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CHAPTER 6: CARIBOU MANAGEMENT REPORT

From: 1 July 2012
To: 30 June 2014

LOCATION

GAME MANAGEMENT UNIT: 10 (6,435 mi^2)

HERD: Unimak

GEOGRAPHIC DESCRIPTION: Unimak Island

BACKGROUND

Caribou numbers on Unimak Island have cycled widely over the decades as have the Northern and Southern Alaska Peninsula (SAP) caribou herds. Although there are historical accounts of caribou moving between Unimak Island and the mainland, and the Unimak caribou herd (UCH) was once considered part of SAP, more recent evidence including fidelity to calving grounds, prolonged genetic isolation, and long-term radio collar data provided enough distinction between island and mainland caribou to classify these as 2 different herds (Butler 2005, Zittlau et al. 2009, Mager 2012). Sellers et al. (1999) summarized a history of UCH, with comparison to the mainland SAP as follows:

> *"Caribou numbers in Unit 9D and on Unimak have fluctuated widely, but not synchronously. In 1925 Murie (in Skoog 1968) estimated 5,000 caribou between Port Moller and the tip of the Alaska Peninsula and another 7,000 on Unimak Island. By 1949 the FWS estimated 500 caribou on the mainland. Surveys in 1949 and 1953 by the FWS reported no caribou on Unimak Island; but by 1960 Skoog (1968) reported* "1,000 *south* (of Port Moller, author's note), *most…being on Unimak Island*". *By 1975 the SAP had increased to at least 2,267 in 9D and 3,334 on Unimak Island (Irvine 1976). The winter of 1975–76 was severe and reports of dead caribou on the island suggested a die off. Conceivably emigration from Unimak could have contributed to population growth in Unit 9D during the late 1970s. By the early 1980s, only a few hundred caribou remained on Unimak. Meanwhile the mainland segment* (the SAP; author's note) *grew continuously to peak at 10,200 by 1983."*

Following the precipitous decline in the late 1970s and early 1980s the UCH population again reversed its course and began increasing. By 1997 the herd had grown to at least 600 caribou and by 2000 to approximately 1,000 animals (Butler 2009). The population was relatively stable until 2005 (or possibly earlier, prior to commencement of annual surveys) when composition surveys began indicating low annual calf:cow ratios. This continued through 2012 when it bottomed out at 3 calves:100 cows. Population size and bull:cow ratios declined correspondingly, and predation on calves was suspected to be the cause of poor calf survival (Butler 2009). Pregnancy

rate appeared to be normal in 2008 (85%) but from 2009–2013 pregnancy rate ranged from 65% to 70%. The population currently numbers approximately 200 animals.

State and federal hunts were closed by emergency orders in 1993 when the then-combined SAP and UCH herds declined below 2,500 caribou. The federal subsistence season reopened in regulatory year (RY) 2000 (regulatory year begins 1 July and ends 30 June, e.g., RY00 = 1 July 2000–30 June 2001) when UCH reached 1,000 animals and herd management was officially separated from SAP (Sellers 2003). The state general season reopened in RY01. State and federal UCH hunts were once again closed in RY09 following the most recent decline and remain closed.

Monitoring of the herd using radiocollared cows began in 1997 and satellite collars were added in 2011. Butler (L. Butler, Wildlife Biologist, ADF&G, King Salmon, personal communication) investigated calf survival on Unimak Island in 2010 but poor weather conditions, long-protracted parturition, and too few collars imposed limitations on data collection. Most of the calves died during the first weeks of life when predation was the most suspect cause of death. The efforts in 2010 highlighted the logistical and weather difficulties associated with conducting research on Unimak Island.

Given the herd's declining population size and poor calf survival, the Alaska Department of Fish and Game (ADF&G) recommended implementing a wolf removal program in 2009 when the herd numbered around 400 animals. During peak calving, wolves were to be removed on the calving grounds using the same strategy employed for wolf removal on SAP's calving grounds (Butler 2009). However, because nearly all of the calving grounds are on federal wilderness lands, the program was not supported nor authorized by the U.S. Fish and Wildlife Service. Because of UCH's small population size and isolation from mainland caribou, ADF&G biologists were concerned that caribou could be extirpated from Unimak Island without management intervention. The window of opportunity probably passed as the herd continued to decline to about 200 animals by 2011, and the risk of losing the herd to a stochastic event such as severe icing outweighed the high cost of predator control.

MANAGEMENT DIRECTION

MANAGEMENT OBJECTIVES

No formal management objectives are in place for UCH, and practically speaking, there is little opportunity to actively manage this herd given formidable logistics involved in reaching the island. However, the proposed (but inactive) intensive management program of 2009 recommended a minimum population size of 1,000 caribou with a fall bull:cow ratio of 35 bulls:100 cows.

METHODS

POPULATION STATUS AND TREND

Population Size

Beginning in RY12, ADF&G biologists conducted composition counts in October to determine if better population data could be collected than during the postcalving period. We used 2 fixed-wing aircraft and a helicopter to locate collared cows. If all collars were accounted for

during the survey and most of the island flown, we considered the tally a minimum count of the population. In addition, staff of Izembek National Wildlife Refuge (INWR) periodically conduct winter aerial counts along systematic transects to obtain a minimum count of UCH.

Population Composition

Sex and age composition surveys were conducted during October. Caribou were located with 2 fixed-wing aircraft outfitted with telemetry equipment, and were classified as calves, cows, and small, medium, and large bulls from a helicopter.

Parturition Surveys

We used the same methods as above to classify caribou on the calving grounds in early June. Classification included parturient cow (with calf, hard antlers, or distended udder), nonparturient cow, yearling, or bull (Whitten 1995).

Radiotelemetry and Satellite Collar Data

Female caribou were captured for VHF radiocollaring in 2012 and 2013 to maintain a sample of marked animals in the population. A few USFWS satellite collars remained on the air during the reporting period. Occasional radiotracking flights and satellite collar data were used to monitor herd distribution and movements, and locate parturient cows and newborn calves.

Mortality

ADF&G and federal subsistence managers closed hunting of UCH in 2009.

We captured and monitored the survival of neonate calves and investigated cause of death (Butler et al. 2007) during June 2014.

RESULTS AND DISCUSSION

POPULATION STATUS AND TREND

Population Size

We obtained a minimum count of 192 in RY13 during October composition count (Table 1). The survey conducted in October of RY12 was of inadequate coverage to obtain a minimum count, primarily because of low cloud ceiling and gusting winds in the highlands.

Population Composition

Bull ratios were 10 bulls:100 cows during the reporting period, probably the result of poor calf recruitment. Because hunting was closed, harvest did not explain the continued low bull ratio since 2008 (Table 1). The calf ratio did improve to 19 calves:100 cows in 2013.

We monitored collared cows almost daily during 1–14 June 2014 to determine productivity. Approximately 5% of UCH cows with enlarged udders and calves were growing black, fuzzy antlers approximately 1–6 inches long (eyeball estimate from helicopter and photos; Fig. 1). This is greater than the number that had retained hard antlers during pregnancy. Thus cows observed with new antler growth could not be readily classified as non-pregnant, as is the case with other caribou herds in Alaska (Whitten 1995). I suspect this could be related to the protracted calving period observed in UCH (L. Butler, 2010, unpublished data).

Distribution and Movements

UCH has typically calved on the western portion of Unimak Island in the Urilia Bay and Pogromni River flats areas. Calving for UCH is generally more dispersed than for other caribou herds.

In early December 2012, a cow fitted with a GPS satellite collar swam from Unimak to the mainland across Isanotsky Strait (D. Watts, USFWS biologist, Becharof National Wildlife Refuge, personal communication). Two weeks later the cow was observed visually on the mainland with 5 unmarked cows and within 2 miles of 25 other caribou which included a few bulls and calves. Most radiocollared SAP caribou were found over 40 miles from the Unimak cow, hence it is possible the marked Unimak cow was accompanied by 5–30 other caribou when she swam across, but this could not be determined with any certainty.

MORTALITY

Harvest

There have been no state or federal hunts on Unimak Island since RY09 (Tables 2 and 3).

Alaska Board of Game Actions and Emergency Orders. There were no actions taken during the reporting period.

Federal Subsistence Board Actions. There were no actions taken during the reporting period.

Other Mortality

We captured and monitored the survival of 18 neonate calves and investigated cause of death within 24 hours. At time of capture by helicopter, calf ages ranged from a few hours to 4 days, with mode of 2 days. Average weights for captured calves was 8.0 kg for males (n = 6), and 8.1 kg for females (n = 8). UCH calves were surprisingly susceptible to human capture by walking or crawling away from them after being separated from the dam and confused by the helicopter's rotor wash. Using this technique we captured around 8 calves that could have easily outrun us. Our peak captures (and failed chases) occurred 8–9 June. The last day we observed a newborn calf was on 14 June, located at 4,400 feet elevation on the slope of Shishaldin Volcano was 14 June. All other observed caribou calves appeared to be in good health.

Predators were responsible for 3 of the 6 calf mortalities investigated; 2 attributed to wolves and 1 to brown bear. One additional calf died of starvation with the dam nearby. The remaining 2 calves were censored because of capture-related events; 1 due to abandonment and 1 because its death by a brown bear may have been assisted by capture-related events. If we censure the 2 calves then 12 of 16 calves (75%) survived when we departed on 14 June, but many calves had not reached 2 weeks of age.

HABITAT

Assessment

Adult caribou collared on Unimak during the reporting period appeared to be in excellent overall condition. The pregnancy rate for cows >2 years in age remained lower than other Alaska caribou herds in RY13 at 66% (n = 106). These low pregnancy rates were attributed to the low

bull ratios observed rather than habitat or nutritional limitations. Healthy caribou calf weights and apparent excellent body condition of cows indicate that nutrition is not limiting UCH population growth or survival.

CONCLUSIONS AND RECOMMENDATIONS

UCH is managed as a separate and independent caribou herd even though some interchange with the mainland may occur, particularly at high population sizes. Managing this herd to dampen population fluctuations may not be possible given the logistics involved in accessing Unimak Island. However, we should move forward to adopt formal population objectives of a minimum 1,000 caribou and 35 bulls:100 cows as proposed in the intensive management program in 2009. Pregnancy rates of adult cows >2 years of age have remained low since 2009 (from 67% pregnant to 70% pregnant). The low bull ratios observed since 2008 are believed to have reduced the likelihood of cows encountering a bull while in estrus, thus reducing the pregnancy rate. The department deploys radio collars on adult cows and calves to assess body condition, health, age, and survival, and to aid biologists in locating caribou during survey flights. Biologists should continue to monitor population size, composition, productivity, and survival of UCH, and collect additional data on causes of calf mortality.

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Figure 1. Unimak Island, 12 June: pregnant cow with 1–2 inch new antlers (left) observed with newborn calf 2 days later with approximately 3–4 inch antlers; cow with new 6 inch antlers with newborn, collared calf (right). Photos by Dave Crowley.

Table 1. Unimak Island caribou herd composition counts and estimated population size, Alaska, calendar years 2000–2013.

Calendar year	Total bulls:100 cows	Calves: 100 cows	Calves (%)	Cows (%)	Total bulls (%)	Small bulls (% of bulls)	Medium bulls (% of bulls)	Large bulls (% of bulls)	Composition sample size	Estimate of herd size
2000	40	21	13	62	25	34	32	33	406	983[a]
2002	54	31	17	54	29	50	22	29	392	1,262[b]
2004										1,006[b]
2005	45	7	5	66	29	24	37	39	730	1,009[b]
2006										806[b]
2007	31	6	4	73	23	28	34	38	433	
2008	9	6	5	86	9	33	33	33	260	
2009	5	3	3	92	5	30	30	40	221	400[b]
2010	8	8	7	86	7	21	42	37	284	
2011	6	7	6	89	5	50	33	17	117	224[c]
2012	10	3	2	89	8	14	71	14	83	
2013	10	19	15	78	8	20	40	40	67	192[d]

[a] Count by Rod Schuh, registered guide, in May.
[b] Winter count by Izembek National Wildlife Refuge staff.
[c] May parturition survey by Alaska Department of Fish and Game.
[d] October census of entire island by Izembek National Wildlife Refuge staff.

Table 2. Unimak Island caribou herd harvest, Alaska, regulatory years[a] 2002–2013.

Regulatory year	Harvest by hunters						Estimated total
	Reported						
	M	(%)	F	(%)	Unknown	Total	
2002	11	(92)	1	(8)	0	12	12
2003	10	(100)	0	(0)	0	10	10
2004	15	(100)	0	(0)	0	15	15
2005	15	(100)	0	(0)	0	15	15
2006	12	(92)	1	(8)	0	13	13
2007	13	(100)	0	(0)	0	13	13
2008	9	(100)	0	(0)	0	9	9
2009–2013[b]							

[a] Regulatory year begins 1 July and ends 30 June, e.g., regulatory year 2002 = 1 July 2002–30 June 2003.
[b] There have been no state or federal hunts on Unimak Island since regulatory year 2009.

Table 3. Unimak Island caribou herd annual hunter residency and success, Alaska, regulatory years[a] 2002–2013.

	Successful					Unsuccessful					
Regulatory year	Local resident[b]	Nonlocal resident	Nonresident	Total[c]	(%)	Local resident[b]	Nonlocal resident	Nonresident	Total[c]	(%)	Total hunters[c]
2002	0	5	7	12	(92)	0	1	0	1	(8)	13
2003	0	1	9	10	(77)	0	2	1	3	(23)	13
2004	0	3	12	15	(71)	0	5	1	6	(29)	21
2005	0	4	11	15	(94)	0	0	1	1	(6)	16
2006	0	3	10	13	(87)	0	0	2	2	(13)	15
2007	2	1	10	13	(100)	0	0	0	0	(0)	13
2008	0	2	7	9	(75)	0	1	1	3	(25)	12
2009–2013[d]											

[a] Regulatory year begins 1 July and ends 30 June, e.g., regulatory year 2002 = 1 July 2002–30 June 2003.
[b] Local residents are residents of Unimak Island.
[c] Includes hunters of unknown residency.
[d] There have been no state or federal hunts on Unimak Island since regulatory year 2009.