

STATE OF ALASKA

DEPARTMENT OF FISH AND GAME

DIVISION OF WILDLIFE CONSERVATION

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TO: All interested parties

FROM: Jason R. Caikoski

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SUBJECT: Porcupine Caribou Herd Calving Surveys, June 2008

Winter distribution and spring movements of the Porcupine Caribou Herd (PCH) were monitored with satellite tracking in 2007-2008. The annual calving survey was conducted using an ADF&G chartered Piper Super Cub on 1, 2, and 3 June 2008 and post-calving flights were conducted on 23, 24, and 25 June to estimate calf survival and the proportion of cows accompanied by calves. Arctic National Wildlife Refuge (ANWR) staff conducted additional radio tracking flights on 28 and 30 May and 2 June to determine radiocollar distribution for the calving survey.

Winter Distribution and Spring Movement

Seventy-three percent of GPS collared caribou ($n = 15$) wintered in the southern foothills of the Brooks Range between the Coleen the Junjik Rivers, Alaska, from mid October through February. Caribou were concentrated around Arctic Village between the Sheenjek and East Fork Chandalar River. Four of 15 satellite collared caribou wintered in the Ogilvie Basin, Upper Miner and Upper Whitestone River drainages in central Yukon from mid October through March. In April and May, the PCH migrated from Alaska and Yukon to the coastal plain between the Malcolm and Babbage Rivers, Yukon. By early June the coastal plain was nearly snow free as far west as the Hulahula River, Alaska. However, caribou were mostly distributed from the Babbage River, Yukon to the Kongakut River, Alaska, at time of calving.

Parturition

Seventy-six radiocollared cows ages 2 years and older were observed during flights on 1-3 June. Parturition rate (percent of cows that had given birth or were judged to be pregnant) was 79% for cows ≥ 4 years old ($n = 63$, Table 1), 83% for 3-year-olds ($n = 6$) and 14% for 2-year-olds ($n = 7$). Of the 69 cows that were ≥ 3 years old, 34 were observed with calves, 21 were judged to be pregnant or to have produced

and lost a calf (based on the presence of hard antlers and enlarged udders), and 14 were judged to be barren (no hard antlers and udders not distended).

On 1 and 2 June, 64% ($n = 25$) and 57% ($n = 28$) of parturient cows were observed with calves, respectively. Most calves appeared to be 1-2 days old based on size and mobility. Therefore, peak of calving likely occurred on 29 or 30 May.

Calving Distribution

During 1-3 June, 25 radiocollared cows were located in ANWR, Alaska, and 51 were located in Ivvavik National Park, Yukon. No radiocollared cows were located in the 1002 area. Extent of calving occurred from the Aichilik River to the Babbage River and was concentrated around the Clarence River (Figure 1).

Post Calving Survival and Calf:Cow Ratios

During 23-25 June, 64 radiocollared cows were observed including 61 of 76 cows observed in early June. Strong wind turbulence in the mountains prevented late June observations of 15 cows that were observed with calves ($n = 6$) or were judged to be parturient ($n = 5$) or barren ($n = 4$) in early June.

Post calving survival, estimated from cows observed with calves in early June whose dams were observed in late June (excludes most perinatal mortality), was 92% ($n = 26$) for cows ≥ 4 years of age (Table 1). Fifty-nine percent of radiocollared cows ≥ 4 years of age ($n = 53$) were observed with calves. Fifty percent of 3-year-olds ($n = 6$) were accompanied by calves and no 2-year-olds ($n = 5$, includes a parturient 2-year-old observed in early June) were observed with calves.

Post Calving Distribution

During 23-25 June, most of the PCH was distributed between the Kongukut and Hulahula Rivers, Alaska, at elevations from 2500-5000 feet (Figure 2). Radiocollared cows were among loosely aggregated groups except for a considerable concentration observed in the Okpilak River drainage that contained 58% of located radiocollars. Two of fifteen GPS collared cows and 15% of radiocollared cows were located in the Firth drainage near Mountain Creek, Yukon. Fifteen of 20 radiocollared bulls were also located and most were in the Jago River drainage (not depicted in figure 2) and segregated from cows. Two bulls were transmitting a mortality signal; one in the upper Egaksrak River and one in the upper East Fork Chandalar River.

Cool weather in the mountains and an apparent lack of insects prevented adequate aggregations for a photocensus. We continued to monitor the PCH with GPS collars for two weeks following post calving flights. By late June and early July, most of the herd moved south across the Continental Divide and into the upper Sheenjek River drainage. Three attempts were made to radiotrack and monitor the status for a photocensus on the south side of the Brooks Range. However, thunderstorms and a low cloud ceiling prevented flights.

Table 1. Porcupine Caribou Herd calving ground surveys and population estimates, 1987-2007^a.

Year	Cows Observed ^b	Parturition Rate	June Calf Survival ^c	Post-calving Survival ^d	Late June Calf: Cow ^e	March Calf: Cow ^f	Population Estimate
1987	51	0.78	0.71		0.55		165,000
1988	91	0.84	0.65		0.55		
1989	74	0.78	0.74		0.58	0.43	178,000
1990	74	0.82	0.90		0.74		
1991	77	0.74	0.82		0.61	0.22	
1992	78	0.86	0.57		0.49	0.33	160,000
1993	63	0.81	0.56	0.83	0.45	0.32	
1994	98	0.91	0.77	0.93	0.70	0.40	152,000
1995	95	0.69	0.85	0.92	0.59	0.41	
1996	74	0.89	0.81	0.91	0.72	0.46	
1997	48	0.75	0.77	0.90	0.58	0.38	
1998	58	0.83	0.82	0.94	0.68	0.27	129,000
1999	39	0.84	0.83	0.86	0.70	0.56	
2000	44	0.73	0.61	0.82	0.44	0.28	
2001	70	0.84	0.61	0.79	0.51	0.31	123,000
2002	68	0.87	0.65	0.85	0.56	0.38	
2003	70	0.87	0.79	0.85	0.69	0.33	
2004	74	0.82	^g	^g	^g	0.24	
2005	55	0.64	0.77	0.88	0.49	^h	
2006	66	0.79	0.73	0.86	0.58	0.39	
2007	67	0.88	0.83	0.90	0.73		
2008	63	0.79	0.73	0.92	0.59		
Mean		0.81	0.74	0.88	0.60	0.36	

^aData are from Fancy et al. (1994, *Can. J. Zool.* 72:840–846), Alaska Department of Fish and Game, and Yukon Department of Environment.

^bNumber of radiocollared cows for which parturition status was determined in early June, excluding those known to be <4 years old. Includes caribou of unknown age, but most likely ≥4 years old. Prior to 2003, all caribou were of unknown age.

^cEstimated as (July calf:cow ratio)/(parturition rate).

^dIncludes only calves observed during early June whose dams were observed in late June (i.e., does not include most perinatal mortality).

^eExcludes radiocollared cows known to be <4 years old.

^fAs of March of the year following birth of each cohort; includes all cows >1 year old.

^gNo data due to adverse weather conditions.

^hNo data due to mixing of caribou herds on winter range.

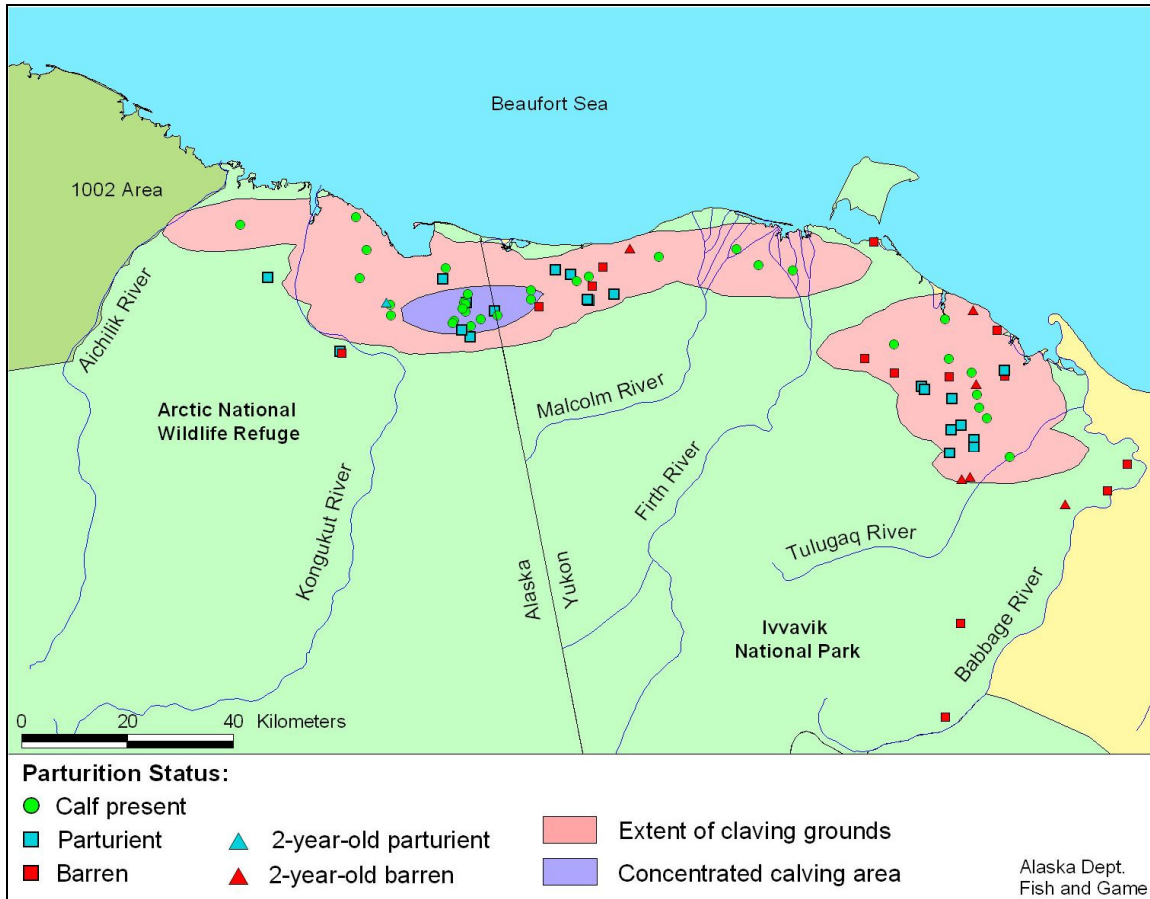


Figure 1. Locations of radiocollared Porcupine caribou cows, 1-3 June 2008. Extent of calving grounds is determined by the isopleth encompassing 99% of the fixed kernel utilization distribution of locations of cows observed with a calf. Concentrated calving area is the area with greater than average density of caribou cows with calves.

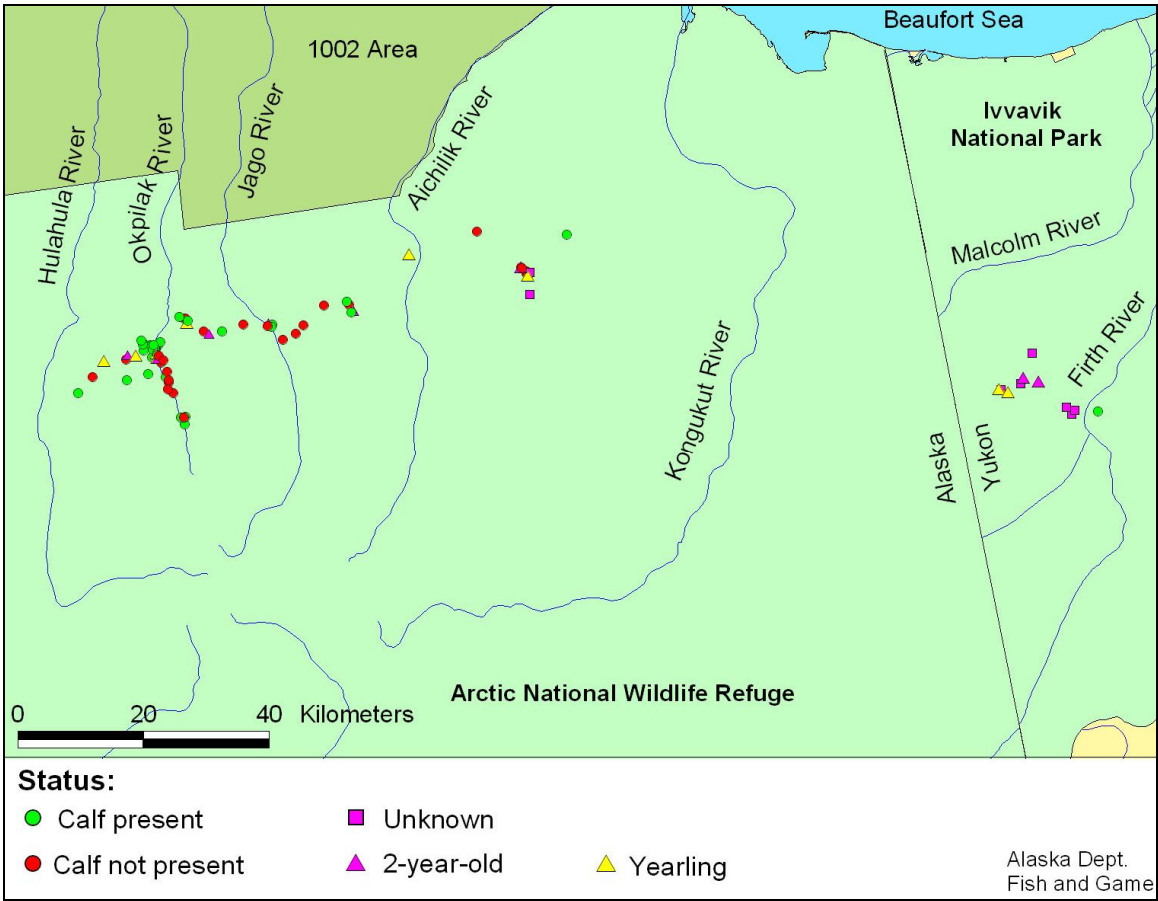


Figure 2. Locations of radiocollared Porcupine caribou cows, 23-25 June 2008.