STATE OF ALASKA

DEPARTMENT OF FISH AND GAME

DIVISION OF WILDLIFE CONSERVATION

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MEMORANDUM

TO: Roy Nowlin – Management Coordinator, Region III
Beth Lenart – Area Biologist, Northeast Alaska

CC: Porcupine Caribou Technical Committee
All Interested Parties

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

DATE: 15 July 2011

SUBJECT: Porcupine Caribou Herd Calving and Post-Calving Surveys, June–July 2011.

Overview

Winter distribution and spring movements of the Porcupine Caribou Herd (PCH) were monitored with satellite collars in 2010–2011. The PCH was radio tracked during 1–2 June, 2011 using an ADF&G chartered Piper Super Cub to estimate parturition rate and distribution at time of calving. ADF&G conducted post-calving radio tracking flights using a chartered Piper Super Cub during 20–21 June to estimate calf survival and the proportion of cows accompanied by calves.

Arctic National Wildlife Refuge staff conducted additional radio tracking prior to the parturition survey using a Cessna 185 Skywagon to determine broad scale distribution. Yukon Department of Environment staff provided satellite collar locations for seasonal monitoring in fall, winter, and spring and daily monitoring in summer.

Winter Distribution and Spring Movement

Twelve of 13 satellite collared caribou wintered on the south side of the Brooks Range in Alaska and one satellite collared caribou wintered in the Ogilvie Mountains in Yukon. Caribou that wintered in Alaska were distributed between the Wind and Sheenjek Rivers from October through January. From February through April, caribou in Alaska were dispersed more widely and their distribution extended from the Wind River to the Upper Firth and Kongakut River drainages. In early May, the PCH migrated from wintering areas to the calving grounds. By the end of May, all but one satellite collared caribou were on the coastal plain or adjacent foothills between the Babbage and Kongakut Rivers. The remaining satellite collared caribou migrated from the upper East Fork Chandalar River to the lower Canning River near the Sadlerochit Mountains.

Parturition and Calving Distribution

Fifty-nine cows ≥ 4-years of age and five 2-year-olds were observed during radio tracking flights on 1–2 June. No 3-year-olds were observed because no caribou from the 2008 cohort were collared. Parturition rate (percent of cows that had given birth or were judged to be pregnant) was 86% for cows ≥ 4-years of age (n = 59, Table 1) and no 2-year-olds (n = 7) were parturient. Of the 59 cows ≥ 4-years of age, 35 were observed with calves, 16 were judged to be pregnant or to have produced and lost a calf (based on the presence of hard antlers and enlarged udders), and eight were judged to be barren (no hard antlers, udders not distended, and/or the presence of soft antlers). On the 1st and 2nd of June, 68% and 52% of parturient cows were observed with calves, respectively, indicating that the peak of calving occurred prior to 1 June.

During 1–2 June, 14 radiocollared cows were located in Arctic National Wildlife Refuge and 53 radiocollared cows were located in Ivvavik National Park (Figure 1). Extent of calving occurred discontinuously from the Canning River in Alaska to the Babbage River in Yukon. Calving was concentrated in the foothills between the Firth and Babbage Rivers (Figure 1).

Post Calving Survival, Calf:Cow Ratio, and Distribution

During 20–21 June, 44 radiocollared cows ≥ 4 years of age were observed of which 39 were previously observed 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 59% (n=17, Table 1). Only 41% of all radiocollared cows ≥ 4 years of age (n = 44) were observed with calves (Table 1). The 3-week June survival rate and calf:cow ratio was the lowest ever observed for the PCH in late June.

The post-calving survey was hampered by strong surface winds of 15–30 MPH on the coastal plain and wind speeds of 40–55 MPH at elevations greater than 2,000 feet. As a result, observations of radiocollared caribou were limited to those distributed on the coastal plain or foothills of the Brooks Range.

During 20–21 June, most of the located radiocollared cows were in the foothills south of the coastal plain between the Jago and Kongakut Rivers (Figure 2). Fewer numbers of caribou were scattered from the Kongakut River to the Babbage River. A significant number of radiocollared cows (not depicted in Figure 2) were in the mountains between the Kongakut and Firth Rivers and unobservable due to wind.

Table 1. Porcupine Caribou Herd calving ground surveys and population estimates, 1987-2011[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		
2009	65	0.77	0.57	0.75	0.44		
2010	41	0.85	0.76	0.87	0.65		169,000
2011	59	0.86	0.48	0.59	0.41		
Mean		0.81	0.72	0.85	0.58	0.36	

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

[b]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.

[c]Estimated as (late June calf:cow ratio)/(parturition rate).

[d]Includes only calves observed during early June that were subsequently observed in late June (i.e., does not include most perinatal mortality).

[e]Excludes radiocollared cows known to be <4 years old.

[f]As of March of the year following birth of each cohort; includes all cows >1 year old.

[g]No data due to adverse weather conditions.

[h]No data due to mixing of caribou herds on winter range.

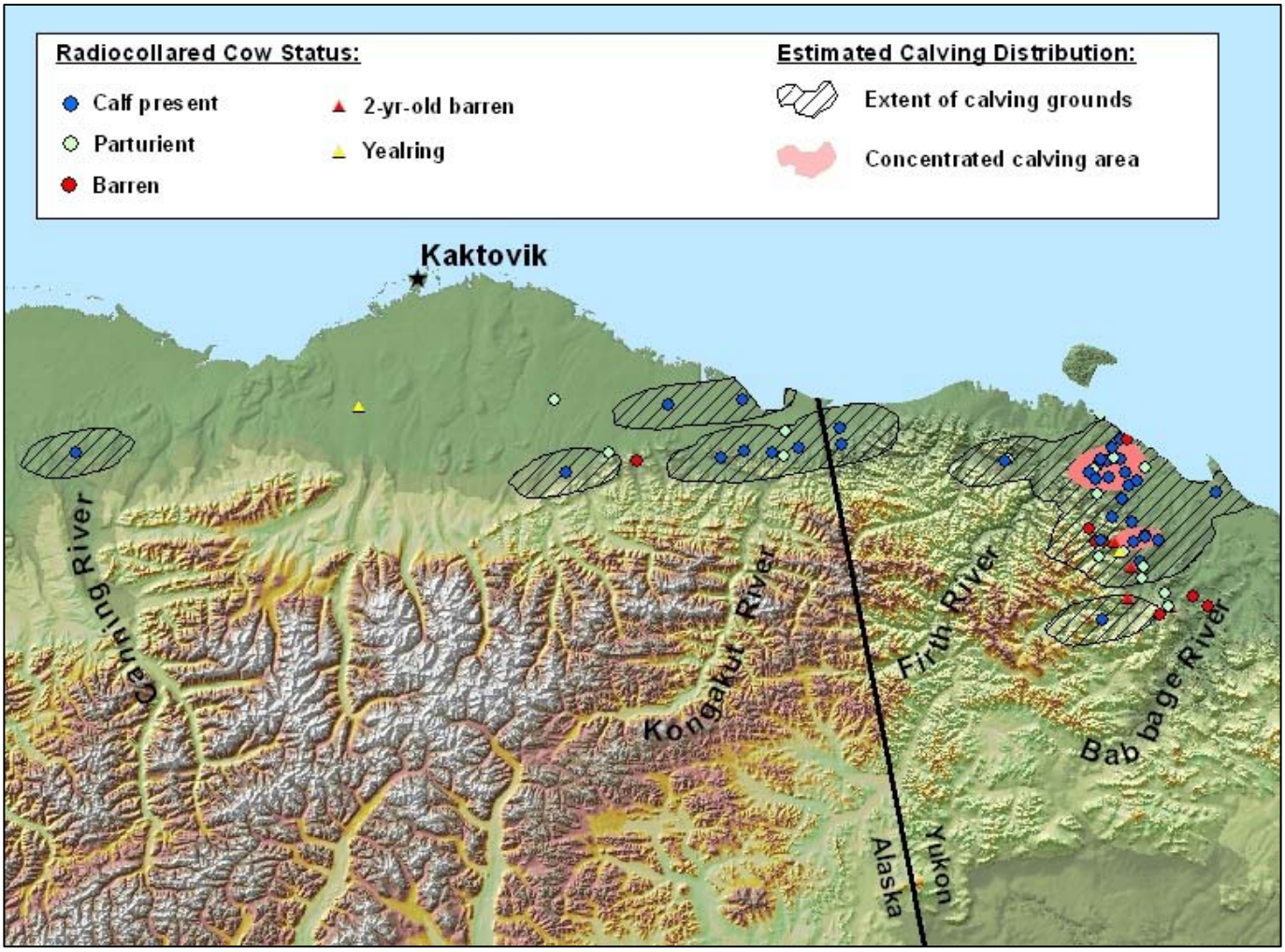

Figure 1. Locations of radiocollared Porcupine Caribou cows, 1–2 June 2011. Extent of calving grounds is determined by the isopleth encompassing 99% of the fixed kernel utilization distribution of locations of cows observed with a calf. Concentrated calving area is the area with greater than average density of caribou cows with calves.

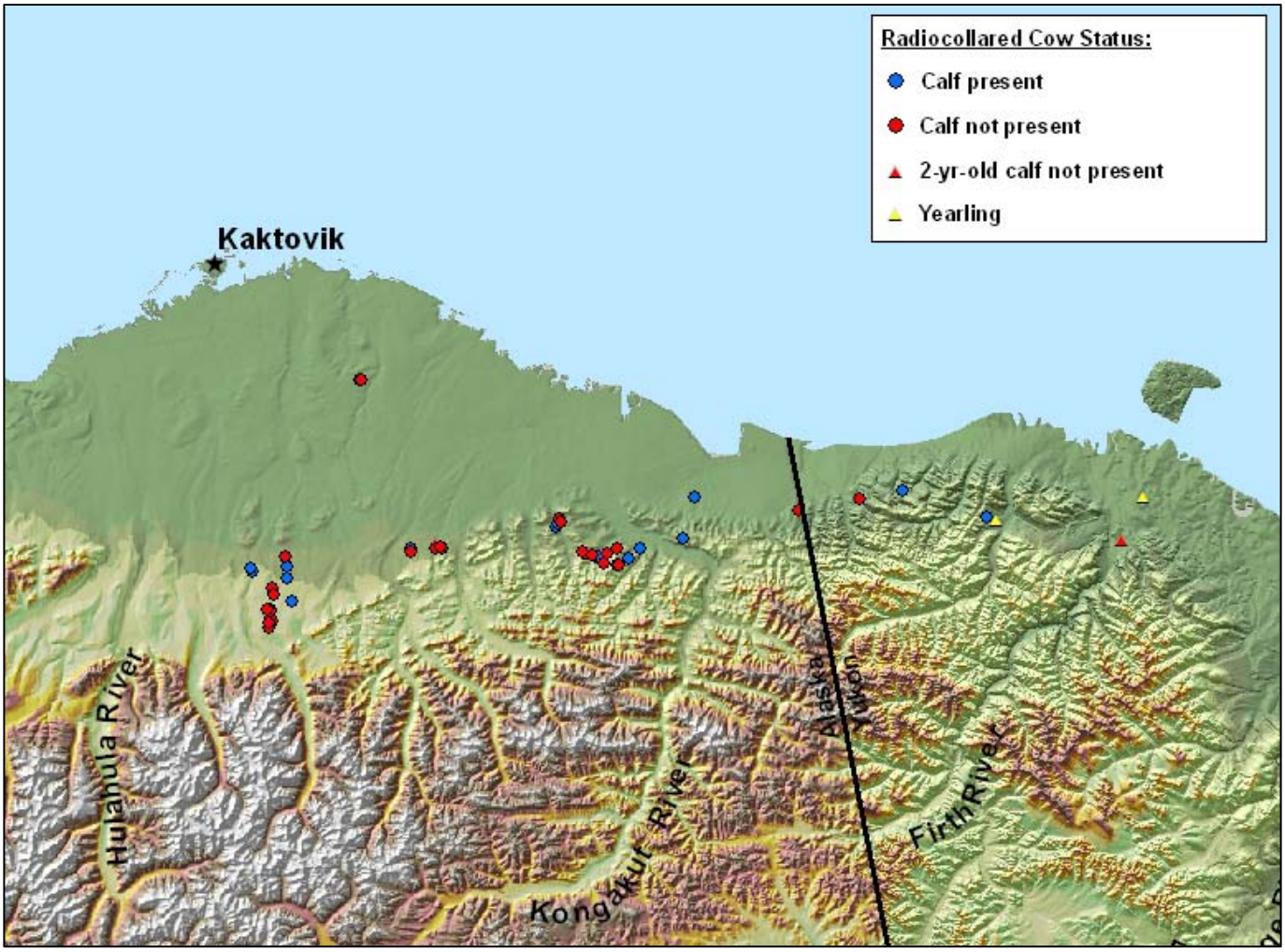

Figure 2. Locations of radiocollared Porcupine Caribou cows, 20–21 June 2011.