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CARIBOU

Mary V. Hicks, Editor

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PERFORMANCE REPORT

Project Title: **Southcentral Alaska Caribou Management**

Project Location: Unit 7 (3520 mi^2)
Kenai Mountains Herd

Project Objectives: Maintain the posthunting herd at 400 until a carrying capacity is determined for their winter range.

Work Accomplished During the Project Segment Period: On 5 March 2000 we completed an aerial survey for the Kenai Mountains Caribou Herd. The survey was conducted using a Piper PA-18 Super Cub. We observed 290 caribou but they were not classified because we used a fixed-wing aircraft. The 1999–00 estimate places the herd's postcalving population size at 375 caribou, 50 less animals than last year's estimate and 125 fewer than 2 years ago. Wintering conditions were rated as fair.

The department received 1451 applications for 250 permits issued to hunt either sex caribou during 1999. Twenty-three (9%) permit holders reported hunting successfully, 87 (35%) unsuccessfully, and 140 (56%) did not hunt. The reported harvest comprised 10 (43%) males and 13 (57%) females. Successful hunters used the following transportation methods to access their hunting area: highway vehicles 17 (74%), horses 1 (4%), and aircraft 5 (22%). Fourteen (61%) animals were taken in August, 8 (35%) in September, and 1 in October (4%). In 1999 the Board of Game extended the season from August 10 to December 31. Seventeen hunters hunted from December 1 to 31, the time snowmachine access was allowed, but no caribou were killed. Eight hunters hunted during this period last year and were unsuccessful. All successful hunters were residents of the state.

In cooperation with the Fish and Wildlife Service, we captured 20 female caribou in the Kenai Mountains and Killey River Herds during April 2000. The primary purpose of this effort was to continue the assessment of habitat in the ranges of these herds by comparing mean weight of female calves between years and herds. In addition to comparing mean weight of caribou calves among Kenai herds, we were also interested in comparing Kenai calf weights to calf weights in other herds. This information will also be available for baseline data in the future. Using the standard helicopter darting technique, we captured 15 calves and 5 were shot. Carcasses were transported to Soldotna and given to a charity by Fish and Wildlife Protection. One PA-18 Super Cub was used to locate animals captured using a Bell 206B Jet Ranger. Total flying time for the helicopter was 13 hours, and the fixed-wing aircraft flew 12 hours.

Capture efforts resulted in the handling of 10 female calves in the Kenai Mountains Herd and 10 in Killey River. Mean calf weights were as follows: Kenai Mountains – 54.6 kg (120.1 lbs. n = 10, range

103.5–141.5) and Killey River calves – 58.4 kg (129.8 lbs., *n* = 10, range 112.0–143.5). We also recorded morphometric measurements.

To capture animals, we employed standard helicopter darting technique, using a Palmer dart rifle with brown charges. In 1996 and 1998 we used the dosage recommended by Pat Valkenburg for calves; i.e., 1 mg carfentanil and 65 mg xylazine loaded in a 2.5 ml Palmer dart. Reversal was accomplished with 125 mg naltrexone (IM) and 12.5mg yohimbine (IV). This dosage resulted in generally acceptable down times, but in several cases the animal required an additional dart to capture or an injection of 50 mg of xylazine after it went down to process. In 2000 the dosage was increased to 1.5 mg of carfentanil and 75 mg of xylazine. Reversal was accomplished using 150 mg naltrexone and 100 mg tolazine. Mean down time for animals immobilized with 1 injection (*n* = 12 of 16, 1 male, 75%) was 3.8 minutes with a range of 1–12 minutes, compared to a mean of 6.5 minutes with a range of 4–15 minutes in 1998. Time to process animals ranged from 15 to 32 minutes. Both antagonists were drawn into 1 syringe, with 1/3 injected IV and 2/3 IM. Following the injection of the antagonists, animals were able to walk or run away in 3 minutes or less. Four (25%) of the 16 darted calves required a second dart or had to be hand captured and given additional xylazine to hold down. In each of these cases, a solid, intramuscular injection was not achieved, either from the dart falling out or from poor shot placement. Since 12 of 16 single dart immobilizations were achieved in approximately 4 minutes, increased dosages used were considered acceptable. However, if calf weights remain at or near these findings, the amount of xylazine used should be reduced to 65 mg.

Dart injury was minimal using ¾-inch needles, but capture technique was revised slightly to compensate for the shorter dart needles. We found that animals darted from a helicopter position directly behind the animal and low, generally resulted in the dart striking the animal at such a low angle that the dart bounced off. Approaching the caribou from a position above and darting in a more vertical direction corrected this problem.

Calves captured in 1996 were born following one of the most severe winters on record for the Kenai Peninsula. The severe winter of 1994–95 was also followed by one of the best growing seasons due to warm days with a record amount of rain. The winter of 1995–96 was, in contrast, one of the mildest on record. As a result, although these weights seemed appropriate for the range conditions, they were probably the highest mean weights one could expect from these herds and may not represent an average calf weight following a normal summer growing season and winter. The winters of 1998–99 and 1999–00 were recorded as severe, at least in portions of the Kenai. Regardless of the previous winters, snow conditions during captures have been relatively similar with most south-facing slopes bare from wind and sun.

Progress Meeting Project Objectives: The harvest of 23 caribou during 1999 from an estimated herd of at least 375 represents a 6% harvest. Because only 13 of the 23 harvested were females, the impact to production and growth was insignificant. Surveys conducted in 1992, 1997, 1998, and 2000 indicate the herd increased from approximately 405 to 550 animals or 26% then declined to 375 in 2000. History of this herd also indicates that when the herd exceeds 450 animals (1997), it declines

sharply to about 300. I recommend the number of permits be maintained at 250 and the season length maintained for fall 2000 in an attempt to maintain the herd's size at 400 animals postseason.

The purpose of the even-year capture effort is to determine the mean calf weight for 10-month-old female calves in the Kenai Mountains and Killey River Herds. The Kenai Mountains Herd was established in the 1960s, and the Killey River Herd in the 1980s. These survey data, along with morphometric measurements and our general range assessment, provide insight into the quality of the range as it relates to current density. A comparison of mean weights of calves captured in the Kenai Mountains between 1996, 1998, and 2000 showed no significant difference in size ($P = 0.728$). Mean calf weight for these 3 years were as follows: 57.6kg, 55.4kg, and 54.6kg, respectively. Although the mean weights were not different between years, the mean weights did decline along with the herd's size. The fact that the herd size declined from approximately 450 during 1996–97 to 375 in 1999–00 may indicate that as the herd decreases, the habitat benefits are only able to sustain calf weights. The population may have to be sustained at a lower level for several years to allow the habitat to rebuild and to provide herd production of larger calves.

A comparison of mean weight for calves in Killey River (2000) to calves in Kenai Mountains (2000) showed that they are no bnger different ($P = 0.143$), compared to their differences in 1996 ($P = 0.0002$). The Kenai Mountain herd currently occupies a 1407 km^2 area for a resulting density of 0.2 animals/km^2. The density of 1.5 caribou/1000 m^2 in Killey River, counted June 1999, is at least 33% over the recommended stocking rate.

A detailed management plan was written for all caribou herds on the Kenai Peninsula in October 1994.

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

Project Objectives: To maintain a minimum population of 25,000 adults with a bull:cow ratio of 35 bulls:100 cows.

Work Accomplished During the Project Segment Period: Harvest reports for this reporting period have not been analyzed. Hunting effort has probably increased in recent years.

During the 1999–2000 season the department issued 1 emergency order to open a hunting season on the Mulchatna Caribou Herd (MCH) that was moving into closed areas. Unit 18 (south of the Yukon) and Unit 17A (west of the Togiak River and north of Pungokepuk Creek) was opened from September 17, 1999 to March 31, 2000 with a bag limit of 5 caribou.

A photocensus of the MCH was conducted July 8, 1999. Final counts from the aerial photos were not available at the time of this report. Herd size during summer 1999 was subjectively estimated at 160,000–180,000. Fall composition counts were conducted October 12, 1999 in the headwaters of

the Kanektok and Goodnews Rivers (Unit 18) and on October 29, 1999 in the middle Nushagak River drainage. The composition from a pooled sample of 4731 caribou was 30.3 bulls:100 cows and 14.1 calves:100 cows. This calf:cow ratio is the lowest documented for the Mulchatna herd.

Herd movement for these caribou continues to be unpredictable. In July 1999 large numbers of caribou were located in the upper Mulchatna River drainage, north of Lake Clark. By early August, many thousands of caribou had moved into the lower end of the Nushagak River area, between Portage Creek and Dillingham. By mid-August most of the caribou had moved north through the upper Nushagak and Mulchatna Rivers and then scattered throughout their range. By mid-September, large numbers were in the mid-Nushagak River drainage area and also scattered in Unit 18. During the rut in early to mid-October, large numbers were located south of Koliganek and in parts of Unit 18. Throughout the winter of 1999–2000, caribou from the Mulchatna Herd were scattered throughout southwest Alaska, with the greatest part of the herd wintering in Unit 18. During mid-April 2000, Mulchatna caribou that had wintered in Unit 18 traveled east into Unit 17 across the upper Wood River-Tikchik Lakes. Calving aggregations formed in the headwaters of the South Fork of the Hoholitna River and the lower Nushagak River. Calving surveys were conducted May 21–22 and on May 24. Twenty-one of 22 radiocollared adult female caribou either were accompanied by calves, or were pregnant based on presence of hard antlers. In late June large numbers of caribou moved from the calving areas through the middle and upper Mulchatna River drainage.

Caribou translocated from the Alaska Peninsula to the Nushagak Peninsula in 1987 remained stable at 1300 animals during this reporting period. Monthly radiotracking flights verified that most of the herd remained on the Nushagak Peninsula. Data from the Federal Subsistence hunt are still being analyzed.

Progress Meeting Project Objectives: The MCH continued to move throughout most areas of southwestern Alaska. Herd size has probably declined somewhat from the peak in 1996. No range investigations have been conducted in areas used by this herd. Trailing is extensive throughout the range of the herd, but there is no objective evidence to indicate that food availability is limiting the herd. Liberalization of hunting regulations and publicity about the size and health of the herd appear to be increasing hunting effort. An outbreak of foot rot (Necrobacillosis) observed in the herd during fall 1998 did not appear serious during fall 1999. The reason for the abrupt decline in calf:cow ratios observed in fall 1999 is unknown and certainly warrants investigation.

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

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

Work Accomplished During the Project Segment Period: In a cooperative project with the U. S. Fish and Wildlife Service (FWS), we conducted a helicopter composition survey in October 1999 and

classified 2567 caribou. Ratios were 40 bulls and 21 calves per 100 cows. Calves composed 13% of the fall sample. This was the lowest productivity ever documented for the Northern Alaska Peninsula Herd (NAPCH). In fall 1999 we captured 12 female calves and fitted 11 with standard radio collars. We also fitted 1 adult cow with a satellite collar. By April 2000 5 of these had died and 1 was missing. For all radiocollared caribou, the survival rate from June 1999 to June 2000 was 0.53.

A postcalving photo count was conducted during late June 2000, and approximately 7000 caribou were counted, including 2800 counted by the FWS in the Aleutian Mountains and on the Pacific Coast. Calves composed 23.7% of the total count on the Bristol Bay coastal plain from a weighted sample of 1692 caribou.

The Board of Game adopted a Tier II subsistence hunt of the 1999–2000 season. Six hundred permits were issued by the state, and an additional 60 federal subsistence permits were issued. A preliminary analysis indicates that 484 state permit reports have been returned and 158 caribou harvested, including 11 cows taken illegally. Preliminary results from the federal hunt show a harvest of 10 caribou.

Progress Meeting Project Objectives: Results of postcalving counts during 1995–2000 indicate that the herd has not stabilized and the decline is continuing. Given this continued decline, the number of Tier II permits issued will be reduced from 600 to 400 for 2000–01. We will continue to emphasize the need to avoid killing cows and will monitor the bull:cow ratio to ensure that bulls are not reduced below a minimum of 30:100 cows. Several years ago we recommended that the population objective be lowered to 12,000–15,000. This change in objective will be discussed at the March 2001 Board of Game meeting.

Project Location: Unit 9D and Unit 10 (4900 mi^2)
Southern Alaska Peninsula Herd

Project Objectives: To maintain the population between 4000–5000 midsummer with an October sex ratio of 20–40 bulls:100 cows.

Work Accomplished During the Project Segment Period: During October 1999 a helicopter survey classified 1049 caribou from the Southern Alaska Peninsula caribou herd (SAPCH) in Unit 9D and documented ratios of 25 calves and 51 bulls:100 cows. We also classified 129 caribou on Unimak Island and found ratios of 46 calves and 81 bulls:100 cows. We captured 12 calves on Unimak Island to assess body condition and collect blood samples to test for genetic differences with the mainland segment of the SAPCH. We put a standard radio collar on 1 calf.

During 2–3 June 2000, with funding from the U.S. Fish and Wildlife Service (FWS), we conducted a parturition survey in Unit 9D. On the Black Hills and Caribou River calving areas, 83% (n = 54) and 73% (n = 287) of cows ≥2 years old, respectively, either had calves or had hard antlers and/or distended utters. The annual survival rate between June 1999 and June 2000 was 0.789 for 24

radiocollared cows >1 year old. During 27–28 June 2000 a postcalving survey of the SAPCH was conducted in Unit 9D. Although we found all cows known to have functioning radio collars, the total count was only 2857. With fewer radio collars still functioning in 2000, it is possible that several herds were missed and that the herd has not declined since the count in 1999 of 3612. Of 1077 caribou on the Caribou River Flats, 28% were calves.

In March 1999 the Board of Game re-instituted a resident hunt between 1–20 September and 15 November–31 March and a nonresident registration permit hunt, with a 50-bull quota, during 5–25 September. Only 17 nonresidents obtained permits, and these hunters took 12 caribou. As in the past, compliance by local residents to obtain and return harvest tickets was poor. The preliminary tally of the resident harvest was only 10 bulls from Unit 9D. Because of the state resident season, the Federal Subsistence Board dropped the federal season.

Progress Meeting Project Objectives: Hunting was closed by emergency order in 1993 when the herd was documented below 2500 animals. Hunting remained closed until FWS surveys in April 1997 counted 3200 caribou. The results of this survey were not easily explained given their counts of the 2 previous years and continuing low productivity, except in 1994. Federal subsistence hunts were held on Unimak Island and in 9D during 1997–98 and 1998–99, but reported harvests were less than 40 each year. Low harvests and good productivity the past 3 years have allowed the herd to grow; it is now approaching the lower end of the population objective.

Project Location: Unit 15A (1300 mi^2)
Kenai Lowlands Herd

Project Objectives: To increase the herd to a minimum of 150 animals by 2002.

Work Accomplished During the Project Segment Period: An aerial survey on 20 June 2000 indicated a minimum population of 131 caribou, including 25 (19%) calves. One hundred-six of the 131 caribou were adults, compared to 111 adults counted in 1999 and 94 in 1998. An accurate assessment of yearlings was not possible because we used a fixed-wing aircraft but commonly observed yearlings. The observation of 25 calves is the third highest number found in the Lowland Herd. Thirty calves were observed in 1998 and 29 in 1999. Bulls were identified by size and development of antlers. Using this methodology, medium- to large-antlered bulls comprised 24% of the adults or 25 recognizable bulls. We counted 140 caribou (21% calves) on 22 June 1999.

Progress Meeting Project Objectives: Adult animals counted in the Kenai Lowlands Herd decreased by 6%, and the number of calves decreased 9% when compared to counts in 1999. However, animals observed indicate a steady increase through 1999 and a slight decline in 2000 in population size, in spite of the severe winters of 1994–95, 1998–99 and 1999–00. The observation of 62 adults in 1994, 65 in 1995, 69 in 1996, 81 in 1997, 94 in 1998, 111 in 1999, and 106 in 2000 demonstrates the steady growth of this herd. Low recruitment due to predation rather than limited habitat is still suspected to be the cause of the herd's small size. The management objective was

extended to 2002. The season has been closed since 1993 and should remain closed until the herd size reaches the management objective of 150 counted caribou.

Highway vehicles killed 3 adult caribou (2 cows and 1 bull) this spring; one was a cow collared in 1998. In June 2000 we located the remaining 4 radiocollared cows from 1998 and 1 collared cow from April 1994.

A detailed management plan was written for all caribou herds on the Kenai Peninsula in October 1994.

Project Location: Units 15B and 15C (3563 mi^2)
Killey and Fox River Herds

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

Work Accomplished During the Project Segment Period: Due to a limited budget, surveys were not completed in 1999–00 on the 3 caribou herds resulting from the 1985 and 1986 reintroductions into Units 15B and 15C. The last complete survey was conducted in June 1999, and search efforts included most of the known ranges for these herds. On June 23, 1999 the Killey River and Twin Lakes Herds were counted, resulting in the following totals and classification: 509 of the 546 caribou counted in the Killey River Herd were classified. Composition was 318 cows, 77 calves, and 114 bulls. Ratios were 25 calves and 36 bulls/100 cows, and calves composed 16% of observed caribou. Twin Lakes counts revealed 54 caribou comprising 30 calves and 17 bulls/100 cows; calves composed 21% of observed caribou. Survey conditions of the Twin Lakes Herd were poor, resulting in a suspected low number of animals located. This herd is believed to include 65 to 70 caribou. The Fox River Herd was last counted on November 21, 1998 and we observed 67 caribou. Because the Fox River Herd was surveyed using a fixed-wing aircraft, animals were only classified by age. The 4 original releases totaled 80 animals.

Killey River Herd

Hunting was authorized on the Killey River Herd in 1994. A total of 25 permits were issued each year with a bag limit of 1 caribou until 1996. In 1997 the number of permits issued was increased to 50 with the same bag limit. In 1999 the number of permits was reduced to 25 for either sex, and an additional cow-only hunt was established. Forty permits were issued for this hunt; each permit allowed the hunter to harvest 2 cows. We received 353 applications for the 25 either-sex permits and 188 for the 40 cow permits in 1999. Nineteen of the 25 permit holders reported hunting, harvesting 14 bulls (74%). Successful hunters averaged 3.8 days afield, and 10 (71%) of the 14 successful hunters were residents. Eight (57%) successful hunters used boats and 6 (43%) used horses as transportation.

Eighteen of the 40 permit holders hunted in the Killey River cow hunt and reported a harvest of 6 caribou (5 cows and 1 illegal bull). One hunter killed a cow and a bull. Successful hunters were all unit

residents and averaged 5.3 days in the field. To reach the hunt area, 3 hunters used horses to gain access and 2 hunters reported using a boat.

Fox River Herd

Hunting began on the Fox River Herd in 1995 when 15 permits were issued. The number of permits issued was reduced to 10 in 1996 and has remained the same through 1999. We received 115 applications for these permits in 1999. Four of the 10 permit winners reported hunting, harvesting 1 bull and 1 cow. Both successful hunters were state residents who spent 2 days in the field and accessed the hunt area by boat.

Twin Lakes Herd

Twin Lakes Herd was not hunted during this reporting period.

In cooperation with the Fish and Wildlife Service, we captured 20 female caribou in the Kenai Mountains and Killey River Herds during April 2000. The primary purpose of this effort was to continue the assessment of habitat in the ranges of these herds by comparing mean weight of female calves between years and herds. In addition to comparing mean weight of caribou calves among Kenai herds, we were also interested in comparing Kenai calf weights to calf weights in other herds. This information will also be available for baseline data in the future. Using the standard helicopter darting technique, we captured 15 calves and 5 were shot. Carcasses were transported to Soldotna and given to a charity by Fish and Wildlife Protection. One PA-18 Super Cub was used to locate animals captured using a Bell 206B Jet Ranger. Total flying time for the helicopter was 13 hours, and the fixed-wing aircraft flew 12 hours.

Capture efforts resulted in the handling of 10 female calves in the Kenai Mountains Herd and 10 in the Killey River Herd. Mean calf weights were as follows: Kenai Mountains – 54.6 kg (120.1 lbs., n = 10, range = 103.5–141.5) and Killey River – 58.4 kg (129.8 lbs., n = 10, range = 112.0–143.5). We also recorded morphometric measurements.

To capture animals, we used standard helicopter darting technique, using a Palmer dart rifle with brown charges. In 1996 and 1998 we used the dosage recommended by Pat Valkenburg for calves; i.e., 1 mg carfentanil and 65 mg xylazine loaded in a 2.5 ml Palmer dart. Reversal was accomplished with 125 mg naltrexone (IM) and 12.5mg yohimbine (IV). This dosage resulted in generally acceptable down times, but in several cases during capture, the animal required an additional dart or an injection of 50 mg of xylazine to process. In 2000 the dosage was increased to 1.5 mg of carfentanil and 75 mg of xylazine. Reversal was accomplished using 150 mg naltrexone and 100 mg tolazine. Mean down time for animals immobilized with 1 injection (n = 12 of 16, 1 male, 75%) was 3.8 minutes with a range of 1–12 minutes, compared to a mean of 6.5 minutes with a range of 4–15 minutes in 1998. Time to process animals ranged from 15 to 32 minutes. Both antagonists were drawn into 1 syringe, with 1/3 injected IV and 2/3 IM. Following the injection of the antagonists, animals were able to walk or run away in 3 minutes or less. Four (25%) of the 16 darted calves required a second dart or had to be hand-captured and given additional xylazine for us to hold them down. In each of these cases, a solid, intramuscular

injection was not achieved, either from the dart falling out or from poor shot placement. Since 12 of 16 single dart immobilizations were achieved in approximately 4 minutes, increased dosages were considered acceptable. However, if calf weights remain at or near these findings, the amount of xylazine used should be reduced to 65 mg.

Dart injury was minimal using ¾-inch needles, but capture technique was revised slightly to compensate for the shorter dart needles. We found that animals darted from directly behind the animal and low generally resulted in the dart striking the animal at such a low angle that the dart bounced off. Our approaching the caribou from a position above the animal and darting in a more vertical direction corrected this problem.

Calves captured in 1996 were born following one of the most severe winters on record for the Kenai Peninsula. The severe winter of 1994–95 was also followed by one of the best growing seasons due to warm days with record rainfall. The winter of 1995–96 was, in contrast, one of the mildest on record. As a result, although these weights seemed appropriate for the range conditions, they were probably the highest mean weights one could expect from these herds and may not represent an average calf weight following a normal summer growing season and winter. The winters of 1998–99 and 1999–00 were recorded as severe, at least in portions of the Kenai. Regardless of the previous winters, snow conditions during captures have been relatively similar with most south-facing slopes bare from wind and sun.

Progress Meeting Project Objectives: We have achieved the management objective of reestablishing viable caribou populations in suitable habitat in 15B and 15C. Surveys were not completed in 1999–00; however, results from 1998–99 surveys compared to 1997–98 indicate that the Killey River Herd is now exceeding its projected range capacity of 1 caribou/1000 m^2 or 400 animals, and the calf to cow ratio was the lowest recorded for this herd. The number of animals found in the Twin Lakes Herd declined from 66 in 1998 to 54 in 1999. Due to poor counting conditions and lack of bulls located during the survey, it is believed this number represents the minimum in the herd. The Fox River Herd declined from 96, counted on March 11, 1998, to 67 on November 21, 1998. Quality and quantity of habitat in the Fox River's range may be becoming a limiting factor since the density of the herd exceeded 1 caribou per 1000 m^2 in 1997–98. Additionally, black and brown bears are common in this area, and a pack of wolves was observed on several occasions feeding on caribou. No calves were observed in the November 21, 1998 count.

Preliminary results from radiotracking by U.S. Fish and Wildlife Service indicated animals were exchanging between the Twin Lakes and Killey River Herds, but the extent of exchange is unknown. The spring 1999 count revealed the Killey River herd size is well above the recommended stocking rate. Because hunters were not successful in reducing herd size using a limited drawing permit hunt for cows, we should consider using an open registration hunt if the fall 2000 hunt fails to reach the allowable harvest or if the herd does not stabilize naturally.

The purpose of the even-year capture effort is to determine the mean calf weight for 10-month-old female calves in the Killey River Herd. These data, along with morphometric measurements and our

general range assessment, provide insight into the quality of the range as it relates to current density. The 1996 (65.7 kg) and 1998 (63.5 kg) mean weights of Killey River calves were as high as any herd in the state. Mean weights between these years showed no significant difference (P = 0.461), although the weight declined slightly (2.2kg) in 1998. Comparisons from 1996 to 2000 revealed that both years had a sample size of 10 and a significant difference (P = 0.001) in mean weight. In 1996 this herd was estimated to be about 300 or 0.8 animals/1000 m^2. The 1999–00 herd size estimate was 550 or 1.5 caribou/1000 m^2.

A comparison of mean weight for calves in the Killey River Herd (2000) to calves in the Kenai Mountains Herd (2000) showed that these herds are no longer different (P = 0.143), compared to their differences in 1996 (P = 0.0002). The Kenai Mountain herd currently occupies a 1407 km^2 area for a resulting density of 0.2 animals/1000m^2. The density of 1.5 caribou/1000m^2 in Killey River, counted June 1999, is at least 33% over the recommended stocking rate. This herd should be reduced through increased hunting to achieve a density of 0.8 to 1.0 animals/1000m^2.

A detailed management plan was written for all caribou herds on the Kenai Peninsula in October 1994

Project Location: Unit 13 (25,000 mi^2)
Nelchina Herd

Project Objectives

- Stabilize the herd between 35–40,000 animals with a minimum bull:cow ratio of 40:100 by harvesting the annual growth increment.
- Maintain productivity rates of approximately 10%.
- Maintain animal growth and body condition parameters similar to current body conditions and to body conditions of other Interior caribou herds.

Work Accomplished During the Project Segment The October 1999 postrut estimate for the Nelchina herd was 31,365 caribou, of which 26,650 were adults (>1 yr.). The estimate was extrapolated from a June 1999 postcalving aerial count of 33,125 animals (64% cows) and the October 1999 sex and age survey that tallied 30 bulls:100 cows and 23 calves:100 cows. The 8 July 2000 postcalving spring census was a photocensus, and results will not be available for 4–6 weeks. The 2000 postcalving composition count was 31 calves:100 cows.

One state hunt for Nelchina caribou was held during 1999–2000. This hunt was a Tier II (TC566) subsistence permit hunt with 8000 permits issued for any caribou in Unit 13. The Tier II hunt permits were issued to the applicants with the highest eligibility score. The state registration (RC460) subsistence hunt in Tok was not held because of declining caribou numbers. The preliminary harvest under the Tier II hunt was 1384 bulls and 582 cows. The Tier II cow hunt was closed by emergency order on September 8, when it became apparent the harvest quota of 500 cow caribou would be

reached before the September 20 season closure. The Tier II hunt for bulls was closed by emergency order after the fall season because our harvest quota of 1500 bulls could be exceeded during a winter hunt. As it turned out, this closure had little actual impact on the harvest because most of the caribou left the unit before the scheduled winter season.

The Bureau of Land Management conducted a fall and winter federal registration hunt in Unit 13 on federal lands along the Denali and Richardson Highways. Each hunter was allowed 2 permits (2-caribou bag limit), and 2657 permits were issued for the federal hunt. The federal harvest was 360 caribou (190 bulls, 169 cows 1 sex unknown). This year's federal harvest was 40 animals below last year's take of 400 and below the 1991 harvest of 647 caribou. Recent federal harvests have been lower because less land is open for federal hunting due to state land selections along the Denali Highway. In addition, caribou have been spending less time on the few federal lands remaining open to hunting, thus reducing their exposure to hunting pressure.

The Fish and Wildlife service on Tetlin Wildlife Refuge held a registration hunt for bull caribou during the fall of 1999 and spring 2000 for Unit 12 residents. This hunt was held as the Nelchina Herd migrated to and from winter grounds in Unit 20E. Harvest data are not available for this spring hunt. During the fall hunt FWS issued 98 permits and hunters harvested 2 caribou.

The Nelchina Caribou Herd spent May through July 1999 in the eastern Talkeetna Mountains. Weather conditions in 1999 were similar to cold and wet spring conditions in 1998. These cold and wet conditions may have resulted in either late or decreased forage production. During fall 1999 the herd was located in the interior portions of Unit 13 west of the Richardson Highway and south of the Denali Highway. Hunter success was low from the highway system due to the location of the caribou. Radiocollared caribou distribution was within a band extending from the eastern Talkeetnas across the Lake Louise Flats south of the Denali Highway to the Gulkana River. Most of the herd was migrating east during the rut, when the largest concentrations were found between the Gulkana and Gakona Rivers near Sourdough. By late October the caribou herd had moved east along the usual migration route across Unit 13 into Units 11 and 12. According to radio collar data, 90% or more of the Nelchina Herd left Unit 13 during the fall migration of 1999 and wintered in Units 12 and 20E. Weather conditions on the winter range were the toughest observed in recent years. Snow was deep and rain resulted in crusting that made cratering difficult. In addition, wolf numbers were high on the wintering grounds. Caribou did not begin moving back into Units 13C and 11 until late spring. Distribution during calving in 2000 reflected the late spring and deep snow remaining on the calving grounds in the eastern Talkeetna Mountains. Calving occurred on the Lake Louise flats and into the Tyone Hills. This was the farthest eastern observation of calving in over 20 years.

We monitored caribou calving 16 May–3 June. Radiocollared adults were tracked and during each flight we observed caribou until cows had calved. In the absence of a calf, a cow with retained antlers and distended udder was considered to have been pregnant, even if a calf was not observed. No 2- or 3-year-old radiocollared caribou had a calf. The overall pregnancy rate for caribou 3 years old and older was only 45%, similar to the 50% pregnancy rate observed last year. Neonatal calves (n = 56) were captured on May 27 before the peak of calving to obtain birth weights. Birth weights averaged

16.9 lbs. for males and 15.5 lbs. for females. These were the lowest birth weights recorded to date, with males down 3.3 lbs. (16%) and females 2.4 lbs. (13%) from 1999. For the second year in a row, weather conditions were poor throughout calving with cold, windy, wet weather predominating. In addition, snow cover remained 3 to 4 weeks longer than usual on the calving grounds, resulting in calves being dropped in areas with over 90% snow cover.

Body condition was monitored twice in female calves, once during October 1999 and again in April 2000. After capture, we weighed caribou, recorded body condition parameters, and compared these data with similar data from past years in the Nelchina herd. Comparison of weights and condition indices were also available between other Interior caribou herds. Fall 1999 calf weights averaged 114 lbs., up from the 112 in 1998, but well below the 122 observed during the fall of 1997. Spring 1999 calf weights averaged 113.3 lbs., while spring 2000 weights averaged only 107 lbs., reflecting the harsh winter conditions in 1999–2000.

Progress Meeting Project Objectives: The 1999 fall population estimate for the Nelchina Herd falls below the herd management goal of 35–40,000 caribou. The decline from the 38,500 estimate in 1998 was partially attributed to low calf production in 1999; 5000 fewer calves were born than in 1998. This decline in calf production was attributed to poorer summer weather in 1998 that decreased forage production. Cows that are stressed on summer range are much less likely to have a calf the following year. Also contributing to the decrease was an increase in the mortality rate in the Nelchina Herd during 1998–99. An 11% annual mortality rate of radio-collared cows was observed in 1998–99, compared to 5% mortality in 1997–98. This increase in natural mortality was attributed to increased wolf predation.

Body condition parameters measured in the Nelchina Caribou Herd improved slightly during 1999. Body weights for female calves were approximately 2 pounds heavier in fall 1999 than in fall 1998, but still 8 lbs. lighter than observed in 1997. Body weights for female calves in April 2000 were lighter than weights in the fall. Weight loss is an indication of the relatively severe winter of 1999–2000. The peak of calving for radiocollared cows was 30 May, 5 days later than the usual peak. Historically, the peak of calving for the Nelchina Herd is always later than observed in adjacent Interior herds. Calf production based on pregnancy rates for radiocollared caribou and the 2000 spring composition survey was the lowest ever observed. Neonatal calf weights this year in the Nelchina Caribou Herd were the lightest observed to date in this herd.

Low neonatal birth weights reflect the severe winter of 1999–2000, when pregnant cows had to expend more energy because of deep snows. Low fall calf weights indicate the quality or quantity of summer forage had declined during summer of 1999. Poorer summer forage in 1999 could have resulted in cows going into the breeding season in poorer condition and may account for the observed decline in productivity. The annual (spring census 1999–spring 2000) mortality rate for radiocollared caribou was up appreciably with preliminary estimates of 20% herd mortality and 30% mortality for yearlings.

Segment Period Project Costs:

	Personnel	Operating	Total
Planned	84.2	67.7	151.9
Actual	84.2	67.7	151.9
Difference	0.0	0.0	0.0

Submitted by

Michael G. McDonald
Assistant Management Coordinator

Project Title: **Interior Caribou Population and Habitat Management**

Project Location: Unit 12 (3300 mi^2) and adjacent Yukon Territory, Canada (500–1000 mi^2)
Chisana Caribou Herd

Objective: Develop a management plan that recommends management and harvest strategies to meet the goal of managing the Chisana Herd for the greatest benefit of the herd and its users under the legal mandates of the managing agency and landowners.

Activities Planned

1. Estimate status, trends, and recruitment levels through aerial surveys.

2. Determine pregnancy rate, peak of calving, parturition, and calf survival.

3. Conduct a fall sex and age composition count.

Activities Accomplished

1. Completed herd productivity survey on 31 May 2000.

2. Completed a fall sex and age composition survey on 1 October 1999.

3. Conducted 4 radiotracking surveys (October, March, May, and June) to monitor seasonal movements and range use, and mortality.

4. During 1–2 October, captured and radiocollared six 5-month-old female calves to increase our sample of radiocollared caribou in the herd.

5. During 25–28 March 2000, captured and collected blood samples from adult cows to estimate herd pregnancy rate.

6. On 14 July 1999, conducted an interagency meeting to begin developing Chisana caribou management, operational, and research plans.

Project Location: Portions of Units 12 and 20D (1900 mi^2)
Macomb Caribou Herd

Objective: Increase the fall population to 600–800 caribou with a sustainable harvest of 30–50 caribou by the year 2002.

Activities Planned

1. Estimate status, trends and productivity from aerial surveys.

2. Conduct photocensus.

Activities Accomplished

1. Conducted aerial population survey to estimate herd status, population trend and productivity.

2. Conducted no photocensus because photographs were not required to estimate herd size during the aerial population survey.

Project Location: Units 19A, 19B, 19C, 19D, 21A and 21E (60,523 mi^2)
Beaver Mountains, Big River-Farewell, Rainy Pass, Sunshine Mountain, and Tonzona Caribou Herds

Objectives

1. Provide for a combined harvest of no more than 25 caribou from the Sunshine and Beaver Mountains Herds.

2. Provide for a harvest of no more than 50 caribou from the Tonzona Herd.

3. Provide for a harvest of no more than 100 bull caribou from the Big River-Farewell Herd.

4. Provide for a harvest of no more than 75 bull caribou from the Rainy Pass Herd.

Activities Planned: Estimate status, trends, and distribution of the herds from aerial surveys (all objectives).

Activities Accomplished

1. Deployed 7 radiocollars in the Rainy Pass Herd, and conducted a Rainy Pass Herd composition survey (Objective 4).

2. Conducted 1 radiotracking flight during spring 2000 (all objectives).

Project Location: Unit 20A (6796 mi^2)
Delta Caribou Herd (including former Yanert Herd)

Objectives

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

2. Reverse the decline of the herd and increase the midsummer population to 6000–8000 caribou.

3. Reduce wolf predation on caribou by decreasing the wolf population (not funded by federal aid).

4. Sustain an annual harvest of 300–500 caribou.

Activities Planned: Estimate productivity, status, and trend from summer photocensus, fall sex and age composition counts, and annual mortality (Objectives 1, 2, and 4).

Activities Accomplished

1. Conducted a photocensus of the herd in June (Objective 2).

2. Conducted fall composition surveys in October (Objective 1).

3. Monitored effort, timing, and distribution of harvests through drawing permit reports (Objective 4).

Project Location: Units 20B, 20C, 20D, 20E, 25C, and adjacent Yukon Territory, Canada (20,000 mi^2)

Fortymile Caribou Herd

Objectives

1. Restore the FCH to its traditional range in Alaska and the Yukon.

    a. Provide conditions for the Fortymile Herd to grow at a moderate annual rate of 5–10% between June 1996 and June 2001.

        i) Reduce annual harvest quota to 150 bulls.

        ii) Reduce calf mortality by wolves by reducing wolf numbers by 70–80% on the herd's summer range, excluding Yukon-Charley National Preserve, using a combination of public wolf trapping and nonlethal techniques including wolf fertility control and relocation.

    b. Maintain an October bull:cow ratio of at least 35:100.

        i) Maintain a bull-only harvest at a level that will not cause a reduction in bull numbers.

2. Minimize the impact of human activities on caribou habitat.

    a. Work with land agencies, landowners, and developers to mitigate developments detrimental to caribou.

    b. Maintain a near-natural fire regime.

3. Provide for increased caribou hunting, viewing, and other wildlife-related recreation in Alaska and Yukon.

Activities Planned

1. Estimate status, trends, and recruitment from aerial surveys (Objective 1).

2. Conduct a photocensus (Objective 1).

Activities Accomplished

1. Completed a spring pregnancy/birth rate survey in May, estimated annual adult and calf survival using radiotelemetry, completed a postcalving photocensus in June, and conducted a fall sex and age composition survey in September (Objective 1).

2. Monitored herd movements once every 3–7 days during the hunting seasons to aid hunt management (Objective 1).

3. Administered 4 registration permit hunts covering Unit 20E and portions of Units 20B, 20D, and 25C. All 4 hunts were closed early by emergency order (Objective 1).

4. Maintained a Fortymile caribou hotline, informing hunters of the status of the registration hunts (Objective 1).

5. Attended 2 Fortymile Caribou Management Team (Team), 1 Alaska Board of Game, and 2 Yukon Fish and Wildlife Management Board meetings to report the progress of the Fortymile Herd management program. The Team meetings were also part of a review process to ensure the Fortymile Caribou Management Plan was being implemented as intended (Objective 1).

6. Worked with the coalition of the Upper Tanana/Fortymile, Delta, Eagle, Central, and Fairbanks Advisory Committees to produce the Fortymile caribou harvest plan that was presented to the Alaska Board of Game in March 2000 (Objectives 1 and 3).

7. Produced 1 issue of the *Comeback Trail*, an information bulletin explaining the status and trend of the Fortymile herd, current management and research programs and results, and hunting and viewing opportunities. Also wrote informational articles about the herd and the nonlethal wolf control program for the Fairbanks and Anchorage papers and for the Alaska Hunting Bulletin (Objective 3).

8. Completed nonlethal wolf control activities on 15 wolf packs that reside on the herd's calving and summer ranges (Objective 1).

9. As part of the Fortymile Caribou Habitat Subcommittee (part of the Fortymile Caribou Management Team), met with representatives from the mining industry, US Air Force, and state and federal agencies and developed agreements that ensured adequate habitat protection for the herd (Objective 2). A web site was also maintained to display herd movements so industry could plan their daily activities.

10. Coauthored "Reducing Mortality on the Fortymile Caribou Herd" research report (Objectives 1 and 3).

11. Attended the March 2000 Alaska Board of Game meeting where the population and harvest objectives were tentatively changed to 50,000–100,000 and 1000–15,000, respectively. The board will act on these objectives during their fall 2000 meeting.

Project Location: Units 20F, 21C, 21D, and 24 (48,000 mi^2)
Galena Mountain, Ray Mountains, and Wolf Mountain Caribou Herds

Objectives

1. Harvest no more than 50 cows and 75 bulls from the Ray Mountain Herd.
2. Harvest no more than 10 cows and 25 bulls from the Wolf Mountain Herd.
3. Harvest no more than 10 cows and 25 bulls from the Galena Mountain Herd.

Activities Planned

1. Estimate status, trend, and productivity of the herds from photocensus and aerial surveys (all objectives).

Activities Completed

1. Monitored harvest of Galena, Ray, and Wolf Mountains Herds through statewide reporting system (Objectives 1–3).
2. Conducted a midwinter aerial survey of Galena Mountain Herd (Objective 3).
3. Evaluated aerial telemetry survey data conducted by BLM on Ray Mountains Herd (Objective 1).

Project Location: Units 25A, 25B, 25D, and 26C (58,240 mi^2)
Porcupine Herd

Objectives

1. Maintain a minimum population of 135,000 caribou.
2. Monitor the harvest through field observations, hunter reports, and contact with residents.
3. Conduct censuses and sex and age composition counts.

Activities Planned

1. Estimate status, trend, and productivity from aerial surveys (Objectives 1 and 3).
2. Conduct calving ground surveys (Objectives 1 and 3).

Activities Accomplished

1. Did not complete aerial photocensus due to unusual spring weather and failure of the caribou to form large groups necessary to conduct the census (Objectives 1 and 3).

2. Conducted annual calving ground survey on June 1–5, 10, and 30 with assistance from the U.S. Fish and Wildlife Service (Objectives 1 and 3).

3. Conducted radiotracking and capture activities during February and March with assistance and funding from U.S. Fish and Wildlife Service and Yukon Renewable Resources Department (Objectives 1 and 3).

4. Monitored harvests through analysis of harvest reports and through studies in communities in the range of the Porcupine herd (Objective 2).

Project Location: Western half of Unit 25C and small portions of Northern Unit 20B and Eastern Unit 20F (3090 mi^2)

White Mountains Herd

Objectives

1. Maintain a fall bull:cow ratio of 30 bulls:100 cows.

2. Maintain a reported harvest of <75 caribou, including 30 cows during the winter drawing hunts.

Activities Planned: Conduct radiotelemetry flights to monitor herd demographics (Objectives 1 and 2).

Activities Accomplished

1. Flew fall composition count and collared 11-month-old female caribou (Objective 1).

2. Issued registration permits and summarized harvest data (Objective 2).

Project Location: Unit 26B (15,515 mi^2)

Central Arctic Herd

Objective: Maintain a minimum population size of 10,000 caribou.

Activities Planned

1. Capture and radiocollar female caribou.

2. Estimate status, trend, and productivity from aerial surveys.

3. Conduct calving ground surveys.

Activities Accomplished

1. Captured and radiocollared 20 female caribou in June 00.

2. Radiotracked caribou in April 00, estimated parturition rates from radiocollared females during early June 00, and estimated early survival of calves from radiocollared females during late June 00.

3. Conducted calving ground surveys by flying established transects during mid June 00.

Segment Period Costs

	Personnel	Operating	Total
Planned	159.2	88.0	247.2
Actual	86.0	77.4	163.4
Difference	73.2	10.6	83.8

***Explanation*:** There was underexpenditure because poor weather resulted in the cancellation of the Porcupine Caribou Herd photocensus and of aerial surveys planned for the Rainy Pass Caribou Herd. Also, use of state aircraft and unusually good aerial survey conditions caused lower than expected costs for conducting aerial surveys and a photocensus for the Delta Caribou Herd. No costs were incurred for the Galena Mountains Caribou Herd because the Koyukuk National Wildlife Refuge covered the costs of winter aerial surveys.

Maternity leave, retirement, and short-term position vacancies contributed to the under-expenditure in personnel funds. Also, there was greater than expected proportion of time devoted to Fish and Game fund activities, primarily the March 2000 Board of Game meeting.

Submitted by

Roy Nowlin
Regional Management Assistant

David James
Management Coordinator

Project Title: **Western Alaska Caribou Management**

Project Location: Unit 18 (42,000 mi^2)
Kilbuck Herd

Project Objectives

1. Allow for continued increase in the number of caribou in Unit 18.

    a. Estimate herd size and demography of caribou in the Kilbuck Mountains.

    b. Determine the extent of movement and distribution of the Kilbuck Herd and range overlap with the Mulchatna Herd.

    c. Minimize the impact of harvest on the Kilbuck Herd when Mulchatna Herd caribou are available.

    d. Adjust harvest levels after the Kilbuck herd reaches 3000.

    e. Allow for more liberal seasons and bag limits when the population exceeds 5000 and when substantial numbers of animals from the Mulchatna herd move into Unit 18.

2. Reduce the magnitude of illegal harvest of caribou in Unit 18.

3. Continue working within the Kilbuck Caribou Herd management plan in cooperation with the public and other agencies.

Work Accomplished During the Project Segment Period: We continued the cooperative study with the Yukon Delta National Wildlife Refuge, which was initiated in 1986. Radiotelemetry flights were conducted at periodic intervals to monitor caribou distribution. Several radio collars were deployed.

No censuses have been completed since 1994 because Mulchatna Herd caribou have overwhelmed the smaller Kilbuck Herd. These two herds have mixed to the extent that during most of the year, one herd cannot be distinguished from the other.

During radiotelemetry flights we estimated that over 25,000 caribou, mostly from the Mulchatna Herd, have been present in the Kilbuck Mountains.

We conducted a composition survey in October 1999. During the survey we classified 1865 caribou, including 1102 cows, 187 calves, 341 small bulls, 147 medium bulls, and 88 large bulls. Most, if not all, of the caribou classified were from the Mulchatna Herd; these data were pooled with other Mulchatna Herd data.

Harvest information is derived from harvest reports. Unit 18 hunters use these reports so infrequently that the information derived from them is misleading. To improve compliance with the reporting

requirement, we initiated an incentive program involving a prize drawing. We will evaluate the effectiveness of this program within 2 or 3 years.

Progress Meeting Project Objectives: We have not conducted a census of the Kilbuck Herd since 1995 because the Mulchatna Herd has thoroughly mixed with the Kilbuck Herd. The confounding influence of this mixing would make any Kilbuck Herd census difficult to assess.

The influx of caribou from the Mulchatna Herd allows liberal seasons and bag limits, and this situation makes illegal take of Kilbuck caribou less likely and a lowered biological concern. However, compliance with the use of harvest tickets is still poor, and our ability to accurately assess the magnitude of the harvest is compromised. Promoting better use of these tools is a major goal.

Support by the village governments and other agencies for caribou management in the Kilbuck Mountains has been greatly enhanced through the cooperative management planning process. Several village councils and AVCP have drafted resolutions in support of the cooperative management plan. This process has continued to provide a valuable platform for cooperative management through this reporting period.

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

Project Objectives

1. Maintain a minimum population size of 200,000 caribou.

    a. Conduct a photocensus every 2–3 years to estimate population size.

    b. Conduct periodic radiotracking flights to monitor herd distribution and mortality.

    c. Maintain a year-end sample size of at least 100 operational radio collars on living caribou.

    d. Conduct aerial surveys during April and May to assess short yearling recruitment.

    e. Conduct aerial surveys during early June to monitor initial calf production and the distribution of calving caribou.

    f. Conduct aerial surveys during October to assess herd composition, retrieve radio collars, and collect clinically diseased caribou for diagnoses.

    g. Collect approximately 100 blood samples annually to monitor the incidence of diseases and pathogens.

    h. Monitor hunting and other mortality factors through harvest reporting and public contacts.

2. Improve public communication.

    a. Reduce unreported harvests.

    b. Involve students in the Onion Portage collaring project as part of our educational program.

    c. Facilitate the exchange of information between managers and hunters.

3. Minimize conflicts between caribou and the reindeer industry.

    a. Conduct radiotracking flights to monitor the distribution of caribou near reindeer ranges.

    b. Notify the Reindeer Herders Association of the location and movements of satellite-collared caribou near reindeer ranges.

4. Monitor the distribution and movements of caribou near the Red Dog Mine, Port Site and Road to assess impacts and minimize conflicts with industrial development.

5. Improve the accuracy of harvest data for the WAH.

    a. Cooperate with Subsistence Division staff to collect harvest data using community harvest assessment techniques for selected villages within the range of the WAH. The intent of this program is to eventually estimate total caribou harvest by rural residents within the range of the WAH.

    b. Issue reminder letters to nonlocal hunters who hunt WAH caribou under the statewide harvest ticket system and fail to voluntarily report the results of their hunt.

6. Continue to develop a comanagement process for this herd with native groups, sport hunters, commercial operators, federal agencies, Fish and Game advisory committees, regional advisory councils and other interested parties.

    a. Continue electing representatives to a WAH cooperative management working group.

    b. Update the WAH management plan.

Work Accomplished During the Project Segment Period: We finished the photocensus that was initiated in July 1999. The final estimate for the WAH was 430,000 caribou.

During September 1999, 30 caribou were instrumented with radio collars near Onion Portage on the Kobuk River (20 conventional collars and 10 satellite collars). Staff from our Nome, Kotzebue, Fairbanks, and Barrow offices conducted numerous telemetry relocation flights. In addition, Gates of the Arctic National Park and Preserve chartered radio telemetry relocation flights in the central Brooks Range. Flights were conducted in Units 21D, 22, 23, 24 and 26A. We conducted numerous telemetry relocation flights on the central and eastern portions of the Seward Peninsula during this reporting period to minimize conflicts between caribou and the reindeer industry.

We conducted composition surveys during October 1999, and based on a sample of 8210 caribou, the following ratios were observed: 47 calves:100 cows and 49 bulls:100 cows. Aerial recruitment surveys in Unit 23 were conducted during April and May 2000. We counted 10,127 caribou and observed 18 short yearlings:100 adults. Calving ground surveys were completed during June 2000 in the northern foothills of the Brooks Range, southern portion of the North Slope, Noatak River drainage, and northern Nulato Hills. Calf production was 69 calves:100 cows.

Harvest was monitored using the WAH registration permit system for local residents and the statewide harvest ticket system for nonlocal residents and nonresidents. In addition, community harvest estimates were conducted for caribou and other wildlife species in Elim, Kiana, Noatak, Selawik, Shaktoolik, and White Mountain during late winter and spring 2000. Compliance with reporting requirements is low for nonlocal hunters, and especially low for local hunters. Therefore, all harvest data represent minimum counts. Subsistence hunters are estimated to take approximately 20,000 caribou within the range of this herd annually, and sport hunters 1000–3000 caribou.

We continued to fund meetings and provide support to the Western Arctic Caribou Herd Working Group. The group is discussing and planning comanagement of the herd with local residents within the range of the herd, private organizations, federal land management agencies, guides, local state advisory committees, and federal regional councils. The Working Group met in Nome in January 2000 to establish membership and voting rights, draft charter, draft bylaws, and to establish other administrative procedures. Department staff provided a report on the status and distribution of the herd to the group.

Progress Meeting Project Objectives: We maintained a year-end sample size of >100 radio-collared caribou in the WAH during the reporting.

Project Location: Unit 26A (53,000 mi^2)
Teshekpuk Lake Caribou Herd

Project Objectives

1. Maintain a stable or increasing population for the Teshekpuk Lake Herd (TLH) and provide for hunting on a sustained yield basis.

    a. Determine the herd population size every 2–3 years.

    b. Determine calf production and the percentage of calves surviving their first winter.

    c. Delineate the calving grounds each year.

    d. Identify and map the herd's movements and distribution throughout the year, using survey and radiotelemetry data.

    e. Develop a system to capture caribou without the use of drugs.

f. Encourage local participation in research and management decisions.

g. Determine the extent of the harvest using methods that are acceptable to hunters as well as the participating agencies.

h. Determine sources of significant nonhunting mortality.

2. Provide educational opportunities for students and other members of the public.

3. Minimize conflicts with industrial development.

   a. Use satellite and VHF radio collars to monitor the distribution and movements of caribou near areas of potential industrial development to assess impacts.

   b. Define critical caribou habitat areas, such as calving, insect relief, and wintering areas, in Unit 26A using aerial survey information and locations from satellite collars.

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

Work Accomplished During the Project Segment Period: Photographs were taken for a photocensus during July 1999 and were analyzed during the winter. The number of caribou counted was 28,113. Previous censuses in 1989 (16,649 caribou), 1993 (27,686 caribou), and 1995 (25,076 caribou) show the TLH increased at a rate of 14% per year during the period 1989–1993, and since then the herd has stabilized or increased slightly. Department staff and the North Slope Borough Department of Wildlife Management (NSB) conducted these censuses.

Short Yearling counts were flown on 10, 11, and 25 April 2000. We used a Cessna 185 to radiotrack and observe 21 collared cows, 7 of which had short yearlings at heel (33 short yearlings:100 cows). We also classified 1985 caribou in the areas surrounding the collared animals and counted 1591 adults and 394 short yearlings. The short yearling count represents 20% short yearlings or 25 short yearlings:100 adults, very similar to the 1998 and 1999 short yearling results.

Calving surveys were flown from 2–14 June 2000. We located 29 collared cows and 20 of these had calves at heel, for 69% calving success. Most of the calves were born after 7 June, slightly later than normal. This year, collared caribou that had calves at heel were scattered around Teshekpuk Lake, with a concentration to the southeast of the lake. There were also a few collared caribou with calves at heel far to the west of the lake. During most years a greater percentage calves east or northeast of the lake. A late snow melt-off seemed to hold the caribou farther south.

In a cooperative effort with the NSB and BLM, we captured 20 caribou north of Teshekpuk Lake between 8–10 July 2000. Using a Hughes 500 helicopter with a skid-mounted net gun, we netted the caribou and restrained them using a blindfold and hobble ropes. We attached 5 satellite and 12 VHF radio collars to aid in population, productivity, and movement studies. We collected blood, fecal, and hair samples, and measured, weighed, and assessed the body condition of the captured caribou.

We conducted composition surveys on 10 July 2000 using a Hughes 500 helicopter to fly a transect between Barrow and Teshekpuk Lake. We classified 3943 caribou and saw 1858 cows, 908 bulls, and 1177 calves. We counted 63 calves:100 cows and 49 bulls:100 cows. The number of calves and bulls was in the midrange of what we have seen in past years.

We monitored the movements of 3 satellite-collared caribou, and they all stayed on the coastal plain all winter. Caribou 9808 (PTT8761) wintered between Wainwright and Atqasuk during 1999–2000, traveled back to Teshekpuk in June, and calved to the west of the Lake. Caribou 9809 (PTT8762) also wintered between Wainwright and Atqasuk, traveled to Teshekpuk, and calved to the south of the lake in early June. The satellite transmitter on caribou 9705 failed in fall of 1999. At the time, 9705 was north of Atqasuk. All three collars (9705, 9808, 9809) were removed from the caribou during collaring operations in July 2000. One caribou (9705) was refitted with a VHF collar. Five new satellite collars (0012, 0013,0014, 0015, 0016) were placed on caribou 8–10 July 2000.

We analyzed current and past radio collar data to determine mortality rates. For the past 10 years, mortality has averaged 15%. Mortality among the collared caribou was 6% during 1999–2000. This is a very low mortality compared to most other years.

Progress Meeting Project Objectives: Nearly all of the management objectives are being met. We took photographs during July 1999 for a photocensus and counted them during the winter. During 1999–2000 we completed summer composition counts, short yearling counts, and calving location and success surveys. We used radio collar data to determine mortality rates. Caribou were captured and radio collars were attached without our using drugs. We relocated caribou with VHF radio collars several times during the year and obtained detailed movement information from satellite radio collars. We will continue to monitor caribou movements and use this information to determine critical habitat areas.

Students from North Slope schools were given educational opportunities for learning research techniques for monitoring caribou movements and populations. Barrow and Anaktuvuk Pass students used satellite collar locations to plot the movements of caribou through fall and winter.

We worked with the North Slope Borough to develop a more effective harvest monitoring system that entailed having harvest monitors in each village. The number of caribou reported harvested in Anaktuvuk Pass, Atqasuk, and Nuiqsut during 1994–1995 were 311, 187, and 249 respectively. It is impossible to determine how many of these were from the TLH.

Segment Period Project Costs:

	Personnel	Operating	Total
Planned	207.1	180.0	387.1
Actual	170.7	165.4	336.1
Difference	36.4	14.6	51.0

Explanation: Staff vacancy in Unit 23 contributed to excess personnel costs. Operating costs were lower than planned because we used a state-owned aircraft with lower operating costs in place of a more expensive leased aircraft for caribou surveys.

Submitted by

Peter Bente
Survey-Inventory Coordinator

The Federal Aid in Wildlife Restoration Program consists of funds from a 10% to 11% manufacturer's excise tax collected from the sales of handguns, sporting rifles, shotguns, ammunition, and archery equipment. The Federal Aid program allots funds back to states through a formula based on each state's geographic area and number of paid hunting license holders. Alaska receives a maximum 5% of revenues collected each year. The Alaska Department of Fish and Game uses federal aid funds to help restore, conserve, and manage wild birds and mammals to benefit the public. These funds are also used to educate hunters to develop the skills, knowledge, and attitudes for responsible hunting. Seventy-five percent of the funds for this report are from Federal Aid.

ADF&G