

# **Chisana Caribou Herd Management Report and Plan, Game Management Unit 12 (and Adjacent Yukon, Canada):**

Report Period 1 July 2012–30 June 2017, and  
Plan Period 1 July 2017–30 June 2022

**Jeffrey J. Wells**





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Plan Period 1 July 2017–30 June 2022

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This species management report and plan was reviewed and approved for publication by Jason Caikoski, Management Coordinator for Region III 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 in Game Management Unit 12 for the 5 regulatory years 2012–2016 and plans for survey and inventory management activities in the next 5 regulatory years, 2017–2021. A regulatory year (RY) begins 1 July and ends 30 June (e.g., RY15 = 1 July 2015–30 June 2016). 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.

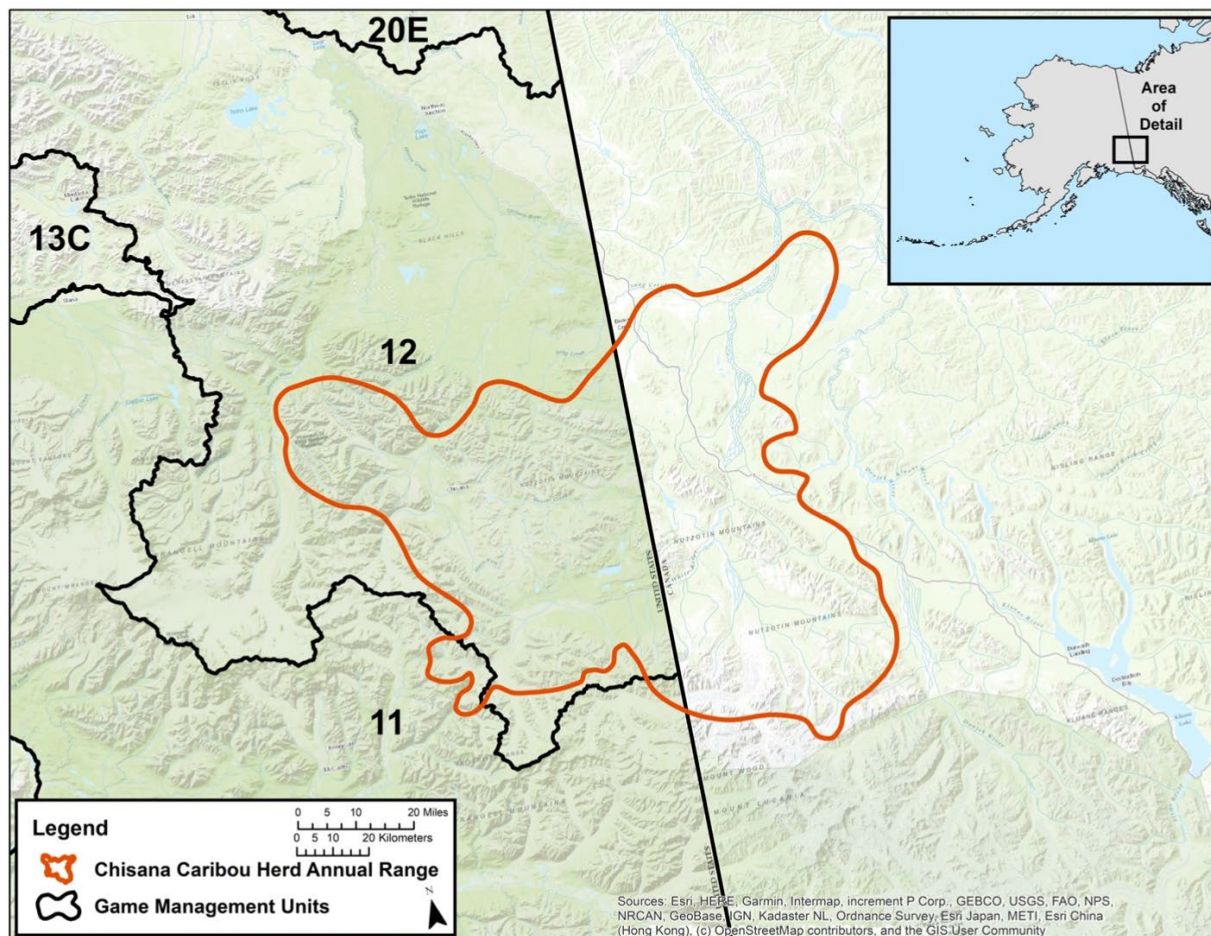
## **I. RY12–RY16 Management Report**

### **Management Area**

The annual range of the Chisana caribou herd (CCH) encompasses 4,865 mi<sup>2</sup> within the southeastern portion of Unit 12 in Alaska and adjacent portions of the Yukon, Canada (Fig. 1). Half of CCH is located within Alaska, and of this portion, most is within federally managed lands (primarily Wrangell-St. Elias National Park and Preserve) and fewer are within state- and privately-owned lands. Major drainages within the CCH range include the Chisana, White, and Donjek river systems. Elevations range from 2,000 to >8,000 ft at the highest peaks. Tree line varies but occurs between 3,400 and 4,000 ft. Lowland areas are dominated by white and black spruce with scattered stands of paper birch, aspen, and balsam poplar. Higher elevations are dominated by shrub communities, subalpine and alpine tundra, and glaciated areas. The climate is typical of Interior Alaska, where temperatures at lower elevations frequently reach from 70°F to 80°F in summer, down to -40°F in winter, and overall precipitation is relatively light. More information on the vegetation, topography, and climate within the CCH annual range can be found in Adams et al. (2019).

### **Summary of Status, Trend, Management Activities, and History of Caribou in Unit 12 (and Adjacent Yukon, Canada)**

Little is known about CCH population trends before the 1970s, but since then, CCH population size, and thus harvest, has fluctuated. In the late 1970s, the herd was estimated at approximately 1,000 caribou (Jennings 1979). During the 1980s, environmental conditions were favorable and the herd grew, and in 1989, the herd was estimated at 1,700–2,000 individuals (Kelleyhouse 1992). During the 1970s through the early 1990s, guided hunting was the primary consumptive use of the herd, and reported harvest peaked at 65 bulls in RY85 (Kelleyhouse 1992). Then, likely due to unfavorable weather and predation, the herd declined through the 1990s. As a result, beginning in RY94, licensed CCH hunting ceased in Alaska and the Yukon, in addition to a voluntary ban of First Nations harvest in Canada (Chisana Caribou Herd Working Group 2012). In 2002, the CCH population was estimated at 315 caribou (Farnell and Gardner 2003).



**Figure 1. Annual range of the Chisana caribou herd in Alaska and the Yukon Territory, and Game Management Unit boundaries in Alaska. Herd range is based on radio collar locations from 1988 to 2008 and survey observations by the U.S. Geological Survey and Environment Yukon from 1978 to 1983.**

However, following a more intensive population survey by the U.S. Geological Survey in 2003, the CCH population was estimated at 720 caribou, substantially higher than the 2002 estimate (Adams 2003). The 2003 population estimate suggests that significant numbers of caribou were missed during the 2002 survey (Adams et al. 2019). Herd size was again estimated in 2005, 2007, and 2010, and was generally considered stable, with estimates ranging from 682 to 766 individuals (Hegel et al. 2016). Licensed CCH harvest remained closed during this entire period and through RY11. Due to the remote nature and limited access to the herd's range, use of CCH for wildlife viewing is negligible.

In response to the population decline that occurred during the 1990s through the early 2000s, a captive rearing program was conducted by Environment Yukon (EY; formally Yukon Department of Environment) in the Yukon during 2003–2006. During this program, 20 to 50 pregnant female caribou were captured annually from March through April, held in a holding facility in the Yukon, and released from the holding facility after the calves were 5 weeks old. This program successfully increased the number of calves recruited into the population during



the program period and resulted in a small population increase (Adams et al. 2019). Since the captive rearing program and the research associated with it ended in 2008, management activities have been focused on annual fall composition counts, associated periodic population estimates, and periodic radiotracking flights.

## **Management Direction**

### **EXISTING WILDLIFE MANAGEMENT PLANS**

In 2012, a CCH management plan was completed that was meant to guide CCH management from 2010 through 2015 (Chisana Caribou Herd Working Group 2012), and initial communication between stakeholders and management agencies to update the plan began in 2018.

### **GOALS**

During RY12–RY13, the CCH management goal was as follows:

G1. Manage CCH for the greatest benefit of the herd and its users under the legal mandates of the managing agencies and landowners.

The CCH management goal was revised for RY14–RY16 to reflect the goal in the Chisana Management Plan (Chisana Caribou Herd Working Group 2012):

G1. Manage CCH for a stable or increasing population trend, within sustainable limits, and without significantly compromising herd health and habitat condition.

### **CODIFIED OBJECTIVES**

#### Amounts Reasonably Necessary for Subsistence Uses

The CCH has a negative customary and traditional use finding, as determined by the Alaska Board of Game (BOG, the board).

#### Intensive Management

The CCH has not been identified by the board as important for providing high levels of harvest for human consumptive use and has no intensive management objectives.

### **MANAGEMENT OBJECTIVES**

During RY12–RY16, CCH management objectives were as follows:

M1. Maintain fall calf recruitment above a 3-year average calf-to-cow ratio of 15:100.

M2. Maintain a fall bull-to-cow ratio above 35:100.

## MANAGEMENT ACTIVITIES

### 1. Population Status and Trend

ACTIVITY 1.1. Conduct periodic population surveys and annual fall herd composition surveys to determine sex and age.

#### *Data Needs*

Population estimates were necessary to evaluate the population trend as stable or increasing. Fall composition estimates were necessary to evaluate herd composition and were used to determine whether a limited bull harvest could occur. In addition, fall composition estimates helped evaluate population trends during years when population estimates were not completed.

#### *Methods*

The CCH population was estimated once during this reporting period in October 2013 via a cooperative effort between EY, the National Park Service (NPS), and ADF&G. The methods used were similar to those used during the 2003, 2005, 2007, and 2010 population surveys (Adams 2003; Adams and Roffler 2005, 2007). Marked radiocollared cows were used to develop a sightability model to account for animals missed during the composition survey. A presurvey radiotracking flight was conducted on 6 October 2013, and the locations of the active radio collars were used to focus survey efforts during the composition and population survey, which was conducted on 11–12 October. The radiotracking airplane located all active radiocollared cows during the survey and recorded the total group size associated with each radio collar. Concurrently, helicopter crews conducted a composition survey of the herd. A Robinson R44 helicopter was used on the Alaska portion of the survey on 11 October, while an AStar (AS350 B1) helicopter was used on the Yukon portion of the survey on 12 October. Helicopter crews searched the entire fall range of CCH based upon the distribution of the active radio collars in addition to movement data from previous surveys. Helicopter crews, which did not use radiotracking receivers when conducting the survey, noted the presence of radiocollared cows in observed groups. Caribou in observed groups were classified as calves, cows, or bulls. Bulls in Alaska were classified as small, medium, or large, while those in the Yukon were classified only as small or large. Groups with radiocollared cows that were initially missed by the helicopter crews were subsequently located based upon information from the radiotracking pilot, and the caribou in these groups were then classified. The difference between the total number of groups with radiocollared cows as determined by the radiotracking airplane versus the total number of groups observed by the helicopter crews was used to develop a sightability model and, ultimately, a total herd size estimate. Complete methods, including more information on the development of the sightability model, can be found in Hegel et al. (2016).

Fall composition surveys were completed annually during RY12–RY16 via cooperative efforts from EY, NPS, and ADF&G. These surveys followed similar methods to those described above, although the radiotracking airplane (when available) relayed the locations of groups with radiocollared cows directly to the helicopter crews to maximize the efficiency of the survey. The helicopter crews also searched for unmarked (no radio collar) groups, especially during the latter portion of the report period when fewer functional radio collars remained on live animals. Survey conditions varied from year to year throughout the report period.

### Fall 2012

Poor weather prevented completion of the Alaska portion of the survey. The Yukon portion was completed using a Bell L3 Long Ranger helicopter on 15 October, which arrived later than normal due to poor weather. Total flight time, including ferry time, was 6.6 hours. Weather conditions during the survey included scattered clouds to overcast with snow during the latter portion of the survey, which created more difficult sightability. Temperature was ~23°F, winds were light, and snow cover was approximately 8 in deep. No radiotracking airplane was available during this survey. The Koidern Mountain area could not be surveyed due to low cloud cover.

### Fall 2013

As described in the population estimate methodology, the composition survey was completed on 11–12 October. Sky conditions during both days of the survey were clear. Snow conditions were patchy in the Yukon, with approximately 90% ground coverage in Alaska. The total survey flight time was 12 hours and was split evenly on each side of the border. Additional details can be found in Hegel et al. (2016).

### Fall 2014

This composition survey was conducted on 10 October in the Yukon and 12 October in Alaska. Presurvey fixed-wing radiotracking flights were completed on 2 and 11 October, and fixed-wing support was provided during the Alaska portion of the survey only. Survey conditions for the Yukon portion included high overcast skies and incomplete snow cover, except over higher elevation areas. Total Yukon survey flight time (Bell 407 helicopter) was approximately 5.5 hours. Survey conditions for the Alaska portion included clear skies and overall patchy snow conditions. Total Alaska flight time (Robinson R44 helicopter), including ferry time, was 6.7 hours.

### Fall 2015

This composition survey was conducted on 8 October in the Yukon and 13 October in Alaska. A presurvey fixed-wing radiotracking flight was completed on 7 October, and fixed-wing support was provided during both days. Sightability conditions were poor due to patchy snow and bare ground throughout the entire survey area. Weather conditions during the Yukon portion included overcast skies and a temperature of ~32°F. Total Yukon survey flight time (Bell 206L4 helicopter) was approximately 3.5 hours. Weather conditions during the Alaska portion included mostly clear skies, moderate winds, and a temperature of ~40°F. Total Alaska survey flight time (Robinson R44 helicopter) was approximately 2.5 hours while total flight time was 4.3 hours.

### Fall 2016

This composition survey was conducted on 8 October in both Alaska and the Yukon. A presurvey fixed-wing radiotracking flight was conducted on 5 October, and fixed-wing support was provided during the entire survey. Weather conditions were mostly clear with light winds. Snow coverage was mostly bare, except a dusting of snow on some north-facing slopes. Survey flight time (Bell 206L4 in the Yukon and Robinson R44 helicopter in Alaska) was ~6 hours in the Yukon and was not recorded in Alaska.

## *Results and Discussion*

Composition ratios (bull-to-cow and calf-to-cow) were above minimum management objectives during RY12–RY16. The 3-year moving average calf-to-cow ratio objectives were 15:100, and results ranged from 17:100 to 23:100 (Table 1). Annual calf-to-cow ratios were similar to those observed during RY12–RY14 and continued to be above the calf-to-cow ratios observed during the 1990s, when the herd size had first declined. The lower calf-to-cow ratio observed in 2013 was theorized by department staff to be due, in part, to the persistent, prolonged, cold, and deep snow conditions during winter 2012–2013 (U.S. Department of Agriculture 2013). Conversely, the 2016 calf-to-cow ratio of 28:100 was the highest recorded ratio in recent decades. Bull-to-cow ratio estimates were also above the minimum management objective of 35:100 and ranged from 40:100 to 64:100. Bull-to-cow ratio estimates have been  $\geq 40:100$  since 2003, which is reflective of the low bull harvest that has occurred within the herd during RY12–RY16.

The CCH population was theorized by department staff to be stable during RY12–RY16. The fall 2013 population estimate, which was the only one conducted during the report period, was similar in result to the other population estimates since 2003, which ranged from 682 to 766 caribou (Fig. 2). In addition, Hegel et al. (2016) found no statistically significant trend in abundance from 2003 to 2013, which suggested the population was stable during that time period.

### *Recommendations for Activity 1.1*

Continue annual fall composition surveys in conjunction with EY and NPS.

Work with EY to maintain consistent classification of bulls in the Yukon and Alaska.

Conduct a population survey every 3–5 years, including one during the next 5-year reporting period (RY17–RY21).

ACTIVITY 1.2. Maintain and monitor radio collars within the herd (objectives M1 and M2).

### *Data Needs*

Maintaining a sample of active radio collars within the herd was necessary to complete fall composition and population surveys and to monitor herd movements and mortality rates.

### *Methods*

No additional radio collars were deployed during RY12–RY16. Radio collars were last deployed in CCH in 2006, and as a result, the number of active radio collars within the herd steadily declined during the report period because of animal mortality and collar failures (Table 1). Radiotracking flights were coordinated and paid for by NPS, and the number of radiotracking flights conducted during each RY of the report period ranged from 2–6.

**Table 1. Chisana caribou herd fall composition counts and estimated population size, Alaska and the Yukon, regulatory years 2012–2016.**

Regulatory year	Date of count	Bulls <sup>a</sup>	Calves <sup>a</sup>	3YM calves <sup>a,b</sup>	Percent calves	Percent cows	Percent bulls	Percent small/medium <sup>c</sup>	Percent large	Composition sample size	Active radio collars <sup>d</sup>	Estimated herd size <sup>e</sup>
2012	15 October <sup>f</sup>	64	20	20	11	54	35	53	47	215	n/a	n/a
2013	11–12 October	49	16	17	10	61	30	57	43	631	62	701 (±62) <sup>g</sup>
2014	10–12 October	40	23	20	14	61	25	48	52	528	60	n/a
2015	8–13 October	40	18	19	12	63	25	50	50	399	51	n/a
2016	8 October	46	28	23	16	58	26	65	35	534	43	n/a

<sup>a</sup> Bull and calf count per 100 cows.

<sup>b</sup> 3YM refers to 3-year mean calves. 3YM-calves:100 cows include the current year and the previous 2 years (e.g., 2012 reported 3YM-calves:100 cows is the mean calf-to-cow ratio for 2010–2012).

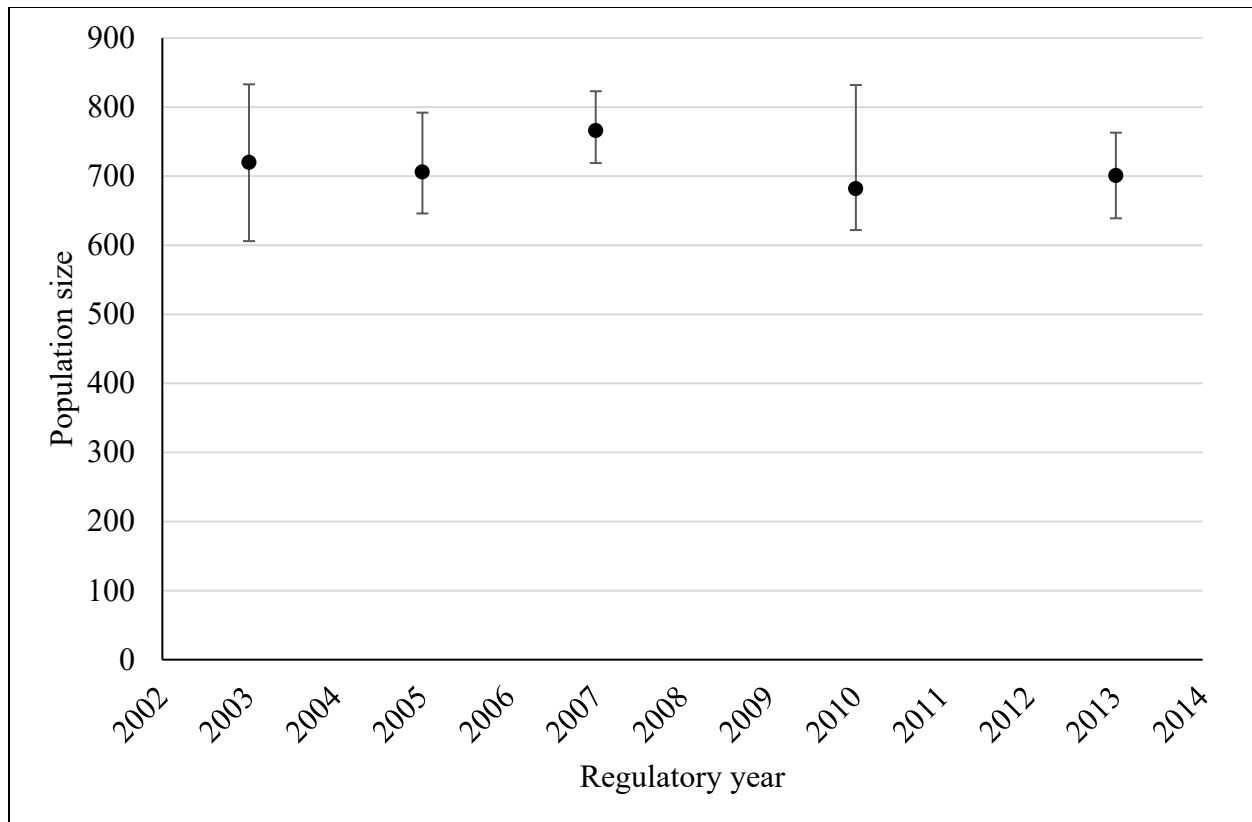
<sup>c</sup> *Medium* descriptor includes the immature bull classification used during some years in the Yukon portion of the survey.

<sup>d</sup> Includes the number of active radio collars not on mortality mode heard by the radiotracking airplane immediately prior to or during the composition and population survey. No radiotracking airplane was available during regulatory year 2012.

<sup>e</sup> Herd size was not estimated during regulatory year 2012 or regulatory years 2014–2016.

<sup>f</sup> Due to poor weather conditions in Alaska, the survey was only conducted within the portion of the herd's range in the Yukon by Environment Yukon.

<sup>g</sup> Value represents a 90% confidence interval, plus and minus the estimate in parentheses.



**Figure 2. Chisana caribou herd estimated population size (90% confidence interval), Alaska and the Yukon, regulatory years 2003–2013. The lower confidence interval was truncated at the actual number of caribou observed during surveys, if applicable.**

### *Results and Discussion*

The number of active radio collars during RY12–RY16 was sufficient to complete fall composition surveys and the fall 2013 population survey; however, the number of active radio collars declined, and few will be left for RY17–RY21 unless more are deployed.

### *Recommendations for Activity 1.2*

Continue. In conjunction with NPS and EY, deploy additional radio collars within the herd and conduct an analysis of the number of radio collars necessary to complete fall composition and population surveys.

## 2. Mortality-Harvest Monitoring and Regulations

ACTIVITY 2.1. Monitor and analyze harvest data (objective M2).

### *Data Needs*

Harvest data are necessary to ensure harvest remains within sustainable yield.

## *Methods*

The CCH cooperative management plan lays out 3 criteria that must be met for harvest to occur and continue: a stable or increasing population trend, a bull-to-cow ratio estimate of  $\geq 35:100$ , and a 3-year moving average calf-to-cow ratio of  $\geq 15:100$  (Chisana Caribou Herd Working Group 2012). If these criteria are met, the plan recommends a bulls-only harvest of 2% of the population, split evenly between Alaska and the Yukon. Although the board established a state drawing permit for CCH starting in RY11, no state permits were issued during RY12–RY16. Instead, all the allowable harvest in Alaska was allocated to federally qualified subsistence users, and federal permits were issued by NPS beginning in RY12. No licensed CCH hunt has occurred in the Yukon since RY94, and Yukon First Nations members have voluntarily ceased CCH harvest since RY02. Instead of harvesting animals, the Yukon has chosen to put their portion of the quota back toward herd growth.

## *Season and Bag Limit*

No state CCH hunting permits were issued during RY12–RY16. The season for federally qualified subsistence users was 1–30 September during RY12–RY13 and 10 August–30 September during RY14–RY16, with a bag limit of 1 bull. The harvest quota within Alaska was 7 bulls.

## *Results and Discussion*

### Harvest by Hunters-Trappers

No legal state CCH harvest occurred during RY12–RY16, and no harvest was reported in the Yukon. There were 9 federally qualified subsistence hunters who obtained CCH permits in Alaska during RY12–RY13, 11 during RY14–RY15, and 8 during RY16. There were 2 bulls harvested during RY12, 3 during RY13, 2 during RY14, none during RY15, and 1 during RY16.

### *Alaska Board of Game Actions and Emergency Orders*

No board actions were taken, and no ADF&G emergency orders were issued during RY12–RY16. Some BOG and Federal Subsistence Board (FSB) actions related to CCH occurred during RY10–RY11, and a summary of these actions can be found in Gross (2015).

### *Recommendations for Activity 2.1*

Continue; however, no ADF&G actions are necessary unless a state hunt is initiated.

## 3. Habitat Assessment-Enhancement

No habitat assessment or enhancement activities were conducted for caribou in Unit 12 during RY12–RY16.

## **NONREGULATORY MANAGEMENT PROBLEMS OR NEEDS**

The cooperative CCH management plan (Chisana Caribou Herd Working Group 2012) guided CCH management during 2010–2015. Although no actions were taken to update this plan during

RY12–RY16, communication between stakeholders and management agencies to update the plan began in 2018.

### Data Recording and Archiving

All electronic files such as survey memos, reports, and maps are located on the Tok Area Office server (S:\Wells\Caribou\Chisana or S:\Gross\DATA\CARIBOU\Chisana). All hard copy data sheets, paper files, and similar documentation are found in the file cabinet in the conference room in the Tok Area Office.

### Agreements

There were no agreements with other agencies pertaining to caribou management in Unit 12 during RY12–RY16.

### Permitting

No permits were needed to conduct caribou management activities in Unit 12 during RY12–RY16.

## **Conclusions and Management Recommendations**

Management of CCH was guided by the cooperative management plan (Chisana Caribou Herd Working Group 2012) during RY12–RY16, and the goal to manage the herd for a stable or increasing population trend was met. The fall 2013 population estimate and calf-to-cow ratio estimates obtained during this report period indicated the herd was stable.

Management objectives to maintain calf-to-cow ratios above 15:100 (3-year moving average) and bull-to-cow ratios above 35:100 were achieved during the report period. This, in conjunction with the stable population trend, allowed for a limited bulls-only harvest to begin in RY12 for the first time in Alaska since RY93. However, none of the harvest occurred under state regulations. State permits are unlikely to be issued unless either herd size increases or a portion of the Alaska harvest quota is allocated to a state hunt.

## **II. Project Review and RY17–RY21 Plan**

### **Review of Management Direction**

#### **MANAGEMENT DIRECTION**

The current management direction and goal for CCH are guided by the cooperative management plan (Chisana Caribou Herd Working Group 2012), which will continue to guide management of the herd until an update is finalized. Efforts to update the cooperative management plan began in 2018 and the updated plan was nearing completion by 2024. Since this plan has not been finalized, the management goal will remain unchanged during RY17–RY21.



## **GOAL**

G1. Manage CCH for a stable or increasing population trend, within sustainable limits, and without significantly compromising herd health and habitat condition.

## **CODIFIED OBJECTIVES**

### Amounts Reasonably Necessary for Subsistence Uses

The CCH has a negative customary and traditional use finding, as determined by the board.

### Intensive Management

The CCH has not been identified by the board as important for providing high levels of harvest for human consumptive use and has no intensive management objectives.

## **MANAGEMENT OBJECTIVES**

M1. Maintain a 3-year moving average fall calf-to-cow ratio of >15:100.

M2. Maintain a 3-year moving average fall bull-to-cow ratio of >35:100.

The bull-to-cow ratio objective will be revised for RY17–RY21 to reflect communication that occurred in June 2018 between stakeholders and management agencies via teleconference to begin updating the cooperative management plan. Management agency personnel and stakeholders expressed concern over making management decisions (e.g., whether harvest can occur) based on a single year of data due to variations that can occur annually that do not reflect longer-term trends; therefore, it was recommended by the participants to change the bull-to-cow ratio objective from a single year objective to a 3-year moving average objective, similar to the calf-to-cow ratio objective.

## **REVIEW OF MANAGEMENT ACTIVITIES**

### 1. Population Status and Trend

ACTIVITY 1.1. Conduct population and composition surveys (objectives M1 and M2).

#### *Data Needs*

Data needs will be the same as those described for RY12–RY16. Population estimates will be necessary to evaluate the population trend as stable or increasing. Fall composition estimates will be necessary to evaluate herd composition and will be used in conjunction with population trend to determine whether a limited bull harvest can occur. In addition, fall composition estimates will help evaluate population trend during years when population estimates are not completed.

### *Methods*

Population and composition survey methods will be the same as those described for RY12–RY16; however, bull classification methods between the Yukon and Alaska portions of the survey should be reconciled.

The cooperative management plan recommends a population survey to be conducted every 3–5 years (Chisana Caribou Herd Working Group 2012). The last population survey was conducted in RY13; therefore, another population survey should be conducted as soon as an adequate sample of radio collars are present in the herd. Additionally, the desired relative precision (RP) for the population survey in RY13 was not defined prior to the survey. Population surveys conducted since RY03 have resulted in population estimates with RPs of 9–22% (average = 13%) of the mean, at the 90% confidence interval. The next population survey should be conducted with the goal of obtaining a population estimate with a RP of 10–15% at the 90% confidence interval.

Between RY17 and RY19, fall composition surveys were completed in RY17 on 11 October in the Yukon and 17 October in Alaska, RY18 on 10 October in both Yukon and Alaska, and RY19 on 9 October in Alaska and 10 October in the Yukon. No population surveys were conducted between RY17 and RY20.

ACTIVITY 1.2. Maintain and monitor radio collars within the herd (objectives M1 and M2).

### *Data Needs*

Data needs will be the same as those described for RY12–RY16. A sample of active radio collars within the herd will be necessary to complete fall composition and population surveys and to monitor herd movements and mortality rates.

### *Methods*

ADF&G, EY, and NPS staff will work cooperatively to purchase, deploy, and maintain a sample of radio collars within CCH. During RY18, NPS staff refurbished 15 very high frequency (VHF) radio collars for deployment in Alaska and 21 GPS satellite Telonics radio collars for deployment in both Alaska and the Yukon, and EY purchased 15 VHF radio collars for deployment in the Yukon. The plan was to deploy the collars in spring 2019; however, logistical constraints (e.g., issues obtaining capture drugs for the Alaska captures) prevented the captures from occurring.

There were 6 Chisana caribou (3 adults and 3 short-yearlings, all females) captured in Alaska on 13 and 15 April 2020 via helicopter (R-44) darting. The captures were conducted by ADF&G personnel using Pneu-Dart darts (3/4 in needles on 1 cc (cubic centimeter) darts for short-yearlings and 2 cc darts for adults) projected from a Pneu-Dart rifle using brown charges. Drug dosages for short-yearlings were 1.5 mg Thiafentanil, 20 mg Xylazine, and 25 mg Azaperone with a reversal of 50 mg Naltrexone and 2 mg Atipamezole. Drug dosages for adult cows were 3.75 mg Thiafentanil, 75 mg Xylazine, and 50 mg Azaperone with a reversal of 100 mg Naltrexone and 7.5 mg Atipamezole. VHF radio collars were placed on the short-yearlings while GPS satellite radio collars were placed on the adults. Fixed-wing aerial support was provided by

Harley McMahan (McMahan Guide and Flying Service) in a Super Cub PA-18 aircraft. Although significant flight time was spent searching for caribou within Alaska, few caribou were found, even when searching in suitable capture locations. In addition, although few radio collars remained active at the time of the captures, none of the active radio collars heard by the radiotracking airplane were in Alaska. Captures in the Yukon were also planned for spring 2020, but logistical constraints prevented them from occurring. The remaining captures are planned for RY20 (fall 2020).

ADF&G will work cooperatively with EY and NPS to conduct a minimum of 1–2 radiotracking flights per year.

## 2. Mortality, Harvest Monitoring, and Regulations

ACTIVITY 2.1. Monitor and analyze harvest data (objective M2).

### *Data Needs*

Data needs will be the same as those described for RY12–RY16. This information will be necessary to ensure harvest remains within sustainable yield.

### *Methods*

ADF&G will continue to work cooperatively with EY and NPS during RY17–RY21 to determine whether the criteria to allow harvest to occur and continue have been met. Unless a state hunt is initiated during RY17–RY21, no other ADF&G actions are necessary.

## 3. Habitat Assessment-Enhancement

No habitat assessment or enhancement activities are planned for caribou in Unit 12 during RY17–RY21.

## **NONREGULATORY MANAGEMENT PROBLEMS OR NEEDS**

No nonregulatory caribou management problems or needs were identified for RY17–RY21.

### Data Recording and Archiving

All electronic files, such as survey memos, reports, and maps, will be located on the Tok Area Office server (S:\Wells\Caribou\Chisana or S:\Gross\DATA\CARIBOU\Chisana). All hard copy data sheets, paper files, and similar documentation will be found in the file cabinet in the conference room in the Tok Area Office.

In addition, electronic copies of survey memos, survey data, and maps will be stored in ADF&G's Wildlife Information Network. Project Title: Tok Area Office caribou management program. Primary Region: Region III.

### Agreements

Currently, there are no agreements with other agencies pertaining to caribou management.

## Permitting

No permits for caribou management are expected for RY17–RY21.

## **References Cited**

- Adams, L. G. 2003. Chisana caribou census: 19–20 October 2003. U.S. Geological Survey, Unpublished Report, Anchorage, Alaska.
- Adams, L. G., and D. H. Roffler. 2005. Chisana caribou census: 15–16 October 2005. U.S. Geological Survey, Unpublished Report, Anchorage, Alaska.
- Adams, L. G., and D. H. Roffler. 2007. Chisana caribou census: 13–14 October 2007. U.S. Geological Survey, Unpublished Report, Anchorage, Alaska.
- Adams, L. G., R. Farnell, M. P. Oakley, T. S. Jung, L. L. Larocque, G. M. Lortie, J. McLelland, M. E. Reid, G. H. Roffler, and D. E. Russell. 2019. Evaluation of maternal penning to improve calf survival in the Chisana Caribou Herd. *Wildlife Monographs* 204(1):5–46. doi:10.1002/wmon.1044
- Alaska Wildland Fire Coordinating Group. 2010. Alaska interagency wildland fire management plan 2010 [Interagency resource document]. Alaska Fire Service, Ft. Wainwright, Alaska.
- Chisana Caribou Herd Working Group. 2012. Management plan for the Chisana caribou herd: 2010–2015. Government of Yukon, Department of Environment, Whitehorse, Yukon, Canada.
- Farnell, R., and C. L. Gardner. 2002. Status of the Chisana caribou herd: 2002. Yukon Department of Environment, Fish and Wildlife Branch, TR-03-01, Whitehorse, Canada.
- Gardner, C. L. 1995. Unit 12 caribou. Pages 56–67 [In] M. Hicks, editor. Management report of survey-inventory activities 1 July 1992–30 June 1994: Caribou. Alaska Department of Fish and Game, Division of Wildlife Conservation, Federal Aid in Wildlife Restoration Project 3.0, Juneau.
- Harper, P. and L. A. McCarthy, editors. Caribou management report of survey and inventory activities 1 July 2012–30 June 2014 [web page]. Pages 7-1–7-11. Alaska Department of Fish and Game, Species Management Report ADF&G/DWC/SMR-2015-4, Juneau.
- Hegel, T., T. Bentzen, R. Drummond, J. Putera, S. Taylor, and J. Wells. 2016. Population estimate: Chisana caribou herd 2013. Yukon Fish and Wildlife Branch Report SR-16-06. Whitehorse, Yukon, Canada.
- Jennings, L. B. 1979. Caribou: Survey-inventory progress report. Pages 148–149 [In] R. Hinman, editor. Annual report of survey-inventory activities 1977–1978: Part III – black bear, brown bear, polar bear, and caribou. Alaska Department of Fish and Game, Division of Game, Federal Aid in Wildlife Restoration Jobs 3.0, 4.0, 5.0, 17.0, and 22.0, Juneau.
- Kelleyhouse, D. G. 1992. Unit 12 caribou. Pages 34–42 [In] S. M. Abbott, editor. Caribou survey-inventory management report 1 July 1989–30 June 1991. Alaska Department of Fish and Game Division of Wildlife Conservation, Federal Aid in Wildlife Restoration Project 3.0, Juneau.

- Skoog, R. O. 1968. Ecology of the caribou (*Rangifer tarandus granti*) in Alaska. Doctoral dissertation, University of California Berkeley.
- U.S. Department of Agriculture. 2013. Alaska snow survey report, 1 May 2013. Natural Resources Conservation Service.
- Zittlau, K., J. Coffin, R. Farnell, G. Kuzyk, and C. Strobeck. 2000. Genetic relationships of three Yukon caribou herds determined by DNA typing. Pages 59–62 [In] R. E. Haugerud, editor. Proceedings of 8th North American Caribou Workshop, 20–24 April 1998, Whitehorse, Yukon, Canada. Rangifer, Special Issue 12.



