

- 30 May/07 no visual
- 15 Jun/07 satellite transmission ceased

Caribou #103 (Sat, died)

- 1 Apr/04 collared
- 29 May/04 seen in group of 3 with calf
- 22 Sep/04 no visual
- Died 16 Apr/05 at age 5 years, likely wolf predation
- 4 May/05 collar retrieved

Caribou #102 (Sat, died)

- 29 Mar/04 collared
- Died 5 May/04, wolf predation
- 3 Jun/04 collar retrieved

Caribou # 101 (Sat, died)

- 30 Mar/04 collared
- Died 5 May/04 at age 14 years, likely wolf predation
- 9 Aug/04 collar retrieved

Caribou # 100 (Sat, no Sat or VHF active)

- 29 Mar/04 collared
- 29 May/04 seen in group of 3 without calf
- 3 Jun/04 seen alone without calf
- 22 Sep/04 no visual
- 25 Jan/05 seen in group of 11, without calf
- 31 May/05 seen in group of 3 with calf
- 19 Jun/05 seen alone without calf
- 23 Sep/05 problems with VHF transmission
- 30 Oct/06 problems with satellite transmission
- 6 Feb/06 no satellite/VHF signal
- 27 Feb/07 no visual