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**CHAPTER 2: CARIBOU MANAGEMENT REPORT**

From: 1 July 2012

To: 30 June 2014

**LOCATION**

**GAME MANAGEMENT UNIT:** 8 (5,097 mi<sup>2</sup>)

**GEOGRAPHICAL DESCRIPTION:** Kodiak and adjacent islands

**BACKGROUND**

All of the caribou on Kodiak originate from the introduction of 32 domestic reindeer in 1924. The reindeer were brought to Lazy Bay on the south end of Kodiak Island as part of a U.S. Department of the Interior program that began in 1892 to bring reindeer into western Alaska from Siberia to provide Native Alaskans additional commercial and subsistence opportunities. The reindeer herd was managed by residents of Akhiok, under a contract with the U.S. Reindeer Service (Van Daele 2013). The herd ranged in the Cape Alitak and Olga Lakes area, in tundra vegetation that provided the best reindeer habitat on Kodiak.

In spite of various political and biological issues that arose with reindeer in other areas of the state (Hanson 1952), reindeer on Kodiak were thriving and reached a peak of about 3,000 animals by 1950 (Van Daele 2013). The herd declined in size following a catastrophic cabin fire in the early 1950s, which destroyed hundreds of acres of prime reindeer forage. The herd escaped during the fire, releasing an estimated 1,200 animals into the wild. After the fire, most herders did not attempt to reclaim the reindeer and took better paying jobs in the fishing industry. Active management of the herd ended in 1961, although reindeer meat continued to be sold to the canneries and individual hunters were allowed to kill reindeer for \$25 a head. In 1964 the federal grazing lease expired. The lease was never renewed and a certified letter from the U.S. Bureau of Sport Fisheries and Wildlife (June 10, 1963) stated, “Any property that has not been removed from the leased area or disposed of on or before July 1, 1964 will become the property of the United States Government.” The reindeer were not removed and were declared feral by the State of Alaska the next year.

During 1960–2000, state and federal management of the herd was passive, neither attempting to sustain or eliminate them. By having no closed season or bag limit, all hunters, including former owners of the herd, could take as many animals as they wanted as long as they obtained a caribou harvest ticket before hunting, salvaged all the meat for human consumption, and did not hunt on the same day they had been flying. During that time the herd settled into favored range along the Ayakulik and Sturgeon rivers and stabilized at about 250–350 animals (Van Daele 2013).

In 2002 the Alaska Board of Game authorized same-day-airborne hunting and the reported harvest of feral reindeer increased as lodges and transporters began marketing hunts. The

increased pressure on the herd prompted concern of overharvest and in 2009 the Board passed a proposal that not only reinstated the prohibition on same-day-airborne hunting, but also established a management objective to sustain the herd at 200–500 animals. At this time the feral reindeer were also officially reclassified as “caribou” for game management purposes.

## **MANAGEMENT DIRECTION**

### **MANAGEMENT OBJECTIVE**

- Maintain a population of 200–500 caribou for use by all user groups.

## **METHODS**

We conducted annual aerial observation surveys opportunistically and collected anecdotal information from hunters, air-taxi operators, and commercial and private pilots. We collected data on harvest and hunting effort from mandatory harvest report cards.

## **RESULTS AND DISCUSSION**

### **POPULATION STATUS AND TREND**

#### *Population Size*

Aerial observation surveys indicate a stable population of 300–375 caribou in Unit 8 during this reporting period (Table 1). Survey results have been consistent over the past 5 years ranging from 300 to 353 caribou further suggesting population stability. Although most population demographics (e.g., age, gender) are not regularly collected, Kodiak National Wildlife Refuge (NWR) conducted a comprehensive aerial survey throughout the caribou range in 2011 and identified 319 animals (292 adults, 27 calves). In addition, Alaska Wildlife Trooper and survey pilot Alan Jones conducted aerial surveys in 2011, 2012 and 2013 and counted 353, 300, and 319 individuals, respectively. Despite public concern regarding a potential decline in herd size following increased harvest during regulatory year (RY) 2002 (regulatory year begins 1 July and ends 30 June, e.g., RY02 = 1 July 2002–30 June 2003) through RY08, current survey methods did not indicate a substantial population decline. Compared to historical estimates, recent surveys suggest the caribou herd size on Kodiak Island is stable to slightly increasing. Anecdotal information collected from hunters and pilots supports this assertion.

#### *Population Composition*

No current information exists on gender or age composition of this herd.

#### *Distribution and Movement*

During the time reindeer were actively managed (1924–1961), little to no herd movement occurred on the island as they were kept in large corrals in the Alitak area or allowed to graze in the vicinity of Olga Lakes. After being declared feral (1965), the herd moved gradually to the west and established their primary range in the upper Ayakulik River and lower Sturgeon River drainages (Fig. 1). Although uncommon, they have occasionally ranged as far north as the Karluk River drainage and south to the Olga Lakes area.

## **MORTALITY**

### *Harvest*

<u>Season and Bag Limits</u>	<u>Resident and Nonresident Open Seasons</u>
Unit 8: 1 caribou (either sex).	1 Aug–31 Jan

Caribou are not listed as a federal subsistence species in Unit 8.

Alaska Board of Game Actions and Emergency Orders. There were no Board of Game or emergency actions during this reporting period.

Harvest by Hunters. The annual caribou harvest during this reporting period was 24 (14 males, 10 females) in RY12 and 15 (14 males, 1 females) in RY13, resulting in a mean harvest of 19.5 caribou/year (14 males, 5.5 females) up from the mean of 17.4 (13.6 males, 3.8 females) during the previous 5 years (RY07–RY11; Table 2).

Hunter Success and Residency. Overall hunter success was 50.0% in RY12 and 31.9% in RY13. The previous 5-year (RY07–RY11) mean hunter success rate was 45.9%. Overall hunter success rate in RY13 was the lowest in over a decade. This reduction in hunter success may be a reflection of reduced hunter effort and is presumably due to the increased number of harvest tags issued annually. More hunters obtained harvest tags in RY13 with the intent of hunting caribou opportunistically than in previous years. Hunters intending to hunt opportunistically tend to report low success rates, potentially greatly reducing overall mean hunter success. Further, RY13 reported the second highest number of total hunters and the highest number of unsuccessful hunters in over a decade further supporting this contention.

In RY12 Alaska residents accounted for 75.0% of the reported harvest (37.5% local residents, 37.5% nonlocal residents) while nonresidents accounted for 25.0% of the harvest during the same year. Interestingly, Alaska residents accounted for 26.6% of the harvest in RY13 (13.3% local residents, 13.3% nonlocal residents) and nonresidents accounted for 66.7%. The remaining 6.7% was from a hunter of unknown residency. During the previous 5 years, Alaska residents accounted for 59.7% of the annual harvest and nonresidents accounted for 32.9% of the annual harvest (7.4% of harvest was of unknown residency; Table 3).

Harvest Chronology. During this reporting period, most of the reported caribou harvested occurred in September (RY12 = 43%, RY13 = 40%) and October (RY12 = 26%, RY13 = 53%; Table 4). This trend in harvest chronology has been consistent for the past decade with exceptions in RY05 and RY10 when the majority of harvest occurred in October and November. Historically, September, October, and November see the greatest number of hunters across the island rationalizing these findings.

Transportation Methods. Aircraft were the predominant method of transportation for caribou hunters in Unit 8 followed by boats (Table 5).

### *Other Mortality*

Documenting mortality from sources other than hunting is seldom possible because of the remote setting of the caribou range. Predation by brown bears undoubtedly occurs, but it is probably not common (Reynolds and Garner 1987). We rarely receive reports of caribou that died during winter from sources other than hunting. We estimate wounding loss and illegal harvest contribute additional mortality equivalent to 15% of the reported harvest.

### **HABITAT**

#### *Assessment*

The Kodiak caribou herd ranges within an area having little or no anthropogenic influence. No permanent human settlements, infrastructure, or resource extraction activities currently exist. Hunters and fishermen frequent the river corridors and coastal areas seasonally, but have only localized impacts on the habitat. A small fire was inadvertently started at a hunter camp on Halibut Bay in 2009, but was naturally extinguished after burning less than 10 acres.

### **NONREGULATORY MANAGEMENT PROBLEMS/NEEDS**

In 2010, descendants of the Alitak Native Reindeer Corporation requested information from the department on the history of how reindeer on Kodiak were declared feral. They also solicited assistance from local legislators on how to obtain reindeer to restart commercial reindeer herding operations on Native lands near Akhiok and other villages. No further inquiries have occurred since 2010. While it would be difficult to capture and domesticate reindeer from the current herd on Kodiak, it may be feasible to obtain animals from other sources. Reestablishment of domestic herds would require careful planning to avoid potential problems with disease transmission, bear predation, and escapement onto adjacent state and federal lands.

## **CONCLUSIONS AND RECOMMENDATIONS**

Introduction and establishment of feral reindeer/caribou on Kodiak Island followed a different course than other introduced species on the archipelago in that it began as a domestic animal (as part of an economic enterprise), transitioned into an unmanaged feral animal, and ultimately ended up as a big game species managed for sustained yield. While we have not actively managed the herd for most of the past 50 years, the population seems to have reached equilibrium ( $n = 300\text{--}375$ ). The Kodiak Island caribou herd has established its range in what appears to be the most suitable caribou habitat on the archipelago and rarely ventures from the area. However, there is a notable lack of objective information on population dynamics, habitat use, and movements. In addition, because harvest regulations have historically been liberal with no closed season and no bag limit, obtaining accurate harvest and demographic information has been problematic.

The decision to manage the herd as a sustainable population raised interest and concurrently resurrected controversies that had not been discussed for decades. Heirs to the original owners of the reindeer worked with local Native tribes and corporations to again raise the question of compensation for reindeer that were declared feral and to explore avenues to revitalize reindeer herding on the island. At the same time, staff from Kodiak NWR raised concerns about the impacts on indigenous vegetation and wildlife caused by encouraging a non-native ungulate population to remain and proliferate within the confines of the refuge.

To address these concerns and better manage the caribou herd, we recommend the following:

- Monitor population status by initiating comprehensive biannual surveys (post-calving in late June–early July, calf survival in late summer–early fall).
- Obtain herd demographic data (e.g., age, gender) during biannual surveys to monitor shifts in population parameters.
- Improve harvest monitoring techniques to ensure hunters obtain and submit accurate harvest tickets and work with Alaska Wildlife Troopers to improve harvest reporting compliance.
- Design and implement a joint ADF&G-Kodiak NWR research program that incorporates GPS radio telemetry and habitat assessment techniques to acquire population dynamics, movements, and habitat use information.

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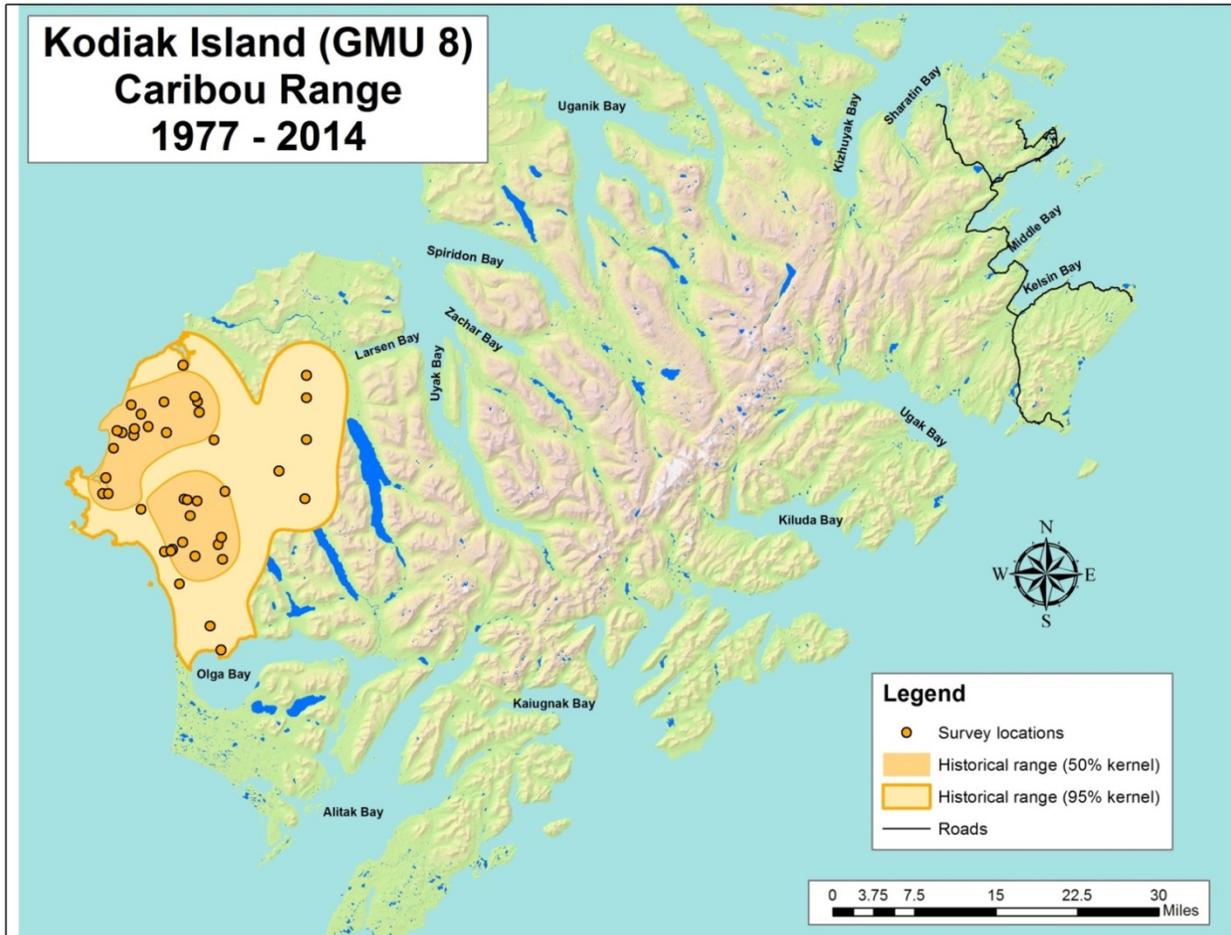


Figure 1. Estimated caribou range for Game Management Unit 8 during 1977–2014 approximated from annual aerial surveys, Kodiak Island, Alaska.

Table 1. Unit 8 aerial composition counts and estimated population, Kodiak Island, Alaska, regulatory years<sup>a</sup> 1924–2013.

Location	Regulatory year	Total caribou observed <sup>b</sup>	Estimated population
Unit 8	1924	32	32 <sup>c</sup>
	1930s		500 <sup>d</sup>
	1940s		1,400 <sup>d</sup>
	1950s	740	3,000 <sup>d</sup>
	1960s	768	800 <sup>d</sup>
	1970s	250	500 <sup>d</sup>
	1980s	225	300 <sup>e</sup>
	1990s		250–300 <sup>e</sup>
	2000		250–300 <sup>e</sup>
	2001		250–300 <sup>e</sup>
	2003		250–300 <sup>e</sup>
	2004		250–300 <sup>e</sup>
	2005		250–300 <sup>e</sup>
	2006		250–300 <sup>e</sup>
	2007		250–300 <sup>e</sup>
	2008	260	250–350 <sup>e</sup>
	2009	325	250–350 <sup>e</sup>
	2010	336	250–350 <sup>e</sup>
	2011	353	300–375 <sup>e</sup>
	2012	300	300–375 <sup>d</sup>
2013	319	300–375 <sup>e</sup>	

<sup>a</sup> Regulatory year begins 1 July and ends 30 June, e.g., regulatory year 2013 = 1 July 2013–30 June 2014.

<sup>b</sup> Maximum number of caribou observed.

<sup>c</sup> Original transplant of domestic reindeer.

<sup>d</sup> Estimates recorded in ADF&G, Alutiiq Museum, and Kodiak National Wildlife Refuge files (Actual number of caribou observed include: 1957–740; 1963–768; 1965–553; 1977–250; 1978–129; 1979–140; 1980–225; 1981–41; 1982–202; and, 1983–176).

<sup>e</sup> Based on ADF&G staff estimates.

Table 2. Unit 8 caribou harvest data by permit hunt, Kodiak Island, Alaska, regulatory years<sup>a</sup> 2002–2013.

Hunt area	Regulatory year	Bulls	(%)	Cows	(%)	Unknown	Total harvest <sup>b</sup>
Unit 8	2002	16	(89)	2	(11)	0	18
	2003	14	(74)	5	(26)	0	19
	2004	12	(55)	9	(41)	1	22
	2005	12	(71)	5	(29)	0	17
	2006	10	(56)	8	(44)	0	18
	2007	24	(77)	7	(23)	0	31
	2008	13	(72)	5	(28)	0	18
	2009	8	(89)	1	(11)	0	9
	2010	11	(79)	3	(21)	0	14
	2011	12	(80)	3	(20)	0	15
	2012	14	(58)	10	(42)	0	24
	2013	14	(93)	1	(7)	0	15

<sup>a</sup> Regulatory year begins 1 July and ends 30 June, e.g., regulatory year 2002 = 1 July 2002–30 June 2003.

<sup>b</sup> Totals do not include illegal and unreported harvest data.

Table 3. Unit 8 caribou hunter residency and success, Kodiak Island, Alaska, regulatory years<sup>a</sup> 2002–2013.

Regulatory year	Successful				Unsuccessful				Successful hunters	Unsuccessful hunters	Total harvest <sup>c</sup>
	Local <sup>b</sup> resident	Nonlocal resident	Nonresident	Unk	Local <sup>b</sup> resident	Nonlocal resident	Nonresident	Unk			
2002	7	2	6	0	1	6	2	0	15	9	18
2003	7	3	1	1	3	8	0	0	12	11	19
2004	7	5	1	1	5	10	0	1	14	16	22
2005	4	6	4	0	2	10	0	0	14	12	17
2006	5	5	4	0	5	16	2	1	14	24	18
2007	13	7	3	0	7	6	2	0	23	15	31
2008	4	4	8	0	4	10	5	0	16	19	18
2009	3	1	5	0	1	7	1	0	9	9	9
2010	9	2	3	0	7	11	6	0	14	24	14
2011	8	2	5	0	9	10	5	2	15	26	15
2012	9	9	6	0	8	6	10	0	24	24	24
2013	2	2	10	1	9	13	10	0	15	32	15

<sup>a</sup> Regulatory year begins 1 July and ends 30 June, e.g., regulatory year 2002 = 1 July 2002–30 June 2003.

<sup>b</sup> Local resident includes hunters who reside in Unit 8.

<sup>c</sup> Totals do not include illegal and unreported harvest data.

Table 4. Unit 8 caribou harvest chronology (%) by month, Kodiak Island, Alaska, regulatory years<sup>a</sup> 2002–2013.

Regulatory year	Harvest periods (%)												<i>n</i>		
	Aug		Sep		Oct		Nov		Dec		Jan			Other <sup>b</sup>	
2002	0	(0)	1	(6)	10	(56)	4	(22)	0	(0)	0	(0)	3	(17)	18
2003	0	(0)	8	(42)	6	(32)	1	(5)	0	(0)	0	(0)	4	(21)	19
2004	1	(5)	2	(9)	17	(77)	1	(5)	0	(0)	0	(0)	1	(5)	22
2005	1	(6)	1	(6)	11	(65)	2	(12)	0	(0)	0	(0)	2	(12)	17
2006	1	(6)	7	(39)	9	(50)	0	(0)	0	(0)	0	(0)	1	(6)	18
2007	3	(10)	15	(48)	7	(23)	5	(16)	0	(0)	0	(0)	1	(3)	31
2008	2	(11)	9	(50)	5	(28)	1	(6)	0	(0)	0	(0)	1	(6)	18
2009	1	(11)	4	(44)	1	(11)	1	(11)	2	(22)	0	(0)	0	(0)	9
2010	0	(0)	1	(7)	7	(50)	2	(14)	4	(30)	0	(0)	0	(0)	14
2011	1	(7)	6	(40)	7	(47)	1	(7)	0	(0)	0	(0)	0	(0)	15
2012	3	(13)	10	(43)	7	(29)	4	(17)	0	(0)	0	(0)	0	(0)	24
2013	0	(0)	6	(40)	8	(53)	0	(0)	0	(0)	0	(0)	1	(7)	15

<sup>a</sup> Regulatory year begins 1 July and ends 30 June, e.g., regulatory year 2002 = 1 July 2002–30 June 2003.

<sup>b</sup> Includes February–July and all unknown harvest dates.

Table 5. Unit 8 caribou harvest by transport method, Kodiak Island, Alaska, regulatory years<sup>a</sup> 2002–2013.

Regulatory year	Transport method (%)									Total harvest			
	Airplane		Horse		Boat		ORV		Highway vehicle		Unknown		
2002	15	(83)	0	(0)	3	(17)	0	(0)	0	(0)	0	(0)	18
2003	16	(84)	0	(0)	3	(16)	0	(0)	0	(0)	0	(0)	19
2004	18	(82)	0	(0)	4	(18)	0	(0)	0	(0)	0	(0)	22
2005	13	(76)	0	(0)	4	(24)	0	(0)	0	(0)	0	(0)	17
2006	14	(78)	0	(0)	3	(17)	0	(0)	0	(0)	1	(6)	18
2007	28	(90)	0	(0)	2	(6)	0	(0)	0	(0)	1	(3)	31
2008	18	(100)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	18
2009	7	(78)	0	(0)	2	(22)	0	(0)	0	(0)	0	(0)	9
2010	11	(79)	0	(0)	2	(14)	0	(0)	0	(0)	1	(7)	14
2011	12	(80)	0	(0)	3	(20)	0	(0)	0	(0)	0	(0)	15
2012	21	(87)	0	(0)	3	(13)	0	(0)	0	(0)	0	(0)	24
2013	12	(80)	0	(0)	3	(20)	0	(0)	0	(0)	0	(0)	15

<sup>a</sup> Regulatory year begins 1 July and ends 30 June, e.g., regulatory year 2002 = 1 July 2002–30 June 2003.