

STUDY AREA

GAME MANAGEMENT UNITS: 9D and 10 (Unimak Island only)
(10,000 mi²)

HERD: Southern Alaska Peninsula

GEOGRAPHICAL DESCRIPTION: Southern Alaska Peninsula
and Unimak Island

BACKGROUND

The range of the Southern Alaska Peninsula Caribou Herd (SAPCH) includes Unimak Island and extends northward to Port Moller Bay. Historically, the size of caribou populations on the Peninsula have fluctuated widely. The SAPCH's population highs occurred prior to the turn of the century and again in the late 1920's. The most recent population lows occurred in the late 1940's or early 1950's, with an estimated 500 animals on the mainland and 500 animals on Unimak Island. In 1976 there were an estimated 4,000 animals on the mainland portion and 5,000 animals on Unimak Island. Since then the relative distribution of herd changed; i.e., in 1983 an estimated population of 10,200 animals on the mainland and 300 animals on Unimak Island. A census in October 1987 resulted in a population estimate of 6,400 caribou on the mainland (Table 1).

The SAPCH had a harvest high of approximately 900-1,100 animals in 1983. With more restrictive hunting regulations a harvest low of 130-180 caribou occurred in 1987 (Table 2). Range conditions are believed to be stressed for the mainland portion of the herd.

POPULATIONS OBJECTIVES

To maintain the midsummer population at 5,000-6,000 caribou and an October sex ratio of 40 bulls:100 cows.

METHODS

With the aid of radiotelemetry, direct photocensus surveys are usually conducted in late June on postcalving concentrations. Fall sex and age composition surveys are usually conducted in October and early November. General reconnaissance flights (i.e., radiotelemetry) are conducted throughout the year to monitor herd movement. In 1986 and 1987 late-fall surveys were conducted along systematic transects by the staff of the Izembeck National Wildlife Refuge (Izembeck NWR). The harvests are monitored by harvest tickets as well as hunter checks at Cold Bay.

RESULTS AND DISCUSSION

Population Status and Trend

The Unimak Island portion of the SAPCH has had low numbers (i.e., 300 caribou) since the early 1980's showing no signs of herd growth. The mainland portion of the herd probably stopped growing in about 1983, when 10,200 animals were counted. Since then the herd has been in decline (Table 1).

Population Size:

Survey conditions in June 1988 were good, although clouds and winds near mountains prevented total coverage. All of the radio-collared animals were located, and caribou were found in large postcalving concentrations. A total of 3,407 caribou were counted in the SAPCH, representing the lowest number recorded during the 1980's. A more extensive survey in October 1987 resulted in a count of 6,400 caribou. Actual herd size is probably closer to the October 1987 count than to the one in June 1988.

Population Composition:

The mainland segment of the SAPCH (i.e., 1,769 caribou) was classified in October 1987 as follows: 16% calves, calf:cow ratio of 26:100 and bull:cow ratio of 36:100 (Table 1). Photos from the June 1988 census showed 16% calves in the postcalving aggregations ($n = 1,162$).

Distribution and Movements:

The SAPCH calves in the eastern portion of the range near the Black Hills and Caribou River. Calving on Unimak Island occurs in the eastern portion of the island about 1 week later than that for mainland populations. The majority of the mainland portion of the SAPCH winters in the western portion of the area between Cold Bay and the Black Hills. During October 1987, staff of Izembeck National Wildlife Refuge accounted for 4,732 (73%) and 1,669 caribou (27%) west and east of the Black Hills, respectively.

Mortality

Season and Bag Limit:

Although the open season for subsistence, resident, and nonresident hunters in Subunit 9D had been established at 10 August to 31 March, 10 August to 31 October, and 1 September to 31 October, respectively, they were altered by Emergency Order. The bag limits for all hunters in Subunit 9D were also changed (see Game Board Actions and Emergency Orders, p.28) from the established 2 caribou for subsistence and resident hunters and 1 caribou for nonresident hunters. The open

season for all hunters on Unimak Island (Unit 10) is 10 August to 31 March; the bag limit is 4 caribou.

Human-induced Mortality:

During the reporting period the reported harvest for the SAPCH was 81 caribou (Table 2); i.e., 41 males (51%) and 40 females (49%). This low harvest reflects the Emergency Order closing the season from 1 September to 17 November.

As has been noted for the Northern Alaska Peninsula Caribou Herd, the reported caribou harvest did not appreciably increase during odd-numbered years; i.e., those concurrent with October brown bear seasons (Tables 3). The 1987 caribou season was closed in Subunit 9D during the brown bear season.

The harvest chronology for the SAPCH generally corresponded with the least-expensive hunter access; hunting occurred mostly in November and December while the herd was available along the road system during its migration to the wintering areas near Cold Bay (Table 3).

Natural Mortality:

Although specific data on natural mortality is lacking, both predation and nutritional status needs to be evaluated. Since 1983 the percentage of calves (6-8%) for the mainland segment of the SAPCH (Table 1) has been substantially lower than that for the corresponding NAPCH (25-30%). The reason for the chronic low calf production in the SAPCH is unknown; calf production may be related to range and weather conditions as well as predation.

Adult mortality for the SAPCH may have exceeded 30% for this reporting period, if one assumes that uncollared caribou have the same mortality as radio-collared animals; e.g., of 20 and 10 caribou radio-collared in April and October 1987, six and four were dead by June 1988, respectively.

Habitat

From general observations during photocensuses conducted in June 1987 and 1988, it appeared that plant phenology on the range of the SAPCH was behind that occurring north of Port Moller. Robustness of animals sometimes correlates with range and/or climatic conditions. It appeared that NAPCH was in better condition than the SAPCH, when animals were compared during radio-collaring and transplanting activities.

Game Board Actions and Emergency Orders

Game regulations for the SAPCH in Subunit 9D and Unit 10 (Unimak Island) were relatively stable and consistent with those for the NAPCH until 1986, when an Emergency Regulation in November reduced bag limits to 1 caribou in Subunit 9D and Unit 10 (Unimak Island). For 1987 the bag limit for Subunit 9D was 2 caribou for subsistence hunters and 1 caribou for all other hunters; however, on 31 August 1987 the season was closed by Emergency Order to all hunting. Following the Izembek NWR October census, the subsistence hunting season in Subunit 9D was reopened by Emergency Order: 17 November to 17 January with a bag limit of 2 caribou.

The reasons for the closing and reopening of the season in Subunit 9D was concern for possible overharvesting. The herd had been censused in November 1986 and June 1987; i.e., 4,543 and 4,067 caribou, respectively. These counts led ADF&G staff to believe the herd was below the minimum objective of 5,000 and still declining; however, in November 1987 Izembek NWR staff counted 6,400 caribou. Accordingly, the hunting season was reopened for subsistence hunting with a bag limit of 2 caribou.

CONCLUSIONS AND RECOMMENDATIONS

I recommend continuing the objective of reduced harvests by retaining the 1988-89 hunting regulations for the 1989-90 season. It is critical to obtain good information on general herd and range condition as well as specific data on animal condition and body size. Studies in Norway have demonstrated that poor range conditions resulted in reduced female body size and decreased calf recruitment (Skogland 1983, 1984). These studies used caribou jaw-length measurements to obtain relative body size of female caribou. Hopefully, by correlating jaw length data over time, much of the objective of obtaining a useable trend in herd health in relation to range carrying capacity can be economically obtained.

LITERATURE CITED

- Skogland, T. 1983. The effects of density-dependent resource limitation on size of wild reindeer. *Oecologia (Biol.)* 60: 156-168.
- _____. 1984. The effects of food and maternal conditions on fetal growth and size of wild reindeer. *Rangifer* 4: 39-46.

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Table 1. Caribou composition counts, total counts, and population estimates for Subunit 9D, 1983-88.

Date	Males:100 females	Med./Large male%	Calf: 100 females	Calf %	Sample size	Total count	Estimated pop. size
1/83	--	--	--	--	--	5,641 ^a	5,641+
6/83	--	--	--	18	Unknown	5,264 ^a	5,264+
10/83	--	5	--	15	1,596	--	--
11/83	--	--	--	--	--	10,203 ^a	10,203+
7/84	--	4	--	17	2,389	7,500 ^b	7,500+
10/84	--	7	--	15	1,566	--	--
7/85	--	--	--	6	2,333	4,044 ^b	4,044+
10/85	--	12	--	9	1,460	--	--
1/86	--	--	--	--	--	3,333 ^c	--
7/86	--	4	--	17	2,594	--	--
11/86	32	9	20	13	2,307	4,543 ^c	4,543+
6/87	--	--	--	12	723	4,067 ^a	4,784
7/87	--	--	--	12	1,689	--	--
10/87	36	--	26	16	1,769	6,401 ^d	6,401+
6/88	--	--	--	16	1,162	3,407 ^a	4,008

^a Aerial photo-direct count census with systematic search.

^b Aerial photo-direct count census with systematic transects

^c Direct count census with systematic transects.

^d Aerial photo-direct count census with systematic transects and radio telemetry cross check.

^e Aerial photo-direct count census with radio telemetry search.

Table 3. Reported harvest chronology by time period for Subunit 9D, 1983-87.

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Unk.	Total
1983-84 ^{a,b}	4	17	24	158	28	11	6	3	3	254
1984-85 ^b	5	12	27	179	131	26	9	3	--	392
1985-86 ^{a,b}	2	16	30	97	123	54	14	9	--	345
1986-87 ^{b,c}	1	8	8	8	11	9	9	0	--	54
1987-88 ^{a,d,e}	2	0	0	21	14	44	--	--	--	81

^a Concurrent brown bear season

^b Bag limit of 4 caribou

^c Bag limit reduced to one caribou in November by emergency order

^d Bag limit of 2 caribou for subsistence, 1 caribou for all others

^e Season closed August 31 and reopened November 17 by emergency order

Table 2. Annual reported harvest and estimated harvest for Subunit 9D; 1983-87.

Year	Male	Female	Total ^a	Subsistence and sport	Total
1983-84	168	81	254	500-700	800-1000
1984-85	279	109	388	500-700	900-1100
1985-86	180	162	345	500-700	850-1050
1986-87	36	18	56	300-500	400- 600
1987-88	41	40	81	50-100	130- 180

^a Includes unknown sex.