Northern Alaska Peninsula Caribou Herd Management Report and Plan, Game Management Units 9C and 9E:

Report Period 1 July 2017–30 June 2022, and Plan Period 1 July 2022–30 June 2027

Amy M. Vande Voort

Evelyn M. Lichwa



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PREPARED BY:

Amy M. Vande Voort Area Wildlife Biologist <u>Evelyn M. Lichwa</u> Assistant Area Wildlife Biologist

APPROVED BY:

<u>Todd A. Rinaldi</u> Management Coordinator

REVIEWED BY:

Manny Eichholz Assistant Regional Management Coordinator

PUBLISHED BY:

June C. Younkins Publications Coordinator

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Alaska Department of Fish and Game Division of Wildlife Conservation PO Box 115526 Juneau, AK 99811-5526



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Species management reports and plans provide information about species that are hunted or trapped and management actions, goals, recommendations for those species, and plans for data collection. Detailed information is prepared for each species every 5 years by the area management biologist for game management units in their areas, who also develops a plan for data collection and species management for the next 5 years. This type of report is not produced for species that are not managed for hunting or trapping or for areas where there is no current or anticipated activity. Unit reports are reviewed and approved for publication by regional management coordinators and are available to the public via the Alaska Department of Fish and Game's public website.

This species management report and plan was reviewed and approved for publication by Todd A. Rinaldi, Management Coordinator for Region IV for the Division of Wildlife Conservation.

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Purpose of this Report

This report provides a record of survey and inventory management activities for caribou (*Rangifer tarandus granti*) in Game Management Units 9C and 9E for the 5 regulatory years 2017–2021 and plans for survey and inventory management activities in the next 5 regulatory years, 2022–2027. A regulatory year (RY) begins 1 July and ends 30 June (e.g., RY17 = 1 July 2017–30 June 2018). This report is produced primarily to provide agency staff with data and analysis to help guide and record agency efforts but is also provided to the public to inform it of wildlife management activities. In 2016 the Alaska Department of Fish and Game's (ADF&G, the department) Division of Wildlife Conservation (DWC) launched this 5-year report to report more efficiently on trends and to describe potential changes in data collection activities over the next 5 years. It replaces the caribou management report of survey and inventory activities that was previously produced every 2 years.

I. RY17–RY21 Management Report

Management Area

The range of the Northern Alaska Peninsula caribou herd (NAP) is approximately 19,000 mi² from the Naknek River drainage southwest to Port Moller, including the high elevations of the Aleutian Range (Fig. 1). The Alaska Peninsula is bordered on the northwest by the Bering Sea and on the southeast by the Pacific Ocean. The Bristol Bay coastal plain along the Bering Sea consists of flat to rolling tundra, lakes, shrub habitat, and poorly drained meadows. The Pacific Ocean side consists of mountainous terrain with steep faces and cliffs, sandy beaches, shrub habitat, and sedge meadows. The Aleutian Mountain Range, which separates these areas, is characterized by glaciated mountains, steep canyons, and several active volcanoes. This area is identified as the Alaska Peninsula Ecotone. Weather is typically windy with low visibility, and there are relatively mild winter temperatures with little snow accumulation except at higher elevations. Storms are frequent year-round.

NAP caribou traditionally calve between the Ugashik and Bear rivers on the Bristol Bay coastal plain in 5 primary areas (Cinder River, Meshik River, Ilnik River, Bear River, and Sandy River calving areas). Some calving is dispersed throughout the Aleutian Range. The use of calving areas has varied since the 1970s and has diminished in some areas as herd size has decreased.

Predators of caribou occur throughout the Alaska Peninsula at varying densities. Predators include bald eagles (*Haliaeetus leucocephalus*), brown bears (*Ursus arctos*), coyotes (*Canis latrans*), golden eagles (*Aquila chrysaetos*), wolverines (*Gulo gulo*), and wolves (*Canis lupus*).

Summary of Status, Trend, Management Activities, and History of Caribou in Units 9C and 9E

NAP is a relatively small but dynamic herd that ranges from the Naknek River drainage to Port Moller. This herd is important to residents of the Alaska Peninsula for food and nonconsumptive values such as viewing. Domestic reindeer herding was common during the first part of the 20th century on the Alaska Peninsula, ending circa 1945 when commercial salmon fishing became



Figure 1. Map of Unit 9 on the Alaska Peninsula, regulatory years 2017–2021.

much more economically lucrative for coastal villages. NAP caribou DNA is still marked by domestic introgression (Colson et al. 2014). Introgression is the movement of genes between species when hybridization is possible. This occurred when domestic reindeer escaped or were let loose and bred with NAP caribou.

POPULATION SIZE

Historically, the NAP population has cycled between peaks and crashes, as is typical and natural for caribou populations. Peaks of about 20,000 caribou occurred around 1899 and again in the early 1940s. A crash occurred during the late 1940s when the population dropped to about 2,000 caribou, but by 1963, the herd had increased to more than 10,000 animals (Skoog 1968). The first radiotelemetry-aided census in 1981 estimated 16,000 caribou (Sellers et al. 1998a).

With the NAP population at 20,000 caribou in 1984, the traditional boundary between the NAP wintering grounds and the Mulchatna caribou herd (MCH) wintering grounds began to blur. By 1986, a portion of NAP began annually wintering between the Naknek River and Lake Iliamna—far north of their traditional wintering grounds—with several thousand NAP animals moving into the area in some years (Sellers 1990, 1995). Biologists believed that excellent forage conditions north of the Naknek River would sustain NAP within the population objective of 15,000–20,000 caribou; however, at about the same time, up to 50,000 caribou from MCH also began wintering in this area (Sellers 1999). Given this change in winter distribution of both herds and the increasing competition for winter forage, by the late 1980s, biologists decided that NAP should be maintained at the lower end of the management objective (i.e., 15,000 caribou). Ultimately, a population objective of 12,000–15,000 caribou was adopted (Sellers 2003). The Board of Game (the board) adjusted the population objective for NAP in 2010 (5 AAC 92.108) to 6,000–15,000 caribou with an annual harvest objective of 600–1,500 caribou.

During RY93, a record harvest of 1,345 caribou occurred partly because of road and trail access from King Salmon and Naknek. Combined with natural mortality estimated at >30%, this reduced the NAP population from approximately 15,000 caribou to approximately 12,500 caribou. This herd continued to gradually decline to about 2,000 caribou by 2008 (Butler 2009) and experienced extremely poor recruitment from 2003 through 2008 because of poor calf production and survival. Although indications of nutritional limitations were still evident in 2007, predation became an increasingly important contributor to decreasing herd size.

POPULATION COMPOSITION

Population composition ratios varied widely as NAP increased and decreased in size (Butler 2009). From 1970 to 1980, when the herd was growing, the average fall calf-to-cow ratio was 50:100 (range = 45-56). From 1981 to 1994, when the population was near management objectives, the fall calf-to-cow ratio averaged 39:100 (range = 27-52). During the decline, the calf-to-cow ratio averaged 26:100 (range = 18-38 between 1995 and 2002). From 1990 to 2004, the bull-to-cow ratio averaged 41:100 (range = 34-49), but the ratio dropped to an average of 23:100 from 2005 through 2009 (range = 19-27) despite hunting closures. From 2003 through 2009, fall calf-to-cow ratios were the lowest ever recorded for this herd, with an average of 9:100. It was thought that poor calf recruitment since 2003 (caused by nutritional stress and predation) and the relatively short lifespan of bulls relative to cows decreased the bull-to-cow ratio in the herd (Butler 2009). Recruitment began improving in 2009, with ratios of calves per 100 cows and bulls per 100 cows slowly increasing from 2009 to the present.

HABITAT, NUTRITION, AND DISEASE

During the late 1980s and 1990s, there were multiple factors providing evidence that habitat on the NAP range was under moderate stress, including an observed depletion of lichens, low pregnancy rate, low calf weights, high prevalence of lungworms, nonuse or avoidance of traditional wintering grounds (except mild winters), and an observed increase in body size of the NAP caribou after being transplanted to ungrazed range on the Nushagak Peninsula (Sellers 1999, Sellers et al. 2000). Age-specific productivity was monitored during 1997–1999 (Valkenburg et al. 1996; Sellers et al. 1998a, b, 1999, 2000). Overall, this work demonstrated that the herd was under moderate nutritional stress. No 2-year-old females (n = 32) had produced calves, and only 33% of 3-year-olds (n = 18) had been pregnant. Overall pregnancy rates were relatively low at 57–78% for cows over 2 years of age during 2005–2008. In 2005, a herd health assessment identified heavy parasite loads, the presence of bovine respiratory disease complex, poor immune response, low levels of micronutrients, and chronic dehydration in animals examined (Beckmen and Hansen 2005). An experimental study to investigate the effects of parasite removal on body condition and calf production was conducted between 2005 and 2007. Analysis indicated that parasite removal increased pregnancy rates; however, the effects of parasite removal on body condition were not biologically significant (Riley 2011b).

As the population declined, NAP changed distribution patterns in winter and summer. By 2000, few NAP caribou moved north of the Naknek River into the MCH winter range. Calving became dispersed by 2004, with more of it occurring in mountainous terrain rather than the customary calving grounds between the Bear and Cinder rivers on the Bristol Bay coastal plain.

MORTALITY

Hunting on NAP caribou closed in 2005. As the population approached peak size, the average annual mortality rate (other than hunting mortality) for collared cows during 1980–1984 was approximately 7%. The average annual mortality rate increased to 18% during 1985–1989, when the herd numbered about 20,000 caribou. It increased to 25% during 1992–1998 as the population began declining. Annual mortality rates of adult females ranged 7–18% during 2001–2003.

During a 1998 calf mortality study, 35% of radiocollared calves (n = 37) died during their first month of life (Sellers et al. 1998a). Predators (primarily brown bears, bald eagles, and wolves) caused most of the mortality of calves <2 weeks old, but disease was an important mortality factor in calves >3 weeks old. During the 2005–2007 study, 60% of radiocollared calves died during the first 2 weeks of life, primarily due to predation by wolves and brown bears (Butler 2009). Calf mortality remained high between 2 weeks and 4 months of age (66% mortality), but the cause of the late calf mortality is unknown. Evidence that large predators were present at mortality sites was found. Still, scavenging could not be distinguished from predation due to the large time interval between calf mortality and site investigation (typically \geq 1 month).

INTENSIVE MANAGEMENT

In response to the declining population, biologists evaluated intensive management (IM) options for NAP in 1999, 2004–2005, and 2007–2009, concluding that no viable solutions existed to

alter the status of the herd (Butler 2009). A Tier II hunt, a drawing hunt limited to resident subsistence hunters only, was instituted in 1999 to restrict human harvest; however, by 2005, hunting was closed entirely and remained closed until 2016, when a Tier II hunt was reinstated. The major impediments to creating a successful IM plan included apparent nutritional limitations and predator control restrictions imposed on federal lands. In March 2011, the board authorized a predator control program to remove all wolves from calving areas under the IM law that became active in RY11. During RY11–RY14 under the IM program, 15 wolves were taken by same-day-airborne pilots while 179 wolves were harvested under regular hunting and trapping regulations. Low wolf harvests under the IM program were attributed to inclement weather, lack of snow, formidable logistics, and prohibited access to federal lands. Annual reports to the board about the IM program for this herd are available on the ADF&G website.¹

Management Direction

ADF&G manages caribou using the sustained yield principle and the best scientific knowledge available for the benefit of the resource and the people of Alaska.

EXISTING WILDLIFE MANAGEMENT PLANS

- Alaska Wildlife Management Plans: A Public Proposal for The Management of Alaska's Wildlife: Southwestern Alaska (ADF&G 1976).
- *Strategic Plan* (ADF&G 2002).

GOALS

The primary goals for NAP are to 1) protect, maintain, and enhance the herd and its habitat and 2) provide the greatest sustained opportunity to hunt and harvest caribou for human consumption.

Providing a population level adequate for sustainable harvest also provides for other uses, such as viewing and photography. These goals outline the division's role when faced with land use practices that may put a caribou herd at risk, such as mining or reindeer herding.

CODIFIED OBJECTIVES

Amounts Reasonably Necessary for Subsistence Uses

The amount reasonably necessary for subsistence (ANS) for NAP (1,200–1,900 caribou; 5 AAC 99.025) was determined when the population was near its highest level, with corresponding record-high harvests. It is, therefore, inappropriately high and will not be achieved during most of this herd's population cycle of approximately 40–50 years.

¹ www.adfg.alaska.gov/index.cfm?adfg=intensivemanagement.unit9c9e#anchor.

Intensive Management

The IM program for NAP (5AAC 92.111 [b]) was renewed at the board meeting on 24 January 2022. It is currently inactive due to low wolf harvest from the lack of snow for tracking and spotting wolves, poor flying conditions, expensive logistics, remoteness, limited state land, and the availability of other programs (e.g., in neighboring Unit 17). Same-day-airborne programs require considerable staff time even if permitted teams choose not to participate. Annual reports about the IM program to the board are available on the ADF&G website.²

MANAGEMENT OBJECTIVES

- Maintain a population of 6,000–15,000 caribou. This range objective recognizes the relatively limited extent of habitat on the Alaska Peninsula and the precipitous crashes following peaks of 20,000 caribou that occurred both historically and recently.
- Maintain an October bull-to-cow sex ratio of at least 35:100.

MANAGEMENT ACTIVITIES

1. Population Status and Trend

ACTIVITY 1.1. Conduct a fall composition survey to estimate sex and age ratios, trend, productivity, and mortality.

Data Needs

ADF&G staff use the fall composition survey to monitor bull-to-cow ratio, abundance, and percent of bulls in the population (to determine harvest quota), to provide maximum hunting opportunity, and to feed our population simulation model. Calf parameters are also used in the model and to monitor productivity and survival. A decline in calf-to-cow ratio to <10:100, coincident with a similar decline in bulls, may trigger a calf mortality study. This activity was used in the past on this herd but not anticipated in the next 5 years. In the absence of postcalving aggregations at low population density, composition surveys have provided a means to monitor population trend.

Methods

Aerial surveys were conducted each October to assess population composition. Fixed-wing aircraft pilots located caribou groups through radiotelemetry, and biologists aboard a helicopter defined the composition of each group (cow, calf, yearling, and bull; small, medium, or large). Survey comprehensiveness was assessed using the proportion of radiocollared caribou encountered relative to the total radiocollared caribou. Composition data were entered into a deterministic computer model to assess and predict herd dynamics and size.

² http://www.adfg.alaska.gov/index.cfm?adfg=intensivemanagement.main.

Results and Discussion

ADF&G staff conducted composition surveys during RY18–RY21 (Table 1). Only the northern half of the NAP range was flown in 2019 due to weather conditions. The proportion of bulls observed in the population increased from the last report period (RY12–RY16), from an average bull-to-cow ratio of 41:100 to 60:100 (Fig. 2), exceeding the minimum bull-to-cow objective of 35:100 each year. Calf-to-cow ratios also increased from an average of 26:100 during the previous report period to an average of 36:100.

Table 1. Northern Alaska Peninsula caribou herd composition, population counts, a	nd
predicted population size, regulatory years 2017–2021, Alaska.	

Regulatory	Bulls:100	Calves:100	Percent	Percent	Percent	Sample	Model-predicted
year	cows	cows	calves	cows	bulls	size	population size
2017	_	—	_	_	_	_	3,181
2018	72	35	17	48	35	1,118	3,463
2019	53	34	18	54	28	1,203	3,595
2020	55	33	18	53	29	1,971	3,642
2021	61	42	21	49	30	2,494	3,852

Note: En dashes indicate no data. No survey was conducted in RY17 due to weather conditions.



Figure 2. The Northern Alaska Peninsula caribou herd bull-to-cow and calf-to-cow ratios, 2000–2021, Units 9C and 9E, Alaska.

Using survey results as input parameters, the predicted population size continued to increase during RY17–RY21 (Table 1). The computer model provided more consistent results for population size than adjusting sample size with collar detection rate as a population index

because sample size can vary widely depending on flying conditions. The model also utilized pregnancy rates, survival rates, and caribou harvest.

Recommendations for Activity 1.1

Continue.

ACTIVITY 1.2. Conduct a parturition survey to estimate pregnancy rates and a minimum population count.

Data Needs

Pregnancy rate indicates reproductive potential and nutritional condition of cows. ADF&G staff will consult a biometrician to define sample size, precision, and statistical power of pregnancy rate (e.g., binomial confidence interval) and present these values in future reports.

Methods

Parturition surveys were flown in late May or early June in attempts to sample at least 25% of this herd. Fixed-wing charter pilots located caribou groups through radiotelemetry, and ADF&G biologists aboard a helicopter counted and determined the composition and pregnancy status of each sample. Observers classified caribou on the calving grounds as a parturient cow (with calf, hard antlers, or distended udder), a nonparturient cow, a yearling, or a bull (Whitten 1995). Biologists also observed radiocollared females for the potential of documenting age-specific pregnancy rates.

Results and Discussion

ADF&G biologists flew parturition surveys each year of this report period except RY19 (Fig. 3). Pregnancy rates increased from the previous report period, allowing for continued population growth.

Previous ADF&G staff observed a difference in the phenology of calving periods between NAP, in which most calves were too old to capture on foot at the end of May, and the southernmost Unimak caribou herd, in which calving was just starting. Plant phenology observed south of Port Moller in the 1980s was substantially later than that of NAP range north of Port Moller (Pitcher et al. 1990).

Recommendations for Activity 1.2

Continue.

ACTIVITY 1.3. Capture caribou to deploy radio collars and maintain an adequate number of collared animals.

Data Needs

Maintain an adequate number of collared animals to locate adequate sample sizes and obtain a herdwide distribution during surveys, particularly when the herd is at low density. With a growing population such as NAP, whether to set and maintain an upper limit of marked animals



Figure 3. Northern Alaska Peninsula caribou herd natality rate, 95% binomial confidence intervals, and sample size, 2003–2021, Units 9C and 9E, Alaska.

or a proportion of collared animals in the population must be decided. An upper limit of 50 marked animals may be appropriate given the geographic limitation on the peninsula and minimal seasonal movements of the NAP caribou. We will not fully know the required upper limit of marked animals until the population increases to the management objective size. In the meantime, maintaining 30–40 marked cows in the population is adequate for other management activities.

Methods

Caribou cows were captured and marked with radio collars during 2019 and 2020. Standard morphometric measurements and blood samples were taken during each capture using standard techniques approved by the ADF&G DWC Institutional Animal Care and Use Committee (IACUC). Caribou were immobilized by ADF&G staff from an R-44 helicopter with a fixed-wing spotter airplane to observe the animal from a distance.

Results and Discussion

ADF&G staff collared 13 adult female caribou in March 2019 with Vectronics VHF radio collars. Adult female caribou were again targeted in a capture during February 2020, wherein 5

cows were fitted with VHF radio collars and 20 cows were fitted with GPS-enabled radio collars. $^{\rm 3}$

Recommendations for Activity 1.3

Continue.

ACTIVITY 1.4. Repeat a calf mortality study as needed to determine factors limiting calf survival.

Data Needs

Calf survival is an index of recruitment into the population and is used in a model to predict population size and trend. An assessment of calf predators is important in developing IM projects if those are necessary to manage a caribou population more aggressively.

Methods

No calf mortality work was completed.

Results and Discussion

Given the current status of NAP, including increasing size and a sustainable calf-to-cow ratio, we do not anticipate conducting further calf mortality studies within the next 5 years. Calf mortality was evaluated intensively on this herd as its population bottomed out, and as expected, brown bears and wolves were the primary predators of caribou calves (Butler et al. 2007, Riley 2011a). An IM program for reducing brown bears, which are managed for trophy hunting on the peninsula, is not feasible for social and biological reasons. A recent IM program that included aerial gunning aimed at reducing wolf numbers was unsuccessful; therefore, future study of calf mortality in this herd should be given careful cost-benefit analysis given the expense of fieldwork on the Alaska Peninsula.

Recommendations for Activity 1.4

Discontinue.

2. Mortality-Harvest Monitoring and Regulations

ACTIVITY 2.1. Monitor caribou harvest through hunter harvest reports and contact with hunters and guides.

Data Needs

This is a routine management activity for most caribou herds in Southcentral and Southwestern Alaska. Harvest data are an important component of managing NAP for sustained yield.

Methods

A Tier II hunt was in place during RY17–RY21, with 200 permits offered initially and an increase to 300 permits by the end of the reporting period. Hunters were required to report

³ The term *VHF* refers to very high frequency, and the term *GPS* refers to Global Positioning System.

whether they hunted or not and whether they were successful. Data was entered into ADF&G's Wildlife Information Network system to track annual harvest.

Season and Bag Limit

The Tier II season for residents in Unit 9C (south of the north bank of Naknek River) was 10 August–10 October and 1 November–28 February. In Unit 9E, the Tier II season for residents was 10 August–10 October and 1 November–30 April. Hunters in both units were limited to 1 caribou.

Results and Discussion

Harvest by Hunters

Harvest remained well below the ANS harvest objective (Table 2), and this herd continued to grow. An increase in Tier II permits did not increase harvest, strengthening the argument that the ANS is set too high. Harvest rates appear more related to weather and accessibility to this herd during winter months.

2016–2021, Alaska.									
Reported harvest									
Regulatory					Total	Estimated	Estimated		
year	Bulls	Percent bulls	Cows	Unknown	reported	other ^a	total		
2016	74	90%	8	0	82	20	102		
2017	42	72%	16	0	58	20	78		
2018	67	86%	11	0	78	20	98		
2019	75	93%	5	1	81	20	101		
2020	44	77%	13	0	57	20	77		

1

Table 2. Units 9C and 9E Northern Alaska Peninsula caribou harvest, regulatory years2016–2021, Alaska.

^a Other sources of human-caused mortality include wounding loss, unreported harvest, and illegal harvest. *Source*: Data pulled from the division's Wildlife Information Network system on 22 March 2023.

1

Permit Hunts

2021

The Tier II hunt for residents only (TC505) was the sole permit issued for NAP caribou during RY17–RY21.

Hunter Residency and Success

48

96%

The majority of hunters were residents of Units 9C and 9E. Only 5% of hunters were Alaska residents who resided outside the hunt units. Success rates ranged from 43% to 62% during RY17–RY21. Of the total successful hunters during the reporting period, only 3% were residents who resided outside Units 9C and 9E.

Harvest Chronology

Harvest predominantly occurred during the winter months, December through February, with approximately 44% of the harvest occurring during that period (Fig. 4).

50

20

70



Figure 4. Northern Alaska Peninsula caribou harvest percent by month, regulatory years 2017–2021, Units 9C and 9E, Alaska.

Transport Methods

The primary mode of transportation during RY17–RY21 was a 3- or 4-wheeler. The second highest mode of transportation was a snowmachine.

Other Mortality

None.

Alaska Board of Game Actions and Emergency Orders

The board authorized a Tier II hunt on NAP, which opened in the fall of 2016 and remained open during RY17–RY21.

Recommendations for Activity 2.1

Continue.

3. Habitat Assessment-Enhancement

ACTIVITY 3.1. Evaluate range condition through body condition assessment of captured females and pregnancy rates.

Data Needs

Body condition is an index to caribou nutritional status and range health.

Methods

ADF&G staff usually capture NAP caribou every few years; however, during this reporting period, body condition was assessed on adult caribou females during captures in March 2019 and February 2020. Body condition is a subjective ranking from 1 (emaciated) through 5 (obese) based on palpation of soft tissue at the withers, ribs, and hips (Gerhart et al. 1996); warble load (low, medium, or high); and agreement by ADF&G staff working on each animal.

Results and Discussion

ADF&G staff captured and collared adult female caribou in 2019 and 2020. Body condition and warble loads were assessed, and the majority were given an average to good body condition score with low warble loads. All adult cows in 2019 had an average to good body condition. Adult cows in 2020 also had an average to good body condition except for 2 cows of older age and in poor body condition. Few warbles were found during both capture years. These body scores, along with good parturition rates, suggest adequate health of the range to support a growing caribou herd.

Recommendations for Activity 3.1

Continue.

NONREGULATORY MANAGEMENT PROBLEMS OR NEEDS

Data Recording and Archiving

Digital data are backed up daily on an in-house server (O:\WC-DIV). Paper records are stored in file cabinets and on shelves in the area biologist and assistant area biologist offices. Archived records are stored in indexed and labeled boxes on the second floor of the new warehouse.

Agreements

There were no agreements with other agencies for caribou management in Units 9C and 9E during RY17–RY21.

Permitting

IACUC protocols were updated as needed for captures in 2019 and 2020.

Conclusions and Management Recommendations

The NAP population metrics indicated an upward population trend and improved bull-to-cow and calf-to-cow ratios during RY17–RY21. The herd remained below the population objective of 6,000–15,000 caribou set by the board in 2010 (5 AAC 92.108). Harvest also remained well below the ANS objective of 1,200–1,900 caribou. Harvest did not increase even with an increase in Tier II hunt permits to 300 by RY21. ADF&G recommends increasing Tier II permits to 600.

The department also recommends adjusting the ANS to <1,200 caribou because the ANS during the reporting period was based on population numbers and used when the NAP population was near its highest level, with corresponding record-high harvests. ANS would be more

appropriately determined based on the proportion of herd size and respective harvest quota. For example, with the current herd size, 100% of the harvest quota of 150 caribou is earmarked for state and federal subsistence hunters. The RY16 harvest of 88 caribou by subsistence hunters fell substantially shy of the lower ANS level of 1,200 caribou. Historically, a subsistence-only harvest of 1,200 caribou has been unnecessary for the residents of the Alaska Peninsula. The department will diligently work to keep the population within an ecologically sustainable level. The caribou population objective is 6,000–15,000 caribou, and the harvest objective is 600–1,500 caribou (5 ACC 92.108).

II. Project Review and RY22-RY26 Plan

Review of Management Direction

MANAGEMENT DIRECTION

ADF&G manages caribou on the sustained yield principle, using the best scientific knowledge available to benefit the resource and people of Alaska.

GOALS

The goals for Units 9C and 9E caribou management remain unchanged for RY22-RY26.

CODIFIED OBJECTIVES

Amounts Reasonably Necessary for Subsistence Uses

The ANS set for NAP (1,200–1,900 caribou; 5 AAC 99.025) was determined when the population was near its highest level, with corresponding record high harvests, and is therefore inappropriately high and will not be achieved during most of this herd's population cycle of approximately 40–50 years. ANS would be more appropriately determined based on the proportion of herd size and respective harvest quota. For example, with the current herd size, 100% of the harvest quota of 150 caribou is earmarked for state and federal subsistence hunters. Even with an increase to 300 Tier II permits throughout RY17–RY21, the RY21 harvest of 47 caribou by subsistence hunters fell substantially short of the lower ANS level of 1,200 caribou. Historically, a subsistence-only harvest of 1,200 caribou has been unnecessary for the people of the Alaska Peninsula.

Intensive Management

The IM program for NAP (5AAC 92.111 [b]) was reauthorized at the board meeting on 24 January 2022 and expires on 30 June 2031. Previous IM programs were suspended due to a lack of participation and harvest. The board set the following objectives for NAP in 2010 (5 AAC 92.108):

- Population size of 6,000–15,000 caribou.
- Annual harvest of 600–1,500 caribou.

MANAGEMENT OBJECTIVES

The management objectives for Units 9C and 9E caribou remain unchanged for RY22-RY26.

REVIEW OF MANAGEMENT ACTIVITIES

1. Population Status and Trend

ACTIVITY 1.1. Conduct fall composition surveys to estimate sex and age ratios, trend, productivity, and mortality.

Data Needs

Fall composition survey data is used to monitor bull-to-cow ratios and total overall numbers to determine harvest quota, provide maximum hunting opportunity, and provide input to the population model. Traditional population surveys have not been practical in Units 9C and 9E because caribou do not group up enough to get an accurate count. A calf-to-cow ratio is also obtained to monitor productivity and survival and is an important input into the population model. A decline in calf-to-cow ratio to <10:100 coincident with a similar decline in bulls triggered a calf mortality study on NAP (Activity 1.4 during the RY17–RY21 report period); however, this decline is not anticipated in the next 5 years. In the absence of postcalving aggregations at low population density, composition surveys have provided a means to monitor population trend.

Methods

Division biologists will conduct aerial surveys using fixed-wing aircraft to assess population composition in October each year. Pilots will locate caribou groups with radiotelemetry equipment, and biologists aboard an R-44 helicopter will determine the composition of each group (cow, calf, yearling, and bull; small, medium, or large). All caribou encountered during the survey will be included in the sample except for those collared caribou detected by radio signal without visual confirmation while in the clouds; therefore, sample sizes can be considered an index to population trends. Survey comprehensiveness will be assessed using the proportion of radiocollared caribou encountered relative to the total number of radiocollared caribou. Composition data will be entered into a deterministic computer model to predict herd dynamics and size.

ACTIVITY 1.2. Conduct parturition surveys to estimate pregnancy rates and obtain a minimum count.

Data Needs

Pregnancy rates indicate the reproductive potential and nutritional condition of cows.

Methods

Parturition surveys will be conducted using fixed-wing aircraft to locate animals and an R-44 helicopter with ADF&G observers to determine the composition and pregnancy status of each sample. Caribou will be classified as a parturient cow (with calf at heel, hard antlers, or distended udder), a nonparturient cow, a yearling, or a bull.

ACTIVITY 1.3. Maintain an adequate number of widely distributed collared caribou for locating animals during surveys.

Data Needs

This is a routine management activity to aid in locating animals during parturition and composition surveys to obtain adequate sample sizes. Maintaining 30–40 marked cows in the population has been adequate for management activities.

Methods

All caribou will be immobilized from an R-44 helicopter with a fixed-wing spotter airplane using standard techniques approved by IACUC and fitted with a radio collar.

2. Mortality-Harvest Monitoring

ACTIVITY 2.1. Monitor caribou harvest through hunter harvest reports and contact with hunters and guides.

Data Needs

Harvest data is an important component of managing NAP for sustained yield to determine harvest percentages and more accurate population modeling.

Methods

Harvest reporting will be required for all hunts.

3. Habitat Assessment-Enhancement

ACTIVITY 3.1. Evaluate range condition through body condition assessment of captured females and pregnancy rates.

Data Needs

Assessment of caribou body condition is an index to the nutritional status of the range. Pregnancy rates, which are obtained through parturition surveys, are also an indicator of habitat conditions.

Methods

Assessment of caribou body condition will be performed during captures and collaring. Body condition is a subjective ranking from 1 (emaciated) through 5 (obese) based on palpation of soft tissue at the withers, ribs, and hips; warble load; and agreement by ADF&G staff working on each animal. Annual parturition surveys will be conducted (Activity 1.2).

NONREGULATORY MANAGEMENT PROBLEMS OR NEEDS

Data Recording and Archiving

Data will be saved digitally to make data sharing and analysis more efficient. Work will also be done to digitize archived records to make them more accessible.

Agreements

No agreements with other agencies about caribou management in Units 9C and 9E are expected for RY22–RY26.

Permitting

Renew IACUC protocol permits as needed for captures.

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