

# STATE OF ALASKA

## DEPARTMENT OF FISH AND GAME

### DIVISION OF WILDLIFE CONSERVATION

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### MEMORANDUM

TO: Roy Nowlin – Management Coordinator, Region III  
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All Interested Parties

FROM: Jason R. Caikoski – Assistant Area Biologist, Northeast Alaska

DATE: 14 August 2009

SUBJECT: Porcupine Caribou Herd Calving and Post-Calving Surveys, June-July 2009.

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#### ***Overview***

Winter distribution and spring movements of the Porcupine Caribou Herd (PCH) were monitored with satellite tracking in 2008-2009. The PCH was radio tracked on 1, 2, and 3 June 2009 using an ADF&G chartered Piper Super Cub to estimate parturition rate and distribution at time of calving. ADF&G conducted post-calving radiotracking flights on 22, 23, and 24 June to estimate calf survival and the proportion of cows accompanied by calves. On 30 June and 1-2 July, ADF&G conducted a comprehensive radiotracking flight using a chartered Piper Super Cub and Cessna 182 Skylane to assess photocensus conditions. Arctic National Wildlife Refuge staff conducted additional radiotracking flights on 29 May and 29 June to determine general PCH distribution prior to ADF&G surveys.

#### ***Winter Distribution and Spring Movement***

Thirteen of 15 GPS collared caribou wintered in the southern foothills of the Brooks Range between the East Fork Chandalar and North Fork Chandalar Rivers, Alaska, from October through March. Two of 15 satellite collared caribou wintered in the Ogilvie Basin, Yukon during the same time period. Caribou that wintered in Alaska were mixed with the Central Arctic Caribou Herd for nearly 6 months. In April and May, the PCH migrated from Alaska and Yukon to the coastal plain foothills between the Babbage River, Yukon and Alaska-Yukon border. By 2 June the coastal plain was snow free west of the Jago River, Alaska and east of the Alaska-Yukon Border. Snow was mottled but greater than 50% ground cover between the Jago River and Alaska-Yukon Border.

#### ***Parturition***

Seventy-eight 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 78% for cows  $\geq$

4 years of age ( $n = 64$ , Table 1), 100% for 3-year-olds ( $n = 7$ ) and 14% for 2-year-olds ( $n = 7$ ). Of the 71 cows that were  $\geq 3$  years of age, 29 were observed with calves, 28 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).

Fifty percent of parturient cows ( $n = 40$ ) were observed with calves by 2 June suggesting peak of calving occurred on or before that date.

### ***Calving Distribution***

During 1-3 June, 77 radiocollared cows were located in Ivvavik National Park, Yukon and one cow was located in Arctic National Wildlife Refuge, Alaska. Extent of calving occurred from the Babbage River, Yukon to the Alaska-Yukon Border. Calving was concentrated in the hills west of the Tulugag River in the headwaters of the Spring River at elevations that ranged 350-1200 meters (1,200-4,000 ft). Few caribou calved on the coastal plain.

### ***Post Calving Survival and Calf:Cow Ratios***

During 23-25 June, 71 radiocollared cows were observed including 63 of 78 cows observed in early June. Strong wind and turbulence in the mountains prevented late June observations of 15 cows that were observed with calves ( $n = 9$ ) or were judged to be parturient ( $n = 3$ ) or barren ( $n = 3$ ) in early June.

Post calving survival, estimated from cows observed with calves in early June that were subsequently observed in late June (excludes most perinatal mortality), was 75% ( $n = 20$ ) for cows  $\geq 4$  years of age (Table 1). However, only forty-four percent of all radiocollared cows  $\geq 4$  years of age ( $n = 59$ ) were observed with calves. This is the lowest calf:cow ratio on record for this herd. The observed calf:cow ratio was lower than expected based on estimates of parturition and 3-week calf survival suggesting estimates of calf survival were biased high because the sample used to estimate survival was limited to those calves born on or before the median calving date and does not include most calves that died soon after birth.

### ***Post Calving Distribution***

During 22-24 June, most of the PCH was distributed along the northern foothills of the Brooks Range between the Kongukut and Jago Rivers, Alaska (Figure 2). Radiocollared cows were among loosely aggregated groups and generally segregated from bulls. Two of 15 satellite collared cows were in the upper Firth River drainage, Yukon (not depicted in Figure 2 and not surveyed for additional radiocollared caribou). Eight of 17 radiocollared bulls were also located, 4 in the upper Aichilik, 3 in the upper Okerokovik, and 1 in the upper Ekaluakat drainages (not depicted in Figure 2).

During 28-29 June, movement and aggregation of satellite collared caribou and favorable forecasted weather conditions indicated that adequate photocensus conditions might develop. On 30 June- 2 July, the PCH was radiotracked to determine the feasibility of a photocensus. Eighty-nine of 95 radiocollared cows and all radiocollared bulls ( $n = 14$ ) were located (excludes 12 radiocollared caribou not located since 2008). On 30 June, 75 percent of radiocollared caribou were located in 14 groups along the northern foothills of the Brooks Range (Figure 3). Most groups were aggregated sufficiently for a photocensus. However, the remaining radiocollars were among large groups of migrating caribou in the upper Jago and upper Aichilik Rivers. Unforecasted snow and rain at high elevations in the Brooks Range apparently resulted in a rapid movement of the PCH to the mountains beginning on the morning of 1 July. Over the following 24 hour period, at least 50% of the PCH had dispersed from aggregated groups, most migrated south near the Continental Divide. Lead caribou were as far south as the

headwaters of the Sheenjek. Over the next 2 weeks, the PCH was segregated north and south of the Continental Divide and dispersed over large areas. A photocensus was not conducted in 2009.

Table 1. Porcupine Caribou Herd calving ground surveys and population estimates, 1987-2008<sup>a</sup>.

Year	Cows Observed <sup>b</sup>	Parturition Rate	June Calf Survival <sup>c</sup>	Post-calving Survival <sup>d</sup>	Late June Calf:Cow <sup>e</sup>	March Calf:Cow <sup>f</sup>	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	<sup>g</sup>	<sup>g</sup>	<sup>g</sup>	0.24	
2005	55	0.64	0.77	0.88	0.49	<sup>h</sup>	
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		
2009	64	0.78	0.56	0.75	0.44		
Mean		0.81	0.73	0.87	0.59	0.36	

<sup>a</sup>Data are from Fancy et al. (1994, *Can. J. Zool.* 72:840–846), Alaska Department of Fish and Game, and Yukon Department of Environment.

<sup>b</sup>Number 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.

<sup>c</sup>Estimated as (July calf:cow ratio)/(parturition rate).

<sup>d</sup>Includes only calves observed during early June who were subsequently observed in late June (i.e., does not include most perinatal mortality).

<sup>e</sup>Excludes radiocollared cows known to be <4 years old.

<sup>f</sup>As of March of the year following birth of each cohort; includes all cows >1 year old.

<sup>g</sup>No data due to adverse weather conditions.

<sup>h</sup>No data due to mixing of caribou herds on winter range.

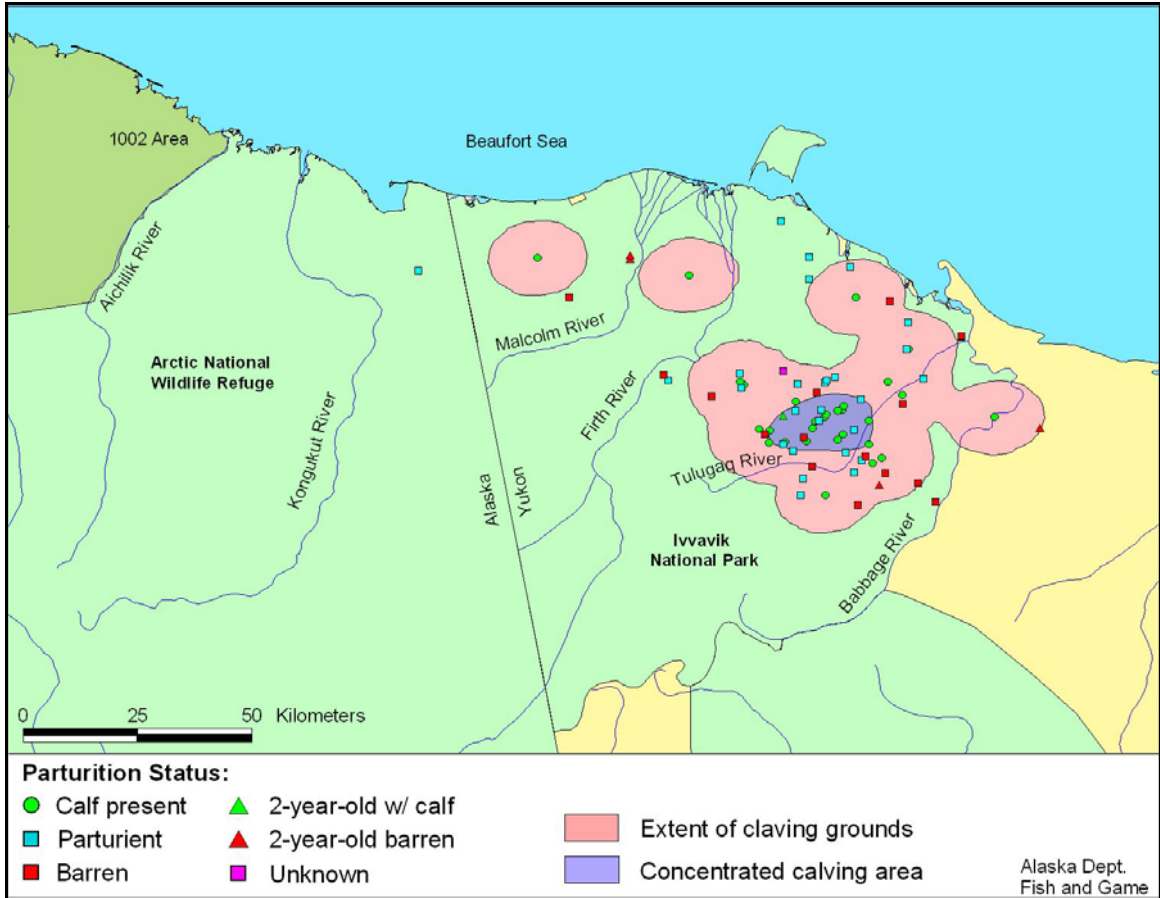


Figure 1. Locations of radiocollared Porcupine caribou cows, 1-3 June 2009. Extent of calving grounds is determined by the isopleth encompassing 99% of the fixed kernel utilization distribution of locations of cows observed with a calf. Concentrated calving area is the area with greater than average density of caribou cows with calves.

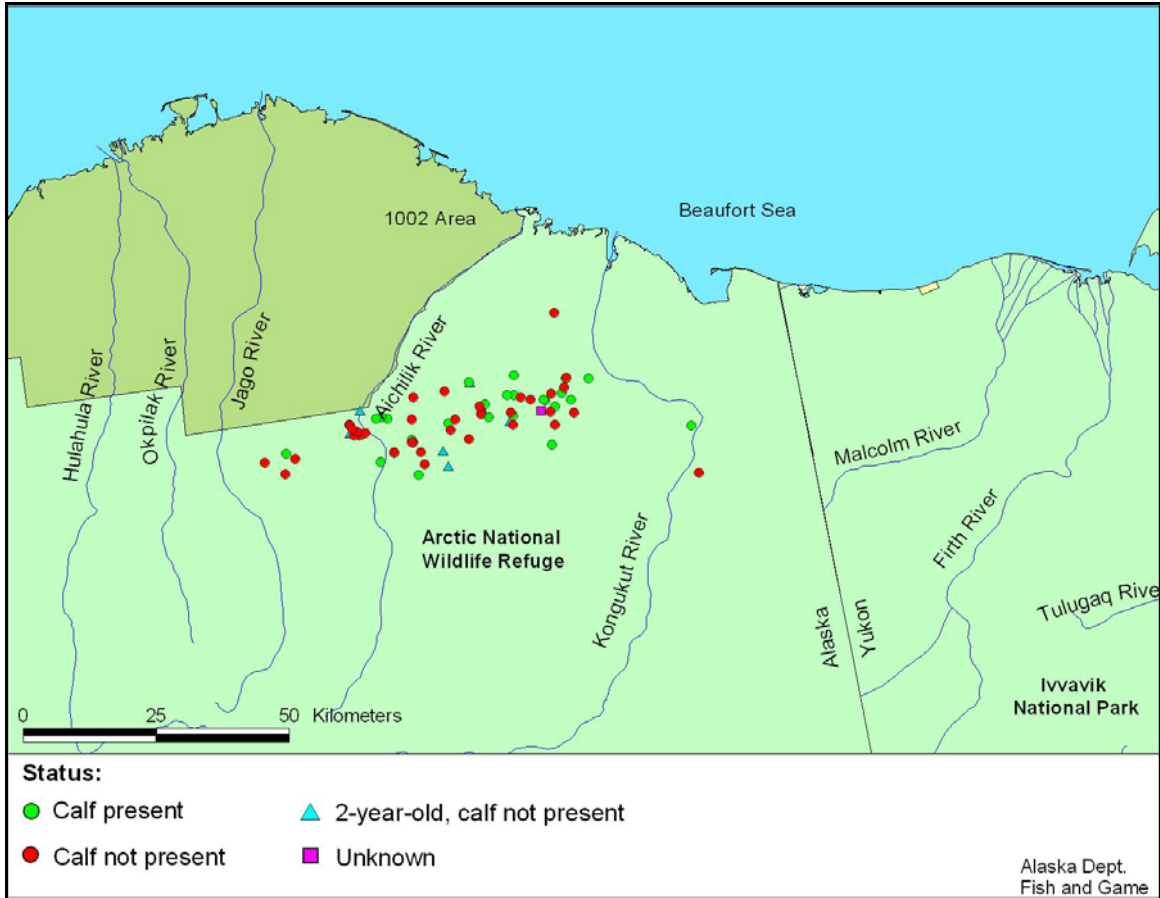


Figure 2. Locations of radiocollared Porcupine caribou cows, 22-24 June 2009.

