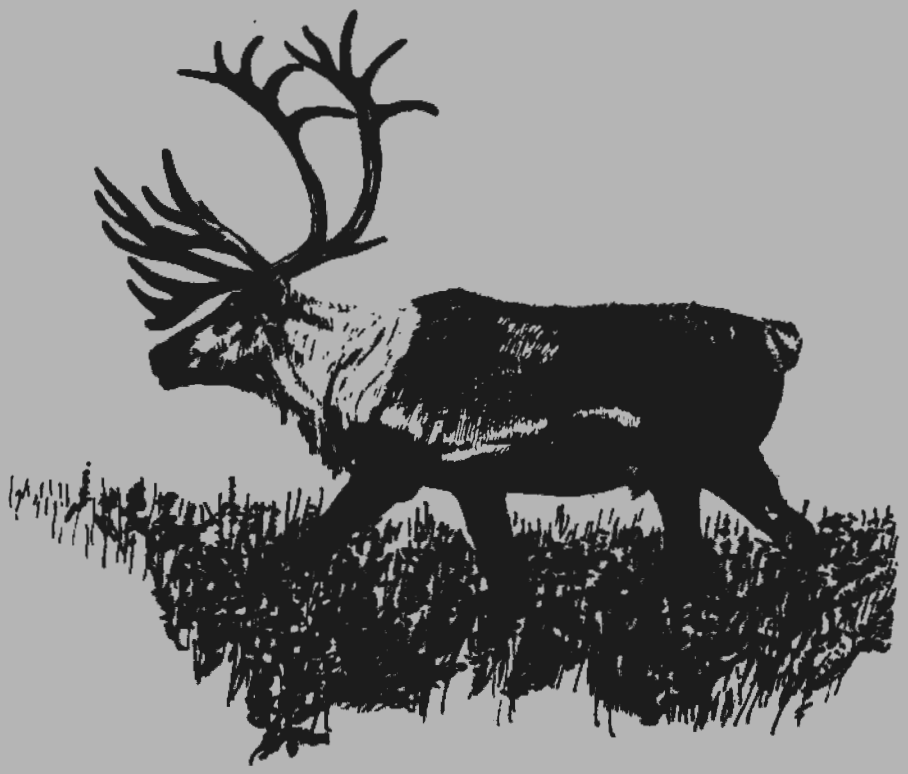
Alaska Department of Fish and Game
Division of Wildlife Conservation
Federal Aid in Wildlife Restoration
Annual Performance Report of
Survey-Inventory Activities
1 July 1989-30 June 1990

CARIBOU



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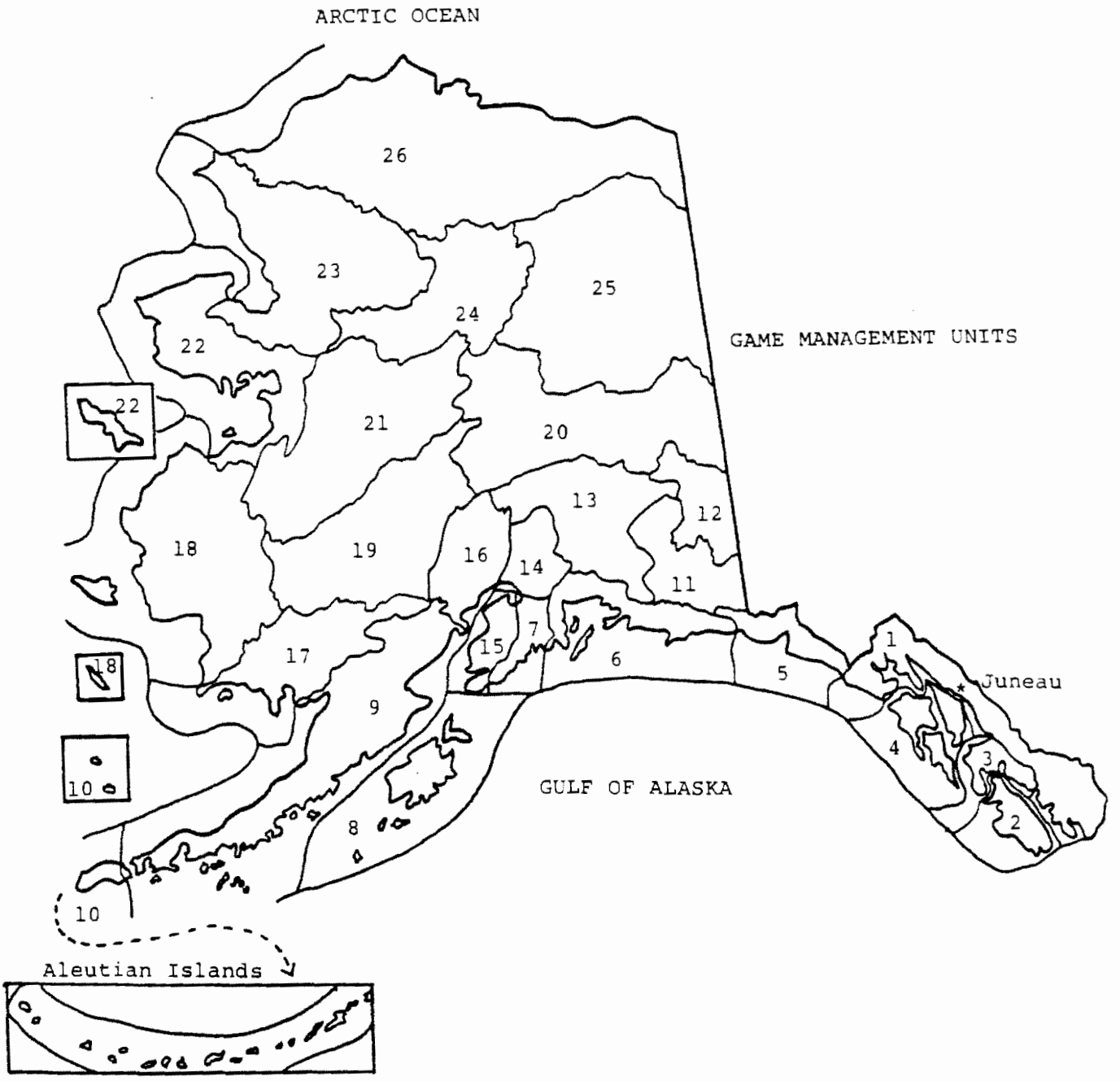
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PROJECT TITLE: Southcentral Alaska Caribou Management

PROJECT LOCATION: Unit 7 (3,500 mi^2)
Kenai Mountains Herd

Unit 15 (4,900 mi^2)
Kenai Lowlands Herd

Units 9B, 9C, and 9E (26,700 mi^2)
Northern Alaska Peninsula Herd

Units 9D and 10 (14,500 mi^2)
Adak Herd

Units 9B, 17B, and 17C (22,300 mi^2)
Mulchatna Herd

Unit 11 (12,800 mi^2)
Mentasta Herd

Units 13 and 14B (25,500 mi^2)
Nelchina Herd

PROJECT OBJECTIVES:

Unit 7

To maintain the posthunting herd at about 400 until a carrying capacity is determined for their winter range.

Unit 15

To increase the herd to a minimum of 150 by 1990.

Units 9B, 9C, and 9E

To maintain the population at 15,000 to 20,000 in midsummer and an October sex ratio of at least 40 bulls:100 cows.

Units 9D and 10

To increase the population to 6,000 in midsummer and maintaining an October sex ratio of at least 40 bulls:100 cows.

Unit 10

To maintain the precalving population at 250.

Units 9B, 17B, and 17C

To maintain a minimum population of 25,000 adults and a bull:cow ratio of 35:100.

Unit 11

To maintain a minimum overwintering population of 2,500 adults and a minimum posthunting bull:cow ratio of 35:100.

Units 13 and 14B

To increase the herd to 30,000 overwintering adults and annual harvests at 7% of the adult population.

WORK ACCOMPLISHED DURING THE PROJECT SEGMENT PERIOD:

Kenai Mountains Herd (Unit 7)

Because of poor weather and tracking conditions none of the 4 aerial surveys attempted from late fall 1989 to early spring 1990 provided complete counts. The largest number of caribou found was 65. Based on previous years counts, the herd consisted of 200 caribou.

A total of 1,045 applications was received for 150 fall 1989 drawing permits. A harvest of 12 bulls and 2 cows was tabulated for the 62 permittees reported hunting.

Kenai Lowlands Herd (Unit 15)

The population consisted of between 117 and 130 caribou. This estimate was derived from a June 1990 survey in which 117 caribou were counted, including 20 calves (17%).

A total of 688 applications was received for the 3 fall drawing permits. All 3 hunters reported hunting, and two of those harvested bulls.

Northern Alaska Peninsula Herd (Units 9B, 9C, and 9E)

The herd was estimated to have 17,000 caribou, based on an aerial photocensus conducted in late June 1990. This count included 25% new calves. A fall aerial survey conducted in mid-October 1990 observed 20% calves. Sex composition surveys were not conducted during this reporting period.

Hunters reported killing 764 bulls and 132 cows during the 1989-90 hunting season. There were 758 successful hunters, of which 676 took one caribou, 34 took two caribou, 26 took three caribou, and 19 took four or more caribou. Of the total hunters reporting, 363 were nonresidents, 59 were local residents, and 350 were nonlocal residents. With an unreported harvest estimate added in, the actual total harvest was estimated at 2,300-2,400 caribou.

Southern Alaska Peninsula Herd (Units 9D and 10)

This herd is estimated to have 4,000 caribou. Two aerial censuses attempted in mid- to late June 1990 resulted in a count of 3,375 and 3,022 caribou, respectively. Calves represented 17% of the 2nd count. During a mid-October 1990 fall survey, calves were found to represent only 3% of the herd. Sex composition surveys were not conducted during this reporting period.

Hunters reported killing 50 bulls and 9 cows during the 1989-90 season. There were 47 successful hunters, of which 35 took one caribou and 12 took two. Of the hunters reporting, 24 were nonresidents, 19 were local residents, and four were nonlocal residents. With an estimated unreported harvest of 50-100, the actual total harvest is estimated to be 100-125 caribou.

Adak Herd (Unit 10)

A helicopter transect survey was flown 5 October 1989 by personnel form the Alaska Maritime National Wildlife Refuge. A total of 467 caribou were observed. Adak management strategies were discussed when refuge and ADF&G staff met in August 1990.

Hunting of this herd was administered by permit, and 446 permits were issued in 1989. The total harvest was 212 caribou (53% bulls); 309 individuals reported hunting.

Mulchatna Herd (Units 9B, 17B, and 17C)

The herd was estimated at 82,000 caribou, based on a June 1990 photocensus in which 61,851 animals were counted. Eleven caribou were radio-collared in the spring, bringing the total number of radio-collared Mulchatna caribou to 46. These collared animals allow segments of the herd to be located for annual censusing and recording herd distribution and movements.

Harvest reports indicated that 1,201 caribou were killed (88% bulls). Hunter success was 85%. The majority of the hunters returning harvest reports were nonresidents (54%). There was a substantial unreported harvest, mostly by local residents.

Mentasta Herd (Unit 11)

The Mentasta Caribou Herd numbered about 2,602 animals (2,350 adults) during October 1989. This estimate was extrapolated from a June 1989 postcalving aggregate count of 2,687 (59% cows) and an October sex and age survey (45% bulls, 15% calves). The June 1990 postcalving aggregate count was 2,308 caribou. A sex and age composition survey was not conducted, so the June 1990 cow base was not determined.

No new radio collars were placed on Mentasta caribou during the reporting period, but radio-collared caribou in the herd were relocated to monitor movements and document habitat use. The

herd summered on its traditional range along the west slopes of Mounts Sanford and Drum. By November the herd had moved northeast into Unit 12, and some had moved into the Snag and Beaver Creek drainages in Yukon Territory, Canada. The main herd wintered from the Nabesna River east to the Canadian border. The herd moved back to normal calving grounds between Drop Creek and the Sanford River by 15 May 1990.

Hunters killed 45 Mentasta caribou in 1989. Fifty-eight subsistence permittees took 24 bulls (89%), 2 cows (7%), and 1 unknown. The success rate for subsistence hunters who actually hunted was 56% (N = 48). Of 100 drawing permittees, 39 hunted, killing 18 bulls (46% success). Subsistence hunters spent an average 4.8 days afield to take a caribou, compared with 3.6 days for sport hunters. In November and December the Mentasta herd moved into Unit 12, where they were subject to a subsistence harvest by local residents in a hunt that was intended for Nelchina caribou. The impact of this harvest has not been determined.

Nelchina Herd (Units 13 and 14B)

The October 1989 population estimate for the Nelchina caribou herd was 40,317, of which 31,953 were adults (>1 yr). This estimate was extrapolated from a June 1989 postcalving aggregate count of 39,754 (55% cows) and an October sex and age survey (49% bulls, 39% calves). The June 1990 postcalving count was 42,127 caribou (52% cows).

One radio collar was placed on Nelchina caribou to replace expired transmitters. A total of 46 functioning radio-collars were used to monitor the herd's seasonal distribution. The herd's summer distribution was similar to past years. Traditional calving and postcalving use occurred in the eastern Talkeetna Mountains within Units 13A, 13E, and 14B. With herd expansion, however, more have summered in Unit 13B along the Denali Highway. In 1989 almost the entire herd migrated into Unit 12 for the winter. Nelchina caribou were found along the Alaska Highway (east of Tok) and Canada. The main body of the herd spent the period from December until early April 1990 between the Nabesna River and the Canadian border. Spring migration back to the traditional calving grounds occurred between mid-April and early May.

A total of 1,986 caribou (1,659 bulls) was harvested during t
1989-90 hunting season. Subsistence hunters took 505 car
(410 bulls, 94 cows) (61% success). A total of 1,292 subsis
permits were issued. Subsistence hunters took 387 caribou
the fall season and 118 during the winter. Cows compose
the winter harvest, compared with only 9% of the fal
Additional subsistence permits were issued to the
Tetlin and Northway for a November hunt that took
Nelchina caribou migrated into Unit 12. One hu
permits were issued, and 82 caribou (61 bulls,

reported taken. However, some of these caribou may have been from the Mentasta herd. Hunter success was 73%. Sport hunters reported taking 1,399 caribou (1,188 bulls) in 1989; 2,230 hunting permits were issued, and the hunter success rate was 74%.

Nelchina range stations were repaired, and plant conditions were evaluated during the summer of 1989. Range data is currently being analyzed, and the results will be presented in a separate report.

PROGRESS TOWARDS MEETING PROJECT OBJECTIVES:

Kenai Mountains Herd (Unit 15)

In 1984 the population objective for the Kenai Mountains Caribou Herd was increased to 400, because the herd had been increasing in conjunction with several years of high recruitment and moderate harvests. Additionally, caribou appeared to be expanding their winter range during the early to mid-1980's, further supporting an increase in the population size objective. However, in 1985 when the highest number of caribou had been counted (401), the recruitment rate declined significantly. This lack of recruitment has continued through 1989. Studies have not been conducted to determine the primary factors controlling herd size; however, because of overgrazing during the early 1980's, deteriorated range is suspected. Another possible cause is predation.

Few data were collected in FY90 because of poor survey conditions, and population size and herd composition could not be accurately assessed. The harvest of 12 bulls and 2 cows during 1989 should not have significantly impacted the herd's ability to grow or remain stable, provided human-caused mortalities are the primary factor influencing the herd's status. However, in as much as the herd consists of only 200 caribou, the number of permits issued should be reduced to 50 and the bag limit to 1 bull for the 1990 season.

Kenai Lowlands Herd (Unit 15)

The current management objective is to allow the herd to increase to a minimum of 150 caribou by 1990 and provide for a limited harvest of bulls. The population estimate is 117, and the population size objective will not be reached in 1990. Because the herd is not growing as rapidly as predicted, the management objective should be extended to 1995.

Northern Alaska Peninsula Herd (Units 9B, 9C, and 9E)

Over the past 10 years the estimated herd size has remained between 15,000 and 20,000 caribou. This year's population estimate of 17,000 caribou met the objective. Careful monitoring of future harvests is warranted because of changing hunting

patterns in southcentral Alaska. For example, the 1990-91 hunting regulations for the Nelchina Caribou Herd may eliminate hunting opportunities for most hunters. Thus nonlocal residents may put more pressure on this herd.

No quantitive data are available concerning NAP range conditions; however, body condition (body weights, blood parameters, and body size) for the caribou captured in radio-collaring activities in April 1990 and calf production data suggest that caribou are in relatively good condition. Nevertheless, expansion of winter range north of the Naknek River may be an indication that the condition of this herd's winter range is declining. Winter range use should continue to be monitored.

Southern Alaska Peninsula Herd (Units 9D and 10)

Over the past three years the estimated herd size has remained at 4,000 caribou, after declining from over 10,000 caribou in 1983. Reasons for this decrease in herd size are being explored by ADF&G and Izembek National Wildlife Refuge personnel. The main contributing causes for the decline are poor range conditions and predation. To further reduce mortalities caused by hunting, the Board of Game changed the bag limit to 1 bull for the 1990-1991 hunting season.

Adak Herd (Unit 10)

In the fall of 1989 the Adak caribou herd consisted of nearly 500 caribou. Only a record harvest of over 40% of the herd kept the herd close to the population objective of 250 precalving caribou. Continued growth of this insular population could lead to an unmanageably large herd, resulting in habitat damage. Based on past herd performance, average annual harvests of about 25-30% will be required to stabilize herd size.

Mulchatna Herd (Units 9B, 17B, and 17C)

The Mulchata herd continued to expand in both population size and range. Westward expansion into new areas may allow the herd to avoid overutilization of existing range. There are indications of increased overlapping with caribou in the Kuskokwim River drainages. The herd size is 3 times the current management objective. Objectives and management strategies will be reviewed in the FY90 management report.

Mentasta Herd (Unit 11)

The Mentasta herd size is below the minimum management objective of 2,500 adults; however, the objective may be unrealistic, given current levels of predation. Because it was established when the herd was increasing and predator numbers were lower, it may have been overly optimistic. Historic data suggest a herd objective from 2,000 to 2,200 adults may be more realistic. The herd is located almost entirely within Wrangell Saint Elias National Park

and Preserve, and management actions to promote herd growth, other than controlling human harvest, are not realistic under NPS rules.

Harvests have not limited herd growth, because over 90% of the caribou taken have been bulls, representing less than 2% of the herd. Unless recruitment increases, harvests should remain low and be composed predominantly of bulls.

Fall 1989 composition data suggested poor calf survival. This is the 3rd successive year that calf survival from spring until fall has been poor. Research data (ADF&G files) indicated that calves are being produced but mortality is high the first 3 weeks after parturition. The bull:cow ratio in 1989 was similar to past years and well above the 35:100 minimum objective for the herd.

Nelchina Herd (Units 13 and 14B)

The herd now exceeds the management objective of 30,000 adults. Harvests should be increased to stop growth and maintain herd size to about 30,000 adults. Range station evaluations indicated deterioration of lichen ranges in portions of the herd's range, especially within the calving and summering areas.

To reduce and maintain the overall herd size and a high bull:cow ratio, the number of cows taken must be increased. Because the harvest during winter hunts has a greater proportion of cows than in the fall, the winter harvest should be increased.

SEGMENT PERIOD PROJECT COSTS:

	Personnel	Operating	Total
Planned	141.6	60.1	201.7
Actual	141.6	74.3	215.9
Difference	0.0	14.2	14.2

Costs for Mentasta surveys were higher (+2.4) because a replicate survey was necessary to locate a missing segment of the herd. Nelchina census costs were less than planned (-4.3) because the herd was located close to the base of aircraft operations. Radios were placed on northern peninsula animals during this reporting period instead of the next one, as previously planned. Field work on body condition of the Southern Alaska Peninsula herd was also begun early.

SUBMITTED BY:

Kenneth W. Pitcher and John N. Trent
Regional Management Coordinators

PROJECT TITLE: Interior Caribou Population And Habitat Management

PROJECT LOCATION:

Unit 12 (10,000 mi^2)
Upper Tanana and White River drainages, including the northern Alaska Range east of the Robertson River, and the Mentasta, Nutsotin, and northern Wrangell Mountains

Unit 19 (36,500 mi^2)
Drainages of the Middle Fork and upper Kuskokwim River upstream from the village of Kalskag

Unit 20 (50,400 mi^2)
Tanana Valley, Central Alaska Range, White Mountains, Tanana Hills

Unit 21 (44,000 mi^2)
Koyukuk River drainages upstream from the Dulbi River

Unit 25 (53,100 mi^2)
Eastern north slope of the Brooks Range

Units 26B and 26C (25,800 mi^2)
Upper Yukon River drainage

PROJECT OBJECTIVES:

Big River Herd, Rainy Pass Herd, Beaver Mountains Herd, Sunshine Mountain Herd (Units 19 and 21)

To increase the Big River herd to 1,500-2,000, Rainy Pass herd to 1,000-1,500, Beaver Mountains herd to 1,200-1,500, and Sunshine Mountain herd to 1,500-2,000.

Delta and Yanert Herds (Unit 20)

To maintain the Delta herd at 6,000 or more and the Yanert herd at 500 or more caribou.

Macomb Plateau Herd (Units 12 and 20)

To increase the herd to 1,500-2,000 caribou.

Fortymile and Chisana Herds (Units 12 and 20)

To increase the Fortymile herd to 50,000 and the Chisana herd to 1,600-2,000 caribou.

Porcupine and Central Arctic Herds (Units 25 and 26)

To maintain minimum population sizes of 135,000 in the Porcupine herd, and 10,000 in the Central Arctic herd.

WORK ACCOMPLISHED DURING THE PROJECT SEGMENT PERIOD:

Big River Herd, Rainy Pass Herd, Beaver Mountains Herd, Sunshine Mountain Herd

Mortality within the various herds was monitored through analyses of hunter harvest report tickets. Currently, there are no active radio transmitters operating within any of the various herds, with the exception of the Tonzona Herd; i.e., National Park Service is conducting movements and mortality investigations. During the 1989-90 hunting seasons, 12 caribou each were reported harvested from the Tonzona, Farewell, and Beaver Mountain Herds. In addition, there was a reported caribou harvest of 37, two, and 53 from the Big River, Sunshine Mountain, and Rainy Pass Herds, respectively. I suspect that predation mortalities in most of the herds were quite high, especially those caused by wolves.

Caribou surveys were completed in selected areas during the period 7-9 June 1990. In the Beaver Mountains, a total of 649 caribou were counted (14% calves). In the Sunshine Mountain complex (Cloudy, Cripple Creek, Page, Mystery, and Von Frank Mountains), about 617 caribou were observed (19% calves). Although counts in these areas were not exhaustive, populations were below the herd size objectives. Although hunting mortalities remain minimal, herd trends are stable or slightly declining because of predation. Range conditions appeared good. A reconnaissance survey in the Rainy Pass area revealed few caribou in widely scattered areas, and no size or natality rates were estimated. The current population estimate by the National Park Service for the Tonzona Herd is about 2,000.

Delta and Yanert Herds

Reported harvest during the general bulls-only caribou hunting season was 358 caribou by 572 hunters. Reported harvest by 200 permit holders in permit hunt No. 570 was 117 caribou (101 bulls, 16 cows). Reported harvest in the Yanert River winter permit hunt No. 571 was 5 bulls by 25 hunters. The total reported harvest for the combined Delta and Yanert Caribou Herds was 480 caribou.

To estimate actual harvests, compared with reported harvests, 124 field interviews were conducted during the September general season. Fifty-four of the interviews were conducted in the Yanert River drainage. Comparison of field interview results with harvest reports will be completed in July 1990.

Fall sex and age composition surveys were conducted on 10 October. The total composition sample of 1,965 caribou contained 22% calves, 62% cows, and 16% bulls. Both the Delta and Yanert herds were represented in the sample. The total bull:cow ratio was 27:100; the large bull:cow ratio was 2:100.

Spring sex and age composition surveys were conducted on 18 April 1990 to assess overwinter survival of calves. Sex and age ratios from a sample of 974 caribou were 17 calves:100 cows and 15 bulls:100 cows.

On 22 and 23 May 1990 ground-based classification of caribou was conducted on the calving grounds in Dick and Wells Creeks; 683 and 678 caribou were classified, respectively. Of 783 adult females classified, 84% showed evidence of pregnancy or were accompanied by a calf. A photocensus of the Delta and Yanert Caribou Herds was conducted on 26 June 1990. Analysis of the photographs will be completed in July 1990.

Composition counts conducted in October 1989 indicated that the proportion of large males in the population was below that prescribed in the management objectives. During the fall of 1989 and the winter of 1990 a regulatory proposal to reduce the harvest of large males while maintaining the maximum hunting opportunities was developed and presented to the Board of Game. The proposal was adopted, and it will take effect 1 July 1990.

Macomb Plateau Herd

A fall aerial census and composition count was conducted on 26 October 1989, and 617 caribou were observed (33 bulls:100 cows and 34 calves:100 cows). Body condition was evaluated from caribou killed during the 1989 hunting season. Reported back fat depth from 16 caribou averaged 1 inch (range = zero to 1.5 inches) for caribou killed from 10 August to 28 September 1989. Jawbones were also collected from hunter-killed caribou; however, those data have not been analyzed. Mean weight of 13 calves captured in April 1990 was 113 pounds. Caribou pregnancy and calf survival was monitored by radio-collaring an additional 11 adult cows and 11 yearling cows on 9 and 25 April 1989. Aerial fixed-wing surveys were flown on 14 and 20 May 1990 to determine evidence of pregnancy. After 20 May pregnant radio-collared caribou were located and observed at 2- to 6-day intervals through 8 June to determine calving distribution and survival. The peak of calving occurred on 22 May. A diversionary feeding research project began in May 1990 to test the assumption that predation on calves is the major factor limiting herd growth. A total of 26 metric tons of railroad-killed moose carcasses were distributed in the vicinity of the Macomb Plateau between 14 and 30 May 1990. An aerial survey was flown on 14 June 1990 to determine calf survival after diversionary feeding. A sample of 600 caribou resulted in an estimate of 32 calves:100 cows, indicating a 50% calf mortality rate from the peak of calving to 14 June.

Harvest for the 1989 general and subsistence hunting seasons was 44 caribou. Five hundred thirty-four applications were received for the 150 permits. Eighty permittees reported hunting, including 70 residents, 8 nonresidents, and 2 unspecifieds. Successful hunters reported a mean of 3.1 days afield. The most commonly used transportation method were highway vehicles, (50%). Horses were most commonly used for access by successful hunters. Forty-two caribou were killed by permittees, and two were killed by subsistence hunters.

Chisana Herd

Sex and age composition surveys were conducted on 17 October 1989 and 20-21 June 1990 using fixed-wing aircraft. A helicopter was not available in October, so only the percentage of calves in the herd could be determined. The 55 calves classified in October composed 8.8% of the 625 caribou sampled at that time. This low calf percentage is consistent with the low value of 10.4% measured in the June sample of 1,540 caribou.

Calf production was also relatively low in 1990. A sample of 1,179 caribou classified in June 1990 contained only 147 calves (12.5%). Although snow depths in winter of 1989-90 were less than 18 inches, unusually dry conditions during summer of 1989 may have reduced the quantity and quality of forage leading to compromised offspring in 1990.

No progress was made in investigating the relative importance of mortality factors. Wolves, grizzly bears, and golden eagles are suspected to be the major predators causing calf mortalities.

Hunters reported harvesting only 34 bulls during the fall of 1989. This was a 31% decrease in harvest from the 49 bulls harvested in 1987 and 1988. Hunter success remained comparable (89%) to previous years.

Fortymile Herd

A photocensus was conducted on 27 June 1990; 22,796 caribou were counted. A fall composition survey was conducted on 13 October 1989. Calves composed only 16% of the 1,781 caribou classified (24 calves:100 cows), lower than the average mean for the 6 previous years (34 calves:100 cows). Severe winter conditions in 1988-89 and a snowstorm during the calving period caused this lower recruitment. No progress was made in monitoring mortality factors, other than that associated with hunting.

Hunters reported taking 424 caribou during the fall and winter of 1989. An additional 31 bulls were reported taken near the Steese Highway. An unknown number of these bulls probably were taken from the White Mountains herd and not the Fortymile Caribou herd. Fifty-seven bulls were reported taken by drawing permittees, 246 by subsistence registration permittees, and 121 by hunters with

harvest tickets only. If it is assumed that about 63% of successful hunters submitted harvest reports in open caribou hunts, the actual harvest was probably about 500, or about 2.5% of the herd. One hundred-eleven cows were reported taken. As reported in past years, other mortality factors were assumed to be operating.

Drawing and registration permit subsistence hunts were implemented to control harvest in fall of 1989. A total of 750 drawing permits and 681 registration permits were issued. An overall harvest quota of 600 was established (3% of the known minimum herd size of 20,000). An Emergency Order was issued on 16 October 1989, providing for an extension of the registration permit hunt during October and November, when caribou were available to subsistence hunters along the Taylor Highway. The subsistence harvest quota was 325 caribou, 681 subsistence permits were issued. Of those permittees 472 (69%) hunted. Subsistence hunters reported harvesting 246 Fortymile caribou plus 44 Nelchina/Mentasta caribou for a total harvest of 290. Subsistence hunters in Northway and Tetlin reported taking 81 caribou during a special permit hunt for Nelchina/Mentasta caribou.

Porcupine and Central Arctic Herds

Hunters of the Porcupine Caribou Herd took 109 (93% bulls). Seventy-three percent of the hunters were successful; 60% were residents. Most hunters were local residents who did not report their harvests. Hunters spent an average of 5.8 days afield. Eighty-one percent of the hunters used aircraft, 8% used boats, 4% used horses, and 6% used other types of transportation. One hundred sixty-two caribou (94% bulls) were harvested from the Central Arctic herd, (Unit 26B) by 240 hunters; 64% of them were successful. Aircraft were used by 39% of the hunters, highway vehicles by 53%, boats by 5%, and other types by 3%. Subsistence harvest information was not gathered during the reporting period; however, based on the proximity of the herds to villages, there were 600-800 and 200-300 caribou in the Porcupine and Central Arctic herds, respectively.

Work accomplished on population census, composition, movements, and disturbance impacts for both caribou herds will be reported in other reports for research projects Nos. 3.29, 3.34, and 3.35.

PROGRESS TOWARDS MEETING PROJECT OBJECTIVES:

Big River Herd, Rainy Pass Herd, Beaver Mountains Herd, Sunshine Mountain Herd

Population, productivity, mortality, and trend estimates were gathered only for the Beaver Mountains and Sunshine Mountain herds. Although hunting mortalities were quite low, the populations in those areas were still below the herd size

objectives. Increases in these herds will be dependent upon decreases in bear and wolf predation. Increasing restrictions on legal methods and means for harvesting wolves will make meeting caribou herd objectives extremely difficult, if not impossible.

Delta and Yanert Herds

The June 1990 census confirmed that the project objectives in the Delta and Yanert Caribou Herds have been met. Current annual growth appears to be between 3% and 6%. Changes to hunting seasons have been recommended to increase the take of females; this will slow herd growth and hopefully reverse a trend of declining numbers of mature males in the population.

Macomb Plateau Herd

It is unclear whether the herd is growing at the objective of 5% annually. A photocensus survey planned for October 1990 will provide additional herd size and trend data. Diversionary feeding apparently did little to improve calf survival during 1990; therefore, this project probably did not contribute to meeting the herd's growth objective. Harvests totaled approximately 5.5% of the Macomb herd, based on an estimated size of 800 caribou. The bull:cow ratio was below the objective. If the ratio remains below the objective, the number of permits should be reduced or the objective should be reevaluated and adjusted.

Chisana Herd

Progress toward achieving the population objective was observed in the 1980's as the Chisana Caribou Herd apparently increased, but poor calf production or survival during 1989 and 1990 has probably stabilized the population size below the stated objective. The lower reported harvest of 34 bulls did not result in failure to maintain the objective for the sex ratios.

Fortymile Herd

Implementation of permit hunts in 1989 served to prevent overharvesting this year, but loss of land-and-shoot harvesting of wolves and imminent restriction of grizzly bear harvests through reinstatement of the resident tag fee requirement will result in further loss of the ability to manage natural caribou mortality. This will compromise attainment of the population objective.

Progress was made in maintaining the range in relatively pristine condition. No major development proposals that would threaten these conditions arose. Also the Alaska Interagency Fire Management Plan for the Fortymile area provides for a nearly natural fire regime throughout most of the herd's range. This plan was maintained through participation in the fire management process.

Porcupine and Central Arctic Herds

The project objective fulfilled with the Porcupine Caribou Herd (178,000). Harvest monitoring through changes in the distribution and collection of harvest reports and implementation of a new reporting procedure for local hunters.

SEGMENT PERIOD PROJECT COSTS:

	Personnel	Operating	Total
Planned	61.8	16.5	78.3
Actual	61.8	16.5	78.3
Difference	0.0	0.0	0.0

SUBMITTED BY:

Kenton P. Taylor
Regional Management Coordinator

PROJECT TITLE: Caribou Population and Habitat Management

PROJECT LOCATION: Unit 18 (42,000 mi^2)
Kilbuck Herd

PROJECT OBJECTIVES:

To allow for continued growth of the caribou population.

To reduce the magnitude of the illegal harvest of caribou.

To initiate development of a management plan for the Kilbuck herd.

WORK ACCOMPLISHED DURING THE PROJECT SEGMENT PERIOD:

The herd size and demography of the Kilbuck herd was studied in an 6,400-mi^2 area in the southern portion of Unit 18. Initialed in 1985, a cooperative study conducted by staff from the Yukon Delta National Wildlife Refuge and the Department was continued during the reporting period. Aerial radiotelemetry and population surveys were conducted at periodic intervals to monitor distribution, calving success, recruitment, and herd size.

The total herd size has been based on late-fall or early winter surveys (i.e., when the animals become aggregated). During surveys conducted during October and November 1989, 1,384 caribou were observed. Of these, 30% were bulls, 46% cows, 10% calves, and 14% unknowns. These data yielded ratios of 65 bulls:100 cows and 21 calves:100 cows. Because these composition counts were conducted using fixed-wing aircraft, they should only be used as an index. The May 1990 calving-ground survey yielded a total of 275 caribou (10 bulls, 153 cows, 11 yearlings, 83 calves, and 18 unclassifieds) and a calf:cow ratio of 54:100.

Observations of caribou movements and distribution were made at periodic intervals during the winter, spring (calving period), summer, and fall (rutting period). From this movement data, some overlapping was documented between the range of the adjacent Mulchatna herd to the east and the Kilbuck herd. It was also learned that the majority of Kilbuck caribou use a discreet calving area and have a high fidelity to their present range. In an effort to better document the extent of this range overlapping, 6 caribou from the Mulchatna herd were radio-collared in the Aniak River drainage during March 1990. This herd is being monitored using satellite and conventional VHF telemetry.

During April 1990, a federal court ordered the Department to provide a subsistence harvest of 50 caribou from Unit 18 to the

residents of Kwethluk; 42 caribou were harvested during a 2-week period.

We participated in several public meetings to discuss various management options for the Kilbuck herd and to provide updated biological information. In addition, the 3 members of the Board of Game conducted public meetings in Aniak and Bethel to discuss various wildlife management problems pertinent to Delta residents, including management of the Kilbuck herd. During the various public meetings, Department staff emphasized the need to continue the closure of the season if the herd is to increase.

PROGRESS TOWARDS MEETING PROJECT OBJECTIVES:

The Kilbuck herd has dramatically increased in size since the season was closed during 1985. This increase has been documented by 92 aerial-survey and radio-tracking flights conducted since 1985. The increase in herd size has been attributed to reduced hunting mortality, natural recruitment, and immigration from the rapidly expanding Mulchatna herd.

The incidence of illegal harvests has declined in recent years because of increased enforcement efforts conducted by both state and federal enforcement personnel. Although the Department in recent years has obtained support from the public and local organizations such as the Association of Village Council Presidents (AVCP) to continue the closure of the caribou season, many local residents would like the season re-opened, as demonstrated by the court-ordered season opening. A formal management planning process involving extensive public review should be implemented for the Kilbuck herd to help resolve some of these problems. Public scoping and technical review meetings are planned for the coming fall.

SEGMENT PERIOD PROJECT COSTS:

	Personnel	Operating	Total
Planned	6.5	4.5	11.0
Actual	9.0	2.0	11.0
Difference	2.5	2.5	0.0

Increased personnel time was spent on managing the court-ordered hunt in the Kilbuck Mountains. Operating costs were less because USFWS/OAS aircraft were used extensively for aerial-survey and radio-tracking flights instead of chartered aircraft.

PROJECT LOCATION: Units 21D, 22, 23, 24, and 26A
Western Arctic Herd

PROJECT OBJECTIVES:

To establish and maintain a postcalving population of at least 200,000 caribou in the Western Arctic Herd (WAH).

To monitor herd composition and predict population trends when possible.

To minimize conflicts between caribou management goals and the reindeer herding industry.

To develop an information and education program to improve harvest reporting and public understanding of caribou management goals.

To advocate measures to minimize the effects of industrial development.

To encourage public involvement in the regulatory process and in the formulation of management guidelines.

WORK ACCOMPLISHED DURING THE PROJECT SEGMENT PERIOD:

Radio-tracking flights were conducted at periodic intervals during October through April to document overwinter distribution and assess where possible encounters between caribou and reindeer could occur. Most of the herd overwintered in the Nulato Hills in Unit 22, and at least 30,000-40,000 caribou overwintered in the vicinity of Umiat and Anaktuvuk Pass in Unit 26A. Conflicts between caribou and reindeer appeared to be minimal because significant numbers of caribou did not move onto the Seward Peninsula.

During early September, 40 conventional VHF and 2 satellite radio collars were deployed on adult caribou at Onion Portage near Ambler. Caribou were captured from boats when they crossed the Kobuk River. During the same period, caribou jaws were collected from hunter-killed animals and hunters were contacted along the river.

Short yearling surveys were conducted from 18 April to 10 May in various portions of Unit 23. A total of 5,231 adults and 1,198 short yearlings were counted, yielding a ratio of 23 short yearlings:100 adults.

During 11-13 June calving-ground surveys were conducted between Windy Lake and Poko Mountain in Unit 26A. Seventy-one radio-collared caribou were visually located, and 51 (72%) were accompanied by calves. A total of 7,510 caribou (4,860 adults and 2,650 calves) were classified, yielding a calf percentage of 35%. Only 1% of the collared females retained hard antlers, indicating that calving was essentially complete at the time of the survey.

Several reconnaissance flights were conducted in the vicinity of the Red Dog mine to evaluate the distribution of caribou in relation to the mine project. During early July when caribou moved eastward through the Delong Mountains, they appeared to avoid the mine site by travelling through the upper Wulik River and Wrench Creek. Very few caribou overwintered in the Wulik River drainage, compared with previous years. Because harvest reporting is still in progress, analysis of this data will be presented in the next progress report.

PROGRESS TOWARDS MEETING PROJECT OBJECTIVES:

Most of the management objectives for the WAH were adequately satisfied. The minimum size of the herd was estimated at 349,000 caribou during 1988, and we believe that the herd has since remained at the same size or may have increased slightly. The number of active radio-collared caribou numbered approximately 100 animals. The recruitment rate of 23 short yearlings:100 adults is very similar to the mean rate reported since 1977; i.e., 26 short yearlings:100 adults. Calving success was normal, and it appeared to be very similar to success rates reported during the last several years.

However, additional effort should be directed at improving the quality of our radiotelemetry data. Additional telemetry flights are needed to better document the distribution of caribou. Because we now have staff at Barrow and personnel from Kanuti and Koyukuk National Wildlife Refuges will be available to assist in this effort, conducting additional flights should be possible during the next reporting period. In addition, we recommend that additional collars be placed on bulls during the fall preceding a photocensus to better document the location of bull groups during the photocensus period.

We also recommend that additional effort be made to contact local hunters to exchange information concerning caribou populations, regulations, and the need for harvest reporting. Because many hunters who take caribou do not report their harvest, the magnitude of the overall harvest is unknown.

SEGMENT PERIOD PROJECT COSTS:

	Personnel	Operating	Total
Planned	75.8	31.0	106.8
Actual	75.8	42.6	118.4
Difference	0.0	11.6	11.6

Prior to FY90, the National Park Service (NPS) provided much of the funding needed for our telemetry work. During the segment

period, we did not receive any NPS funds for WAH work and funding from other sources were used.

PROJECT LOCATION: Unit 26A (53,000 mi^2)
Teshekpuk Lake Herd

PROJECT OBJECTIVES:

To establish and maintain the current size of the Teshekpuk Lake Caribou Herd (TCH).

To provide for protection of critical caribou habitat.

WORK ACCOMPLISHED DURING THE PROJECT SEGMENT PERIOD:

A photocensus of the TCH was conducted during the summer of 1989, and photographs were counted during the following winter. A minimum population of 16,649 caribou was counted. Satellite radio collars were purchased and placed on 6 caribou to aid in completing the next census scheduled for the summer of 1991. Methods of collaring caribou without the use of drugs were investigated. Although attempts were made, poor weather conditions prevented our completing a short yearling survey during the reporting period.

Lower jaws were collected from harvested animals to compare mean body size of TCH animals with caribou from other herds. The data will also be used to compare current growth rates with those of TCH animals in future years. Local hunters reported observing dying and lethargic caribou in portions of TCH range. Surveys were flown, and carcasses were collected and examined by a pathologist and the area biologist to determine the cause of the problem. No evidence of infectious diseases were found, but the caribou appeared to be emaciated. An unusually large number of caribou wintered in the area where most of the mortality occurred, and we believe many of these animals may have been from the Central Arctic herd.

Results of a subsistence study conducted in Barrow, Nuiqsut, and Atqasuk were evaluated to determine how many caribou were harvested. Approximately 2,450 caribou were harvested by residents of the 3 villages. The data will be analyzed further to determine what percentage of these animals are TCH animals.

Through a cooperative project with the North Slope Borough's Department of Wildlife Management, satellite radio collars were placed on 6 caribou from the TCH. Information on daily movements are now being received on a daily basis. An aerial survey was conducted to determine where the caribou calved; most were found northeast of Teshekpuk Lake.

PROGRESS TOWARDS MEETING PROJECT OBJECTIVES:

A successful photocensus was conducted during 1989, and the minimum population estimate of 16,649 is considerably larger than the 11,822 caribou counted during 1984. Ten conventional VHF radio collars will be placed on caribou during the fall of 1990. These conventional collars, in addition to the satellite collars, will improve the accuracy of future photocensuses and short yearling counts. Necropsies of winter-killed caribou did not indicate the presence of any infectious disease in the herd, but it indicated that starvation may have occurred among some caribou, many of which were probably from the Central Arctic herd.

Preliminary investigations indicate that about half of the 2,450 caribou that were harvested in proximity to TCH range were from that herd. Given the current growth rate and size of the herd, this harvest appears to be within sustained-yield limits.

Very accurate and detailed information are being obtained from the 6 satellite collars deployed on TCH animals. This will allow mapping of caribou movements and assist in defining critical habitat areas that need to be protected from the impacts of industrial development.

SEGMENT PERIOD PROJECT COSTS:

	Personnel	Operating	Total
Planned	12.1	11.5	23.6
Actual	8.0	13.5	21.5
Difference	-4.1	+2.0	-2.1

The area biologist position at Barrow was vacant for a portion of the reporting period.

SUBMITTED BY:

Steve Machida
Regional Management Coordinator

Federal Aid Project
funded by your purchase of
hunting equipment