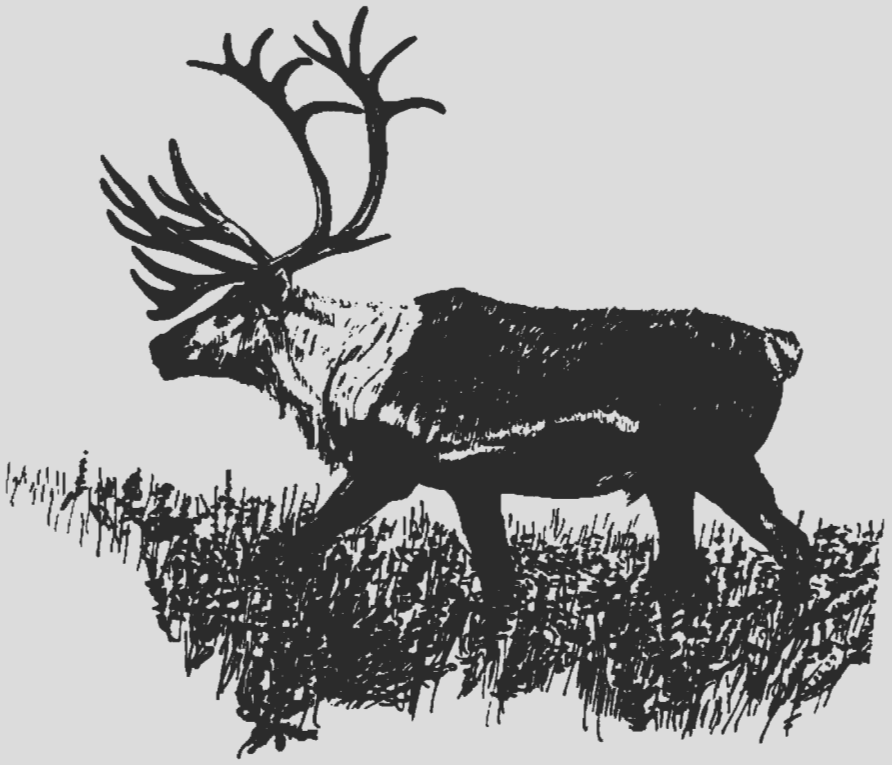
Alaska Department of Fish and Game
Division of Wildlife Conservation
Federal Aid in Wildlife Restoration
Annual Performance Report of
Survey-Inventory Activities
1 July 1990 - 30 June 1991

CARIBOU



Susan M. Abbott, Editor
Volume XXII, Part XI
Project W-23-4, Study 3.0
December 1991

STATE OF ALASKA
Walter J. Hickel, Governor

DEPARTMENT OF FISH AND GAME
Carl L. Rosier, Commissioner

DIVISION OF WILDLIFE CONSERVATION
David G. Kelleyhouse, Director
Wayne L. Regelin, Deputy Director

Persons intending to cite this material should obtain permission from the author(s) and/or the Alaska Department of Fish and Game. Because most reports deal with preliminary results of continuing studies, conclusions are tentative and should be identified as such. Due credit will be appreciated.

Additional copies of this report and other Division of Wildlife Conservation publications may be obtained from:

Publications Specialist
ADF&G, Wildlife Conservation
P.O. Box 22526
Juneau, AK 99802
(907) 465-4190

The Alaska Department of Fish and Game operates all of its public programs and activities free from discrimination on the basis of race, color, national origin, age, or handicap. Because the department receives federal funding, any person who believes she or he has been discriminated against should write to: O.E.O., U.S. Department of the Interior, Washington, DC 20240.

Project Title: **Southcentral Alaska Caribou Management**

Project Location: Unit 7 (3,500 mi^2)
Kenai Mountains Caribou Herd

Unit 15A (1,300 mi^2)
Kenai Lowlands Caribou Herd

Units 15B and 15C (3,600 mi^2)
Killey and Fox River Caribou Herd

Units 9C, and 9E (24,000 mi^2)
Northern Alaska Peninsula Caribou Herd

Units 9D and 10 (4,900 mi^2)
Southern Alaska Peninsula Caribou Herd

Unit 10 (300 mi^2)
Adak Caribou Herd

Units 9A, 9B, 9C, 17, and 19B (45,500 mi^2)
Mulchatna Caribou Herd

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

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

Project Objectives:

Unit 7: Maintain the posthunting herd at about 400 until a carrying capacity is determined for their winter range.

Unit 15A: Increase the herd to a minimum of 150 by 1995.

Units 15B and 15C: Reestablish viable caribou populations in suitable caribou range.

Units 9C and 9E: Maintain the population at 15,000 to 20,000 in midsummer with an October sex ratio of at least 40 bulls:100 cows.

Units 9D and 10: Increase the population to 6,000 in midsummer and maintain an October sex ratio of at least 40 bulls:100 cows.

3 3755 000 34845 8

Unit 10: Maintain the precalving population at 250.

Units 9A, 9B, 9C, 17, and 19B: Maintain a minimum population of 25,000 adults and a bull:cow ratio of 35:100.

Unit 11: Maintain a minimum overwintering population of 2,500 adults and a minimum posthunting bull:cow ratio of 35:100.

Units 13 and 14B: Maintain the herd at 30,000 overwintering adults with a minimum bull:cow ratio of 35:100 by harvesting the annual growth increment.

Work Accomplished During the Project Segment Period:

Kenai Mountains Caribou Herd (Unit 7): On 31 October 1990, an aerial survey was conducted to determine the herd's distribution and size. A total of 303 animals was observed and 286 were classified as 165 cows, 56 calves, and 65 bulls. The ratios of calves and bulls per 100 cows were 34 and 39, respectively. Calves comprised 20% of all caribou classified. The herd is estimated at 325 animals.

Twelve caribou were captured using a helicopter net-gun and radio-collared. This will increase the efficiency of aerial surveys.

A total of 1,039 applications was received for 50 permits issued to hunt bulls only in 1990. Thirty permittees (60%) actually hunted and 7 hunters (23%) were successful.

Kenai Lowlands Caribou Herd (Unit 15A): On 25 June 1991, an aerial survey was conducted to determine the herd's distribution and size. Ninety-eight caribou, including 12 calves (12%), were observed. The herd is estimated at 98-130 animals.

Four caribou were captured using a helicopter net-gun and radio-collared. This will increase the efficiency of aerial surveys.

A total of 795 applications was received for 3 permits issued to hunt bulls only during 1990. All permittees hunted and 2 bulls were killed.

Killey River and Fox River Caribou Herds (Unit 15B and 15C): An aerial survey was conducted on 2 November 1990, of the caribou transplanted during 1985-86. Search efforts were confined to the headwaters of Funny River (Killey River herd) and Fox River (Fox River herd). One hundred and fifty-four caribou comprised of 65 cows, 36 calves, and 53 bulls were observed in the Killey River herd. Ratios were 55 calves:100 cows and 82 bulls:100 cows. Thirty-seven caribou were observed in the Fox River herd but animals were not classified. The minimum population estimate for the two herds is 200 caribou.

Twelve adult caribou (11 cows and 1 bull) were captured and radio-collared in April 1991. Nine animals were radio-collared in the Killey River herd and 3 caribou in the Fox River herd. Radio-collared caribou will increase the efficiency of future surveys.

Northern Alaska Peninsula Caribou Herd (Units 9C and 9E): A helicopter composition survey was conducted in October 1990, and 1,484 caribou were classified. Ratios were 41 bulls and 30 calves per 100 cows. Calves comprised 17% of the fall sample, compared to 25% of caribou counted in 1990 postcalving aggregations.

A photocensus on 8 July 1991, revealed a minimum of 15,400 caribou. Coverage of the summer range was comparable to previous years and the herd was estimated at 16,000-17,000, with 29% recruitment from a weighted sample of 1,653 caribou. This estimate is similar to 1990, and reflects a stable population.

Hunter success rate was 84% and they reported killing 679 bulls, 110 cows, and 2 unspecified sex. Eighty-seven percent of the 642 successful hunters harvested 1 animal while 7%, 3%, and 3% killed 2, 3, and 4 caribou, respectively. Harvest chronology for each month was: August -- 103, September -- 321, October -- 109, November -- 32, December -- 86, January -- 18, February -- 49, and March -- 68. Local residents, other Alaskans and nonresidents accounted for 8%, 45%, and 47% of all hunters, respectively; but because of the 1 caribou bag limit for nonresidents, they accounted for only 40% of the reported harvest. The unreported sport and subsistence harvest is estimated at 450 and 900 respectively, resulting in a total harvest estimate of about 2,100.

Southern Alaska Peninsula Caribou Herd (Units 9D and 10): A helicopter composition survey was conducted in October 1990, and 1,051 caribou were classified. Ratios were 19 bulls and 12 calves per 100 cows. Calves comprised 9% of the fall sample, compared to 12 and 16% of 2 postcalving aggregations counted in 1990.

A photocensus on 9 July 1991, revealed a minimum of 2,287 caribou. Coverage of the summer range was comparable to previous years and the herd was estimated at less than 3,000, with 18% recruitment from a sample of 457 animals.

Hunter success was 80% and they reported killing 43 bulls, 1 cow (illegally), and 1 of unspecified sex. Chronology of the harvest was September 9, October 21, November 5, December 2, and January 4. Local residents and other Alaskans and nonresidents accounted for 31%, 18%, and 51% of successful hunters, respectively.

Adak Caribou Herd (Unit 10): A helicopter transect survey was flown on 22 February 1991 by personnel from the Alaska Maritime National Wildlife Refuge. A total of 331-374 caribou were observed. Survey conditions were marginal and some animals were probably missed.

ARLIS
Alaska Resources
Library & Information Services
Anchorage, Alaska

Hunting of this herd was administered by permit; 377 permits were issued in regulatory year 1990-91. The total harvest was 201 caribou (53% bulls); 267 individuals reported hunting.

Adak management strategies were discussed when refuge and ADF&G staff met in November 1990.

Mulchatna Caribou Herd (Units 9B, 17B, and 17C): The 1990 photocensus of the Mulchatna herd indicated a minimum population of 70,652. Composition data were not collected during this report period.

Caribou were observed crossing the Wood River on several occasions during winter 1990-91. Several hundred animals wintered in the portion of Subunit 17C, north and west of the Nushagak River. Local residents believed there were more caribou than ever in that area and the number of wintering caribou has increased substantially in the past 5 years.

Lake Clark National Park personnel reported that caribou were not extensively using traditional calving areas in the upper Stuyahok and Koktuli River drainages during spring 1991. Telemetry data suggested many caribou moved north and west of traditional areas for calving.

Caribou translocated from the Alaska Peninsula to the Nushagak Peninsula in 1987, continued to thrive during this report period. A total of 383 caribou were observed during an aerial survey in March 1991. Photographs from postcalving surveys in June 1991 are still being analyzed, but aerial estimates indicate more than 120 newborn calves. Illegal harvest and natural predation rates appear low. Monthly radio-tracking flights indicate the majority of the herd remained on the Nushagak Peninsula while 5-10 bulls stayed in the vicinity of Twin Hills.

Mentasta Caribou Herd (Unit 11): Two counts were made of the post-calving aggregation in late June; 1,728 was the highest number of caribou counted. A sex and age composition survey was conducted by helicopter on 28 June and 3 calves:100 cows (2.6%) and 23.5 bulls:100 cows (18.5%) were observed.

The Mentasta herd summered on its traditional range along the western slopes of Mt. Sanford and Mt. Drum. In October the herd moved northeast into Unit 12 and by December some animals had moved into the Snag and Beaver Creek drainages in Yukon Territory, Canada. The herd wintered primarily in Unit 12 with some animals in Yukon Territory. The herd moved back into Unit 11 in early May.

No state hunt was held because of low numbers in the herd and a federal subsistence hunt on federal lands. The National Park Service conducted a registration subsistence hunt for local rural residents in fall 1990 with 166 permittees registering.

Twenty-nine bulls were taken by 99 hunters. Over half the harvest occurred in late September when caribou were accessible off the Nabesna Road. During winter months Mentasta caribou were subject to poaching in Unit 12 and legal harvest in Canada. A few Mentasta caribou were probably taken during a federal subsistence hunt for local residents of Tetlin and Northway which was targeted for Nelchina caribou.

Nelchina Caribou Herd (Units 13 and 14B): The October 1990 population estimate for the Nelchina herd was 36,860 animals of which 29,909 were adults (> 1 year). This estimate was derived from a late June count of the postcalving aggregate totaling 42,127 animals comprised of 52% cows and an October composition survey which indicated that herd composition was 57% cows, 24% bull, and 19% calves. The reported harvest before October was then subtracted to produce the final estimate. The June 1991 postcalving count was 46,634 of which 50% were cows, an increase in the cow base from 1990 of 7%.

The Nelchina herd used traditional calving and summer ranges in the Talkeetna Mountains, although apparently, as the herd increases, more animals are using summer range in Unit 13B along the Denali Highway. Virtually the entire herd migrated into Unit 12 for the winter. Nelchina herd animals were found between the Mentasta Mountains and Snag Creek in Yukon Territory, Canada between November 1990 and April 1991. Spring migration occurred between mid-April and early May.

The federal government assumed management of subsistence caribou hunting by local rural residents on federal lands in 1990. As a result, 4 separate hunts were held for Nelchina caribou in regulatory year 1990-91. During a 3-day fall state registration permit hunt in Unit 13 2,490 caribou were killed. A state winter tier II hunt harvested 274 animals. A fall federal registration permit hunt in Unit 13 for local residents accounted for a harvest of 197 caribou. Another federal registration hunt was held during winter on the Tetlin Wildlife Refuge in Unit 12 during which 58 animals were taken. The total reported harvest of Nelchina caribou for the 1990-91 regulatory year was 3,019 animals.

Progress Towards Meeting Project Objectives:

Kenai Mountains Caribou Herd (Unit 7): In 1984 the population objective for the Kenai Mountains Caribou Herd was increased to 400 because the herd had been increasing. Additionally, caribou appeared to be expanding their winter range during the early to mid-1980s, 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 continued through 1989, then increased in 1990. Studies have not been conducted to determine the primary factors controlling herd size; however, because of overgrazing during the

early 1980s, deteriorated range is suspected. Another possible cause for the decreasing herd size is predation. The 7 bulls harvested in 1990 should not have significantly impacted the herd's ability to grow or remain stable, provided human-caused mortalities were the primary factor influencing the herd's status. Since the herd is estimated at 325 animals, 100 permits should be issued with a bag limit of 1 caribou for the 1991 season. Harvest should not exceed 25 animals, and should consist primarily of males.

Killey River and Fox River Caribou Herds (Units 15B and 15C): The management objective for Unit 15B (Killey River herd) has been achieved and the Fox River herd in Unit 15C is also increasing in size. A permit hunt should be established for fall 1992, since the Killey River herd meets management objectives.

Kenai Lowlands Caribou Herd (Unit 15A): 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 of 130 animals does not meet the management objective. The management objective should be extended to 1995 because the herd is not growing as rapidly as predicted.

Northern Alaska Peninsula Caribou Herd (Units 9C and 9E): Population estimates the past 2 years have ranged between 16,000-17,000 caribou, and are lower than the estimates for 1988 and 1989 (>20,000). Liberal hunting regulations contributed to keeping the herd within the population objective during the past 10 years. Changes in the herd's distribution led to an increased harvest during winter when caribou are accessible along the Naknek/King Salmon road system. Close attention will be required to maintain stability with the herd near the lower-end of the population objective and the sex ratio right on the objective.

Southern Alaska Peninsula Caribou Herd (Units 9D and 10): The herd has been below the population objective for several years and continues to decline. Recent research has tentatively identified nutritional stress as a primary factor causing poor body condition and low recruitment among these animals. With very low recruitment and high natural mortality of adult females, it appears improbable that any management strategy will result in meeting the population objective established 10 years ago when the herd was increasing to its 1983 peak. Hunting regulations were restricted several times in the past 5 years to a current bag limit of 1 bull. This may have contributed to the low bull:cow ratio observed in 1990, but is not believed the cause of further herd decline. Research on range conditions is underway, and a cooperative management plan will be developed with the Izembek National Wildlife Refuge. Given our current understanding of range conditions, it is not feasible to strive to meet the existing management objectives. Both agencies have agreed to close all hunting if the population drops below 2,500 or the bull:cow ratio declines below 10:100. Pending results of the 1991-92 winter count by Izembek staff, total closure may be needed by next year.

Adak Caribou Herd (Unit 10): In February 1990 the Adak Caribou Herd consisted of approximately 350 caribou after a harvest of about 180 animals. Precalving herd size in spring 1991 was, at a minimum, about 325 animals. This is about 75 caribou above the management objective of 225 precalving animals. 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 30% of prehunt population size will be required to stabilize herd size.

Mulchatna Caribou Herd (Units 9A, 9B, 9C, 17, and 19B: The Mulchatna herd continues to expand in both population size and range. Movements into new calving and wintering areas may indicate range overutilization or increasing herd size. Range investigations have not been conducted in areas used by this herd. Trailing is extensive in areas traversed by the herd, but incidental observations indicate that food availability is not currently a limiting factor.

Mentasta Caribou Herd (Unit 11): The Mentasta Caribou Herd experienced a near total failure in calf recruitment in 1991; a late June survey showed only 2.6% calves in the herd. Calf recruitment the previous 4 years was low but not to this extent. The number of adult cows in the herd declined by about 23% from 1989 to 1990 and the count of the postcalving aggregations declined from 2,687 to 1,728 during the same period.

Current herd size is well below the minimum management objective of 2,500 adults. The management objective may be unrealistic as it is set at peak historical abundance which occurred at a time when predator abundance was much lower. Summer and calving ranges of this herd are in the Wrangell-St. Elias National Park and Preserve and management actions to promote herd growth other than regulating hunter harvest will probably not be taken on park lands. Consideration should be given to reducing the minimum population objective; perhaps to 2,000 adults.

Current legal harvests are probably not affecting herd dynamics as virtually all animals taken are bulls and only about 2% of the herd is being harvested. An unknown number of animals are being poached in Units 11 and 12 and legally taken by treaty natives in Canada. Additionally, some Mentasta animals are killed in registration permit hunts in Unit 12. The primary concern is to protect females. Harvests, if they occur, should be limited to a small number of (<50) bulls.

Nelchina Caribou Herd (Units 13 and 14B): The Nelchina Caribou Herd presently exceeds the management goal of 30,000 adults. Early calf recruitment was high in 1991 as shown by late June calf:cow ratios. Harvest should be increased to a level approximating annual recruitment. Population size should be stabilized and range and animal condition and calf recruitment monitored. Future adjustments in population objective levels can be made depending on the status of these parameters.

The bull:cow ratio exceeds the stated minimum objective; however, the proportion of large bulls is low. To maintain a high bull:cow ratio and a reasonable number of large bulls, and yet stabilize herd size, the number of cows harvested should be increased. This could be accomplished by requiring that all animals taken during the winter hunt in Unit 13 be antlered.

Segment Period Project Costs:

	Personnel	Operating	Total
Planned	91.3	60.6	151.9
Actual	91.3	66.8	158.1
Difference	0.0	+6.2	+6.2

Explanation: Costs for the Mentasta census were high because a replicate was required. Radio-collaring costs were significantly higher than anticipated for both the Kenai Mountains herd and the Kenai Lowlands herd.

Submitted by:

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

Project Title: **Region III Caribou Population and Habitat Management**

Project Location: Units 12, 19, 20, 21, 24, 25, 26B & 26C

Project Objectives and Activities: Objectives and activities are provided below for herds that range within the region. Objectives were reviewed this report period and were modified and included in the FY90 management reports. The Five Year Study Plan 1987-92 will be modified to incorporate these changes.

Big River, Rainy Pass, Beaver Mountains, and Sunshine Mountains Caribou Herds

Herd Objectives and Activities: Increase herd sizes to:

Big River herd: 1,500-2,000
Rainy Pass herd: 1,000-1,500
Beaver Mountains herd: 1,200 - 1,500
Sunshine Mountains herd: 1,500 - 2,000

Monitor mortality factors including hunting, predation, and other factors. Estimate status, trends, and productivity of the herds from aerial surveys.

Work Accomplished During the Project Segment Period: Analyses of harvest tickets returned by hunters indicated the following harvests: Big River herd (including Farewell), 69; Rainy Pass herd, 110; Tonzona herd, 15; Beaver Mountains herd, 4; and Sunshine Mountain herd, 2. No additional information was collected on predation or other mortality factors. Reported hunter success rate on all herds combined was 58%. These figures do not vary significantly from previous years statistics. Based on hunter and guide reports, general herd status has remained stable.

Progress Toward Meeting Project Objectives: Rough population estimates were available only from the Beaver Mountains and Sunshine Mountains herds. Hunting mortality remains quite low, but populations remain stable. Because of suspected heavy wolf predation, these herds have remained below the herd objectives listed above. Increases in those herds probably depend on the ability to reduce predation effects. With methods and means restrictions on wolf hunting and trapping, meeting the herd objectives will probably not be possible.

Delta and Yanert Herds

Herd Objectives and Activities: Maintain the herds at:

Delta herd: 6,000 or more animals
Yanert herd: 500 or more animals

Monitor the general and permit hunts to determine distribution and extent of hunting effort. Coordinate with Research Study 3.33 concerning status of the herd.

Work Accomplished During the Project Segment Period: Estimates of harvest during the 1989 regulatory year were finalized this report period based on a mark-recapture comparison of reported harvest and hunter interviews conducted in the field. Those results were reported in a management report submitted in May 1991. The estimated 1989 harvest was 681 caribou taken by 1,325 combined permit and general season hunters. The reported 1989 harvest was 480 caribou reported by 797 hunters.

During this report period, 920 general season and permit hunters reported taking 354 caribou. In regulatory year FY91, 161 general season caribou hunters, including 52 successful hunters, were interviewed in the field. A final estimate of actual harvest will be compiled in July 1991.

The harvest among permit hunts was as follows: Hunt 570, 67 caribou (55 bulls and 12 cows); Hunt 569, 54 caribou (22 bulls and 31 cows); Hunt 574, 18 caribou (9 bulls and 9 cows); and Hunt 573, 25 caribou (11 bulls and 12 cows).

On 4 October 1990, 2,411 caribou from the combined Delta and Yanert herds were classified by sex and age. The bull:cow ratio was 37:100, and the calf:cow ratio was 17:100. Eleven percent of the sample were calves.

A spring composition count was conducted on 18 April 1990. A sample of 1,387 caribou were classified, 8% of the sample were calves. The calf:cow ratio was 10:100.

On 22 June 1991 a photocensus was completed of the combined Delta and Yanert herds. Results of that census will be available by September 1991.

Progress Toward Meeting Project Objective: Project objectives for the Delta and Yanert herds were reviewed and revised during this report period. The revised management objectives are listed below:

Provide an annual combined Delta/Yanert caribou harvest of at least 500 caribou with a hunter success rate of at least 30%, by at least 1,000 hunters.

Monitor the annual reported harvest and conduct field interviews to estimate actual harvest.

Maintain a bull:cow ratio of at least 30:100 and a large bull:cow ratio of at least 6:100.

Conduct annual fall composition counts.

Estimate optimal herd size and harvest by allowing the Delta/Yanert herd to increase until population responses to increased density become apparent. However, meeting the harvest objectives will have priority over herd growth. In the event natural mortality becomes sufficient to preclude a harvestable surplus of 500 caribou, the priority objective will become maintenance of a reasonably stable population and avoiding a precipitous decline in numbers.

Conduct annual photocensuses of the herd and cooperate with Research Study 3.33.

Gather information on predator:prey ratios and on the significance of predation and weather as natural mortality factors.

Fortymile Caribou Herd

Herd Objectives and Activities: When weather-related nutrition is favorable, manage harvest and, secondarily, predation to increase the herd to 50,000 adults or 60,000 caribou by the year 2000. Increase the number of radio collars to assist in population census efforts during FY92.

If the mean annual rate of growth is greater than 10%, allow a maximum harvest of 3% of the herd and 1.5% of the females until herd size reaches 50,000 adults or 60,000 caribou. If the mean annual growth rate is 0% to 10%, allow a maximum harvest of 2% of the herd and 0.5% of the females. During years when the herd is declining, hunting may be further restricted and steps to reduce predation will be recommended, assuming poor caribou nutritional status is not a major factor.

Monitor radio-collared caribou to determine mortality rate. Maintain an October bull:cow ratio of at least 35:100. Conduct fall sex and age composition counts.

Work Accomplished During the Project Segment Period: No censuses were scheduled during the report year. The next one is scheduled for June 1992. A composition count was flown 27 and 28 September 1990, in which 1,742 caribou were classified. There were 29 calves:100 cows and 44 bulls:100 cows. Recruitment appeared at near normal levels.

Mortality of radio-collared caribou was monitored this report period and appeared at near normal levels (i.e., about 5-7%). On 26 and 27 September, 14 4-month-old females were radio-collared to maintain at least 20 radio-collared caribou in the herd.

During the permit registration hunt in the Taylor Highway corridor, 1,475 permittees killed 213 bulls and 17 cows. With adjustments for nonreporting under the harvest ticket system, the total number of caribou killed in the herd was 375. The harvest quota for the year was 450.

Progress Toward Meeting Project Objective: Because the annual growth rate of the herd fell below 10%, the harvest quota was reduced to 450. Harvest is not slowing herd growth because few females are being shot. To meet population growth objectives, recruitment needs to be increased. Adult mortality has remained at about 7-10%.

Chisana Caribou Herd

Herd Objectives and Activities: Maintain a population of 2,000-2,500 animals. Conduct aerial census of the herd to determine size, trend, and productivity. Monitor mortality factors affecting the herd. Monitor the limited Fortymile herd permit hunt.

Work Accomplished During the Project Segment Period: A sex and age composition count was flown on 4 and 5 October 1990. Eight-hundred-fifty-one caribou were classified: there were 8 calves:100 cows and 34 bulls:100 cows. A census was conducted in June 1991, but results are not yet available.

Mortality of radio-collared caribou was monitored jointly with the National Park Service. Although the sample of radio-collared caribou is small, adult mortality appears high (10-20%).

Progress Toward Meeting Project Objective: The Chisana herd is declining, probably because of severe summer drought and the normally heavy predation on young calves. Until either or both of these conditions change, no progress will be made toward the population goal. In October 1990, 14 4-month old calves were radio-

collared to maintain the sample of radio-collared animals for census work and monitoring of mortality.

Galena, Wolf, and Ray Mountains Caribou Herds

Herd Objectives and Activities: Determine population size, trend, and identity of caribou herds in the Ray Mountains and Kokrine Hills by 1992.

Identify herd range, calving areas, and rutting areas by 1994.

Work Accomplished During the Project Segment Period: New management objectives were established in 1990 to allow expansion of the caribou herds in the Ray Mountains and Kokrine Hills until they are large enough that their movements make them available to hunters in winter.

A postcalving aggregation survey was conducted on 4 June 1991, and the results showed very poor recruitment in the Galena Mountain herd - 135 caribou, 8% calves; Wolf Mountain herd - 146 caribou, 12% calves; and the Ray Mountains herd with 446 caribou and 21% calves. Predation mortality is the suspected cause of the low calf numbers.

Reported harvest of the herds was 2 caribou with 22 unsuccessful hunters. Unreported harvest of the Ray Mountain herd is estimated at 10 caribou per year.

Progress Toward Meeting Project Objective: The Galena and Wolf Mountain herds will probably continue to remain small with little chance of growth until active predation management is initiated. Hunting mortality currently has no effect on population growth. The range of the caribou in winter makes them accessible to snowmachine-borne hunters, but the season is closed then to prevent overharvest. The expansion of the Western Arctic Caribou Herd (WACH) into the Galena Mountain herd winter range has increased the complexity of management in both herds.

Macomb Plateau Caribou Herd

Herd Objectives and Activities: Determine the size of the herd. Increase the herd to 1,500-2,000 animals.

Conduct aerial census of the herd to determine size, trend, and productivity. Monitor mortality factors affecting the herd. Monitor the limited permit hunt.

Work Accomplished During the Project Segment Period: The population herd size objective was revised to read: increase the size of the herd to 1,000 caribou by 1993; the 1,500-2,000 herd size objective was not time specific. An objective was also established to manage 40 bulls:100 cows and 10 large bulls:100 cows after the hunting season.

A photocensus was conducted on 9 October 1990 and 734 caribou were counted. Herd size was estimated at 750-800 based on the photocensus. Composition data recorded during the census resulted in estimates of 17 calves:100 cows and 44 bulls:100 cows.

A sex and age composition survey was flown on 12 June 1991. Sample size was 319 caribou and resulted in estimates of 16 calves:100 cows and 15 bulls:100 cows. Survey conditions were poor.

Eight of 29 radio-collared caribou died this report period. Two died before October 1990 and six died between October 1990 and May 1991. Diversionary feeding of predators in spring 1991 did not significantly increase survival for calves of radio-collared cows. Calves of radio-collared cows had a 90% mortality rate from 21 May to 11 June 1991.

Registration permits were issued to 351 residents to hunt the Macomb Caribou Herd. One hundred ninety-eight people hunted and killed 43 caribou (42 bulls and 1 unknown sex) for a hunter success rate of 22%.

Progress Toward Meeting Project Objective: No progress was made toward increasing herd size. Based on overwinter mortality of radio-collared adult caribou, high mortality of calves of radio-collared cows, and small a sample size during the June 1991 composition survey, the Macomb Caribou Herd appears to be decreasing in size and may be as low as 600-700 caribou. Predation and weather are thought to be limiting herd growth at this time. Diversionary feeding will continue to study the effect of diverting predation from neonate caribou calves.

Porcupine and Central Arctic Caribou Herds

Herd Objectives and Activities: Maintain minimum population size of 135,000 in the Porcupine herd and 10,000 in the Central Arctic herd.

Monitor the harvest through field observations, hunter reports, and contact with residents. Coordinate data collection with Research Projects 3.29, 3.34, and 3.35.

Work Accomplished During the Project Segment Period: Only those hunters residing south of the Yukon River were required to report harvest. Harvest figures are

preliminary, but about 100 caribou were taken from the Porcupine herd. Harvest by local residents of Arctic Village and Venetie was very light; most of the herd wintered in the Yukon and Northwest Territories. Harvest at Kaktovik was about average (i.e., 140 caribou/year).

In the Central Arctic herd, preliminary figures indicate that about 250 hunters took about 150 caribou, most of which were bulls. As usual, most (about 55%) hunters used highway vehicles for access, and about 40% used aircraft.

Results of composition counts, mortality estimated, and population census are reported in reports for research projects 3.29, 3.34, and 3.35.

Progress Toward Meeting Project Objective: The project objectives are being fulfilled on the Porcupine herd, where there are now about 178,000 caribou. Population size of the Central Arctic herd is unknown, but is probably larger than 10,000. A new stratified sampling technique to estimate population size was tested in June 1991, but results are not yet available.

White Mountains Caribou Herd

Herd Objectives and Activities: Develop management objectives during FY91 for the White Mountains herd.

Work Accomplished During the Project Segment Period: A spring composition count was conducted on 15 April 1991. Calves made up 20% of the sample of 385 classified caribou. The calf:cow ratio was 31:100.

All 10 functioning radiocollars were located on 28 June 1991. All groups associated with those radios were photographed. Additional groups were found by a systematic search of the White Mountains. A population estimate will be finalized in July 1991.

Progress Toward Meeting Project Objectives: During the report period the project objectives listed below were developed for the White Mountains Caribou Herd.

Establish population and harvest objectives by 1992.

Conduct aerial surveys of the White Mountains herd to estimate population size, distribution, and population composition.

Evaluate the feasibility of allowing winter hunting of White Mountains caribou by 1991.

Monitor anticipated increases in recreational use and mining development and ensure such development does not adversely affect the White Mountains Caribou Herd.

Segment Period Project Costs:

	Personnel	Operating	Total
Planned	60.1	34.0	94.1
Actual	60.1	54.5	114.6
Difference	0.0	20.5	20.5

Explanation: Effects of severe winter conditions on caribou populations during 1989-90 necessitated additional work on the Delta and Fortymile caribou populations. Excess operating costs of 10.6 were used to fund Delta caribou radiocollars, the spring sex and age composition count, capture costs, and intensive radio collar monitoring. Funds were reallocated from moose survey and inventory.

Submitted by:

Kenton P. Taylor
Management Coordinator

Project Title: **Western Caribou Survey and Inventory**

Project Location: Unit 18 (42,000 mi2)
Kilbuck Mountains Caribou Herd

Project Objectives: Allow for continued growth of the caribou population in Unit 18. Estimate herd size and demography of caribou in the Kilbuck Mountains in the southern portion of the unit. Determine the extent of movement between the Kilbuck herd in Unit 18 and the Mulchatna herd in Units 17 and 19.

Reduce the magnitude of the illegal harvest of caribou occurring in Unit 18. 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 a 6,400 mi^2 area in the southern portion of Unit 18. A cooperative study conducted by staff from the Yukon Delta National Wildlife Refuge and the Department since 1986 was continued during this segment period. Radiotelemetry and survey flights were conducted at periodic intervals to monitor distribution, calving success, recruitment, and population size.

The total herd size was based on late fall/early winter surveys when the animals become aggregated. During a census that was attempted in November 1990, a minimum population estimate of 1,220 caribou was generated. Of these 1,220 caribou, 25 groups were found, and the range in group size was 1-180. Average group size was 26 animals. No composition count was completed this report period because of poor weather in the fall. The May 1991 calving ground survey yielded a total of 493 caribou (20 bulls, 268 cows, 32 yearlings, 156 calves and 17 unclassified), and a calf:cow ratio of 58:100.

Observations of caribou movements and distribution were made at periodic intervals during winter, spring calving, summer, and fall rut. From this movement data, some overlap 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 animals 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 overlap, 15 caribou from the Kilbuck herd were radio-collared in their early winter range in November 1990. This herd is currently being monitored using conventional VHF telemetry. During August 1990, a technical meeting was held with staff of the U. S. Fish and Wildlife Service (FWS) and the Department to discuss research and management needs for the Kilbuck caribou herd.

Beginning in summer 1990 the Department staff in Bethel began inquiries with residents of 19 villages, FWS staff, and regional government entities about their willingness to be involved in drafting a Kilbuck Caribou Management Plan.

Progress Towards Meeting Project Objectives: The Kilbuck herd has dramatically increased in size since the season was closed in June 1985. This increase has been documented by 101 aerial survey and radio-tracking flights conducted since 1986. The increase in herd size has been attributed to greatly reduced hunting mortality (no legal hunting), natural recruitment, and relatively mild winters for the last 6 years.

The incidence of illegal harvest has declined in recent years because of increased enforcement efforts conducted by both state and federal enforcement personnel.

Although in recent years the Department 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 federally court-ordered season for the village of Kwethluk in April 1990. A formal management planning process involving extensive public review is being implemented for the Kilbuck herd to help resolve some of these problems. Public scoping and technical review meetings were held in summer and fall 1990. The first Kilbuck Mountains Caribou Herd management planning meeting was held 17 December 1990 and the Department was asked to draft a working management plan for the herd. A second meeting was held 24 April 1991 with village representatives, FWS, regional governments, and Department staff to work on the goals, objectives, problems, and solutions portions of the draft management plan. This plan is a joint effort by both the users and the agencies, aimed at allowing the herd to continue to increase, to include the users directly in the management process, and to begin proposing options for a future limited harvest of Kilbuck caribou.

Project Location: Unit 21D, 22, 23, 24, and 26A
Western Arctic Caribou Herd

Project Objectives: Maintain a minimum population size of 200,000 caribou or larger. Conduct a biennial photocensus to estimate population size. Conduct periodic radio-tracking flights to monitor herd distribution. Maintain a sample size of at least 100 operational radio collars. Conduct aerial surveys in early April to assess short yearling recruitment. Conduct aerial surveys in early June to monitor calving success. Monitor hunting and other mortality factors through harvest reporting, collection of biological specimens, public contacts, and unreported harvests. Improve communication with the public to reduce the magnitude of unreported harvests.

Minimize conflicts between caribou and the reindeer herding industry. Conduct mid-winter surveys to monitor caribou distribution near reindeer herds.

Minimize conflicts with industrial development. Monitor the distribution and movements of caribou near major industrial developments to assess impacts.

Develop updated population objectives in cooperation with the public and other agencies.

Work Accomplished During the Project Segment Period: In August 1990, 16 cow caribou from the Western Arctic Caribou Herd (WACH) were instrumented with radio collars near Onion Portage on the Kobuk River. Fifteen caribou were outfitted with conventional VHF collars and 1 animal was outfitted with a satellite collar (PTT). We were able to maintain a minimum of 100 active radio collars and 3 PTTs on WACH animals this report period.

During the winter from October 1990 through April 1991, 14 telemetry distribution flights were conducted by staff from our Nome, Kotzebue, and Barrow offices, and by cooperating staff from the Bureau of Land Management (BLM) and the National Park Service (NPS). The flights were conducted near eastern Norton Sound in Unit 22, in Unit 23, and in the northern coastal plain in Unit 26A. A total of 268 relocations were obtained. In addition, 5 aerial survey/radio-tracking flights to assess caribou distribution near reindeer herds were conducted by ADF&G staff from Nome.

The field work portion of a photocensus of the WACH was completed during July 1990. The work of counting the photographs is still in progress.

Aerial recruitment surveys were conducted in Unit 23 when caribou were migrating north to the calving grounds in May 1991. To better distribute the sampling effort, radio-collared animals were relocated, and composition was determined for up to 200 animals in the immediate vicinity of the radio-collared animal. The surveys required 4 days to complete, and 47 groups containing radio-collared animals were sampled. A total of 8,482 caribou (7,111 adults and 1,371 short yearlings) were counted, yielding a recruitment ratio of 19 short yearlings:100 adults.

Calving ground surveys planned for June 1991 were not completed because of poor weather.

Harvest was determined using the WACH reporting system for local residents, and the statewide harvest ticket system for non-local residents and nonresidents. During the 1990-91 hunting season, 1,091 hunters reported a harvest of 1,926 caribou. Of the total, 110 hunters (10%) were nonresidents, 167 (15%) were non-local Alaska residents, 810 (74%) were local hunters residing in units 21D, 22, 23, 24, and 26A,

and the residency status of 4 hunters (1%) was unknown. Because harvest reporting rates among local hunters is often poor, we believe the actual harvest is substantially higher than reported.

Progress Towards Meeting Project Objectives: We maintained a minimum sample size of 100 radio-collared caribou in the WACH this report period. However, we should consider increasing the sample size because the herd has grown considerably in size the last 5 years, and is currently estimated to exceed 340,000 caribou. The goal of maintaining a sample size of 100 active radio-collared animals was developed a number of years ago when the herd was substantially smaller.

Aerial radiotelemetry and distribution surveys indicated that unusually large numbers of caribou wintered south of the Selawik Hills in, and adjacent to, reindeer ranges. Substantial losses of reindeer were reported. Additional survey flights in, and adjacent to, reindeer ranges may be warranted in the future to warn herders of impending movements of caribou that may affect them.

The short yearling surveys conducted in May 1991 indicated that the recruitment rate of 19 short yearlings:100 adults was within the range of recruitment observed during recent years. Since 1986, recruitment has ranged from 19-27 short yearlings:100 adults.

Because of staff vacancies in Nome and Kotzebue, we could not conduct as much information and education work as planned. Improving the public's understanding of regulations and the need for better harvest reporting are 2 goals of our information and education program. In addition, the public contacts gained by information and education activities provides our staff with needed input concerning the caribou management program we have in place.

If the WACH continues to grow in size, the biennial photocensus may become more difficult to complete. During the 1990 photocensus, the entire post-calving group did not aggregate at the same time. Aggregations took place over the course of several days, and mixing of animals from different aggregations may prove to be more of a problem in future photocensuses if the herd continues to grow in size. Estimating the population size through a sampling procedure rather than a complete count of post-calving aggregations may be necessary in the future.

Project Location: Unit 26A (53,000 mi^2)
Western North Slope

Project Objectives: Establish and maintain the current size of the Teshekpuk Lake Caribou Herd (TLCH). Conduct a population census every 2 to 3 years. Conduct

short yearling and calving success surveys annually to assess herd productivity. Initiate body condition studies of caribou. Assess annual hunter harvests. Provide for protection of critical caribou habitat in Unit 26A.

Work Accomplished During the Project Segment Period: Short yearling and calving success surveys were conducted on 22 June 1991 to assess herd productivity. A total of 3,571 caribou were observed from a Hughes 500 helicopter, resulting in a count of 75 calves per 100 cows and 12% yearlings in the population. The count of yearlings may have been low because some yearlings may have been misclassified as young cows. Calving ground surveys were flown and most of the calving occurred northeast of Teshekpuk Lake, but some calving also occurred south and west of the lake.

Through a cooperative project with the North Slope Borough Department of Wildlife Management, 12 caribou were captured using a Hughes 500 helicopter with a skid mounted net gun. Radio collars were attached to aid in future population, productivity, and movement studies. These caribou were also measured and weighed to assess body condition. Samples of blood, feces, and hair were collected to look for the presence of diseases, parasites, trace elements, contaminants, and nutrient deficiencies.

Movements were monitored throughout the year using satellite radio collars deployed in June 1990. All 6 of the cow caribou instrumented with satellite radio collars travelled considerable distances from the Teshekpuk Lake area. One animal wintered near Norton Sound in Unit 22A, 2 animals wintered on the southern side of the Brooks Mountain Range between Anaktuvuk Pass and Wiseman in Unit 24, and 3 animals wintered between Barrow and Wainwright. Three animals died during winter and spring, but the 3 remaining animals returned to the Teshekpuk Lake area for the summer.

A photocensus of the TLCH was not completed because poor weather conditions and the unavailability of the photo aircraft.

Results of subsistence harvest and radio-tracking studies were examined to estimate how many caribou were harvested from the TLCH. By examining the number of caribou harvested by various villages and assessing the distribution of caribou from the TLCH at the time of these harvests, we estimated that 851-1420 TLCH caribou were harvested during 1990-91.

Progress Towards Meeting Project Objectives: We were not successful in conducting a photocensus during 1991. However, the calf productivity rate (75 calves/100 cows) and the apparent abundance of animals indicated that the population is maintaining its size or growing. The 12 animals instrumented with conventional radio collars and the 3 satellite-collared cows will aid in planning and completing a census in 1992.

Preliminary investigations indicate that 851-1,420 caribou were harvested in 1990-91. The population should be able to withstand this hunting pressure, and appears to be increasing at this level of harvest.

Very accurate and detailed information are being obtained from the satellite radio collars deployed on TLCH caribou. We will continue mapping caribou movements and using this information to protect critical habitat areas from the impact of industrial exploration and development.

Segment Period Project Costs:

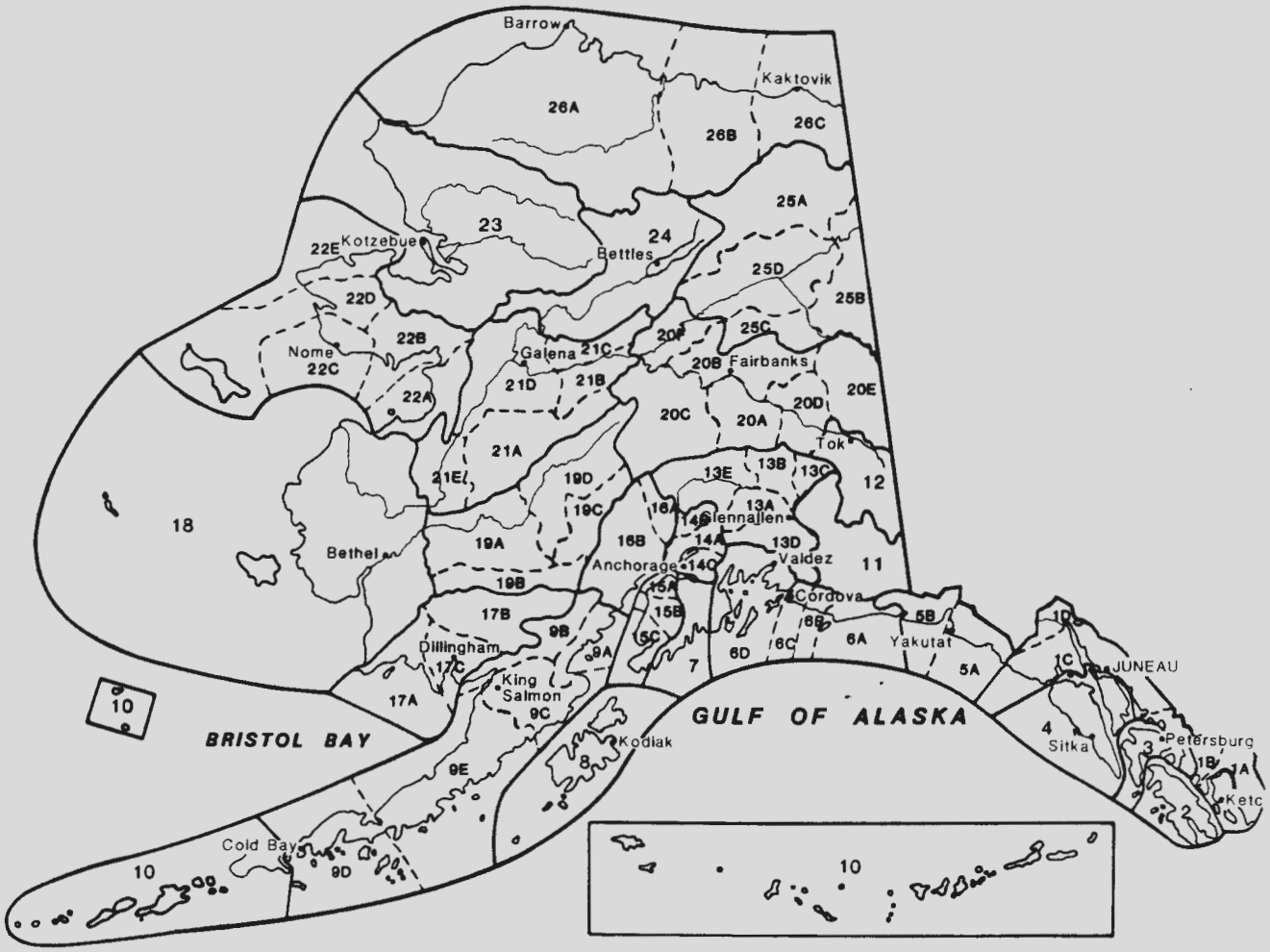
	Personnel	Operating	Total
Planned	99.8	40.5	140.3
Actual	79.7	72.0	151.7
Difference	-20.1	+31.5	+11.4

Explanation: A staff vacancy at Kotzebue resulted in less personnel expenditures for this project. In addition, costs associated with radio-collaring TLCH caribou and with the WACH photocensus were higher than expected.

Submitted by:

Steve Machida
Survey-Inventory Coordinator

Alaska Game Management Units



WILDLIFE RESTORATION

Funded by Federal Aid in Wildlife Restoration