Species Management Report and Plan ADF&G/DWC/SMR&P–2021–6

Macomb Caribou Management Report and Plan, Game Management Unit 20D and portions of Unit 12:

Report Period 1 July 2012–30 June 2017, and

Plan Period July 2017–30 June 2022

Robert W. Schmidt

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Alaska Department of Fish and Game Division of Wildlife Conservation

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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 Doreen Parker McNeill, Management Coordinator for the Division of Wildlife Conservation.

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Cover Photo: ©2018 ADF&G. Photo taken by ADF&G Delta Area Biologist Robert W. Schmidt. Macomb caribou on Macomb Plateau in Southern Unit 20D during caribou composition surveys in October 2018.

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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 the Macomb caribou herd, Unit 20D and portions of Unit 12, for the 5 regulatory years 2012–2016 and plans for survey and inventory management activities in the following 5 regulatory years, 2017–2021. A regulatory year (RY) begins 1 July and ends 30 June (e.g., RY14 = 1 July 2014–30 June 2015). 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 more efficiently report 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 3 years.

I. RY12–RY16 Management Report

Management Area

The Macomb Caribou Herd (MACH) occupies the mountains and foothills of the eastern Alaska Range from the Delta River to the Mentasta Highway (Glenn Highway) south of the Alaska Highway. Its core range is in Unit 20D between the Robertson River and the Richardson Highway, with primary calving grounds on the Macomb Plateau. The MACH also uses the lowlands of the Tanana River valley as winter range. Land is primarily state owned with some federal military training land on the west side of the herd's range. The community of Delta Junction lies just north of the Alaska Range where the MACH herd ranges. The small community of Dry Creek lies at the base of Macomb Plateau, which is the primary calving grounds and considered the core range of the Macomb caribou herd. Within the range of the MACH there are 2 special use areas: the Delta Controlled Use Area (DCUA) and the Macomb Plateau Controlled Use Area (MPCUA). Both of these areas have motorized vehicle restrictions in place during the hunting season. Maps for the Delta Junction Area boundaries and special use areas can be found at http://www.adfg.alaska.gov/index.cfm?adfg=maps.main.

Summary of Status, Trend, Management Activities, and History of Macomb Caribou in the Eastern Alaska Range

Little was known about MACH before 1972, when herd size was estimated at 350–400, and there was little harvest (Jennings 1974). Hunting pressure increased in 1972 when restrictions were placed on other road-accessible caribou herds including the Fortymile, Nelchina, and Mentasta.

With increased hunting pressure on MACH, the bag limit was reduced from 3 to 1 caribou in 1973. The Macomb Plateau Management Area (MPMA) was established in 1974 to prohibit the use of motorized vehicles while hunting from 10 August to 20 September, except for floatplanes at Fish Lake. The MPMA included the area south of the Alaska Highway, draining into the south side of the Tanana River between the east bank of the Johnson River upstream to Prospect Creek, and the east bank of Bear Creek (Alaska Highway). MPMA was renamed the Macomb Plateau

Controlled Use Area (MPCUA) in 1981 to more accurately reflect the access restrictions in effect.

By 1975 MACH numbered 700–800 caribou, but the apparent increase was probably because of increased knowledge about the herd rather than an actual increase in the number of caribou. Hunting pressure and harvest continued to increase on MACH, despite a reduced bag limit and restrictions imposed by conditions of MPMA. Despite the larger known herd size, the harvest equaled or exceeded recruitment (Larson 1977).

In 1977 the 1–15 September hunting season was closed by emergency order on 8 September. Even with the emergency closure, the reported harvest of 93 caribou exceeded recruitment. Due to the large harvest combined with predation by wolves and bears, ADF&G determined that harvest needed to be reduced (Davis 1979). In 1978 the bag limit for MACH was further restricted from 1 caribou of either sex to 1 bull by drawing permit. This reduced reported harvest from 93 caribou in 1977 to 16 bulls in 1978.

In addition to concerns of excessive harvest, there was also a concern that the herd was limited by predation. Wolf control removed most of the wolves believed to prey on MACH in the eastern Alaska Range during the winter of 1980–1981. Subsequent to wolf control, fall calf-to-cow ratios increased from 13:100 in 1980 to 33:100 in 1981.

In 1987 the Alaska Board of Game made a customary and traditional (C&T) use determination for MACH; the amounts necessary to meet subsistence needs were determined to be a harvest of 40 caribou. The C&T finding was based on use by residents of Dot Lake, Tanacross, Tok, and other rural residents.

In 1988 herd size was estimated to be 800 caribou (DuBois 1989). Historical information from local residents indicated that there were more caribou between the Robertson and Delta rivers than previously estimated by ADF&G. Because the population was thought to be >800 in the past, the Board of Game adjusted the population objective to agree with the anecdotal information. The goal of the adjusted objective was to increase MACH's population to 1,000 caribou by 1993.

For the fall 1990 hunting season, the board changed the hunt from a drawing permit hunt to a Tier I registration permit hunt because C&T use determinations precluded conducting the hunt as a drawing permit hunt.

The hunting season was closed from RY92 through RY96 because the herd was below the population objective of 1,000 caribou. This registration permit hunt did not allow adequate control of harvest because of relatively high hunter interest and low harvest quotas.

Between 1988 and 1994 the herd size decreased from an estimated 800 caribou to approximately 500 caribou. In 1995 the Board of Game adopted a Wolf Predation Control Implementation Plan for Unit 20D. It established a new objective to reverse the decline of MACH and increase the fall population to 600–800 caribou with a harvest of 30–50 caribou annually by 2002. However, wolf control was never implemented under this plan. The MACH increased from 500 caribou to approximately 650 caribou during 1995–2000, and the population objective that was established by the Board of Game in 1995 was met.

The hunting season was reopened in RY97, and the RY97 and RY98 hunting season was 10–20 September by registration permit. The season was again closed in RY99 due to the population falling below the population objective once again. The season reopened in RY00 and RY01 during 10–20 September by registration permit. In RY02 the Board of Game (BOG) changed the season dates to 15–25 August to separate the season from the moose hunting season to reduce opportunistic caribou harvest. Concurrently, the boundary of the Delta Controlled Use Area (DCUA) was moved from the Richardson Highway west to the Delta River. This was to include the area between the Richardson Highway and the Delta River within DCUA (which prohibits the use of motorized vehicles and pack animals for big game hunting during 5–25 August) for caribou management purposes. The goal of the boundary and season change was to maintain at least 10 days to hunt in order to maintain a reasonable opportunity for subsistence uses without exceeding the harvest quota. Despite the season date and boundary change, we closed the hunting season by emergency order in RY02 and RY03, and the harvest quota was exceeded in RY03 (DuBois and Parker McNeill 2011).

To address the challenge of providing reasonable hunting opportunity, balanced with sustained-yield principles on this road-accessible herd ADF&G used discretionary permitting authority in RY04 to move the western boundary of the MACH hunt. The hunt area was moved from the Delta River to Jarvis Creek. This boundary change addressed the issues of caribou accessibility in the Richardson Highway corridor by slowing the rate of harvest, while still providing reasonable hunting opportunity.

In RY06, BOG moved the start of the season sooner to 10 August to allow for additional hunting opportunity. The dates were then changed slightly in RY08 to keep the season open until 28 August, and the dates were changed again in RY09 to 10–27 August. These dates were selected to slow the rate of harvest by utilizing the motor vehicle use restriction of DCUA and MPCUA while providing limited duration motorized access opportunity at the end of the season. In RY10 ADF&G increased the harvest quota from 50 to 70 bulls, which reflected additional harvestable surplus due to increased herd size. The harvest quota remained at 70 caribou through RY15, but was reduced to 40 caribou in RY16, and to 60 caribou in RY17 due to a brief population decline caused by natural fluctuation. The season dates of 10–27 August were continued during RY10–RY16 (Bruning 2015).

Management Direction

ADF&G will continue to manage the Macomb Caribou Herd for both consumptive and nonconsumptive uses to allow for maximum human use. Management will include population abundance surveys, maintaining an adequate sample of female radiocollared caribou to track herd distribution, harvest monitoring, and disease screening.

Existing Wildlife Management Plans

A wildlife management plan for Unit 20D exists in the 2015 caribou management survey and inventory report for Unit 20D (Bruning 2015).

GOALS

G1. Maintain a harvestable surplus of caribou with human consumption as a preferred use.

G2. Provide aesthetically pleasing hunting conditions while protecting critical caribou habitat.

G3. Maintain caribou populations at a level that will allow for nonconsumptive uses such as wildlife viewing and photography.

CODIFIED OBJECTIVES

Amounts Reasonably Necessary for Subsistence Uses

C1. There is a positive C&T finding with the amounts reasonably necessary for subsistence uses set at 10–40 caribou.

Intensive Management

C2. Intensive Management Population Objective of 600–800 caribou.

C3. IM harvest objective of 30–50 caribou.

MANAGEMENT OBJECTIVES

M1. Increase the fall population to 600–800 caribou with a sustainable harvest of 30–50 caribou.

MANAGEMENT ACTIVITIES

1. Population Status and Trend

ACTIVITY 1.1. Conduct aerial minimum count abundance and composition surveys to estimate population status and trend (Objective M1).

Data Needs

Annual composition and population data is needed to determine population size, the number of harvestable bulls available, and calf recruitment.

Methods

Aerial minimum count abundance and composition surveys were conducted in October of each year during the reporting period, with the exception of 2015, to estimate total population abundance and obtain a composition count; surveys were completed in a Robinson R-44 helicopter and a Piper Super Cub (PA-18) fixed-wing aircraft throughout the Macomb caribou herd's range. The 2014 composition count was incomplete due to poor survey conditions. When conducting composition counts, the DWC biologist used radiotelemetry in a fixed-wing aircraft to find caribou groups for the helicopter crew. All caribou groups that were located, whether collared or uncollared, were counted and classified during surveys. Two ADF&G biologists were

in an R-44 helicopter classifying caribou. One biologist counted the total number of caribou and the total number of calves, while the other biologist classified different age classes of bulls. Cows were enumerated by adding the bull total and the calf total together and then subtracting that total from the overall total. Classification categories consisted of cows; calves; and small (juvenile), medium (subadult), and large (mature adult) bulls (Table 1). Observers identified bulls by absence of vulva and classified bull size by antler characteristics (Eagan 1993). We tallied the composition of each caribou group on a 5-position counter and recorded the tallies on a data sheet.

Five-month-old female caribou were periodically captured and fitted with VHF radio collars to maintain a sample size of 12–20 radiocollared females in the herd. The most recent captures took place on 3 October 2016 when nine 5-month-old female caribou were captured. To attach radio collars, we captured caribou in October from a Robinson R-44 helicopter by immobilizing them with darts from a Pneu-Dart X-Caliber gas fired projector (rifle). A PA-18 Super Cub was also used for a "cover plane" to find groups of caribou for the helicopter and to help keep track of caribou once they were darted. Darts were loaded with 1.5 mg carfentanil citrate (Wildnil®, Wildlife Pharmaceuticals, Fort Collins, Colorado, USA) and 50 mg xylazine hydrochloride (AnaSed®, Lloyd Laboratories, Shenandoah, Iowa, USA). Once immobilized, we fitted the caribou with radio collars. We also weighed each animal; collected body measurements; scored the body condition (Gerhart et al. 1996); drew blood for serology, genetics, and trace mineral analysis; and recorded sex, age, and handling time. We then gave intramuscular injections of naltrexone (Trexonil®, Wildlife Pharmaceuticals) at a dosage of 100 mg naltrexone per 1 mg carfentanil to antagonize the carfentanil citrate and 1mg of atipamezole per 10mg xylazine to antagonize the xylazine hydrochloride (ZooPharm, Windsor, Colorado, USA).

We also monitored caribou movements and distribution throughout the rest of the year by locating radiocollared caribou postcalving, prior to hunting season, and by opportunistic observation of caribou during annual surveys of other species. Caribou locations were obtained from a Piper Super Cub (PA-18) fixed-wing aircraft. The location of each aggregation was recorded. When radio signals were heard, but caribou associated with the signal were not visually acquired, a general location and the latitude and longitude were recorded. Caribou aggregations were counted visually when possible, and groups that were difficult to count directly were photographed with a digital single lens reflex camera and counted from the photographs. The number of newborn calves was also recorded to estimate parturition rates; however, no analysis was done with this data other than documenting trend. Population trend through the reporting period years appeared to be stable, accounting for natural fluctuation. Caribou seem to remain concentrated between the Robertson River and the Richardson Highway throughout the summer months. The primary calving area is Macomb Plateau; however, some calving has been observed on the western side of the range in recent years.

Results and Discussion

POPULATION SIZE

RY12—We conducted an aerial census and radiotracking flight on 16 October 2012 that resulted in a minimum count of 1,453 caribou (Table 1). Caribou were distributed from the Delta River to Macomb Plateau. We observed 41 bulls:100 cows (total bulls), and 18 calves:100 cows (Table 1). We observed 44% (643) of the caribou on Macomb Plateau. Caribou were also observed in

Table 1. Macomb caribou fall composition counts and minimum count or estimated population range, 2000–2017, Alaska.

Survey date	Bulls:100 cows	Calves:100 cows	Percent calves	Percent cows	Percent small bulls	Percent medium bulls	Percent large bulls	Percent total bulls	Composition sample size	Herd count or estimate
2 Oct 2000	45	11	7	64	43	29	29	29	605	650[a]
9 Oct 2001	39	11	7	66	40	30	30	26	467	500–550[a]
2 Nov 2002	51	21	12	58	39	43	19	30	234	Unknown
4 Oct 2003	46	19	12	60	44	22	31	28	526	550–575
9 Oct 2004	61	40	20	50	18	37	45	30	546	600–650
4 Oct 2005	64	17	9	55	53	16	31	35	628	630–650
6 Oct 2006	48	31	17	56	14	45	41	27	857	857
9 Oct 2007	68	29	15	51	53	18	29	34	951	1,305
18 Oct 2008[d]	–	–	–	–	–	–	–	–	–	754[d]
18 Oct 2009[c]	32	26	17	63	34	31	35	20	838	959[c]
29 Sep 2010	39	27	16	60	41	31	28	24	1,528	1,809
23 Oct 2011[d]	–	–	–	–	–	–	–	–	–	1,373[d]
16 Oct 2012	41	18	11	63	38	34	28	26	1,453	1,453
6 Oct 2013	48	20	12	60	36	38	25	29	1,503	1,503
21 Oct 2014[d]	–	–	–	–	–	–	–	–	–	450[d]
2015[e]	–	–	–	–	–	–	–	–	–	–
20 Oct 2016	68	41	20	48	44	39	17	32	1,290	1,328
21 Oct 2017[b]	55	20	12	57	37	50	13	31	729	729

[a] Estimated.
[b] Incomplete survey.
[c] Poor survey conditions due to lack of snow cover.
[d] Incomplete census and no composition data collected.
[e] No survey conducted.

Bear Creek (west), Berry Creek, upper Johnson River, upper Gerstle River, McCumber Creek, Jarvis Creek drainage, Little Gold Creek drainage, Ober Creek drainage, Granite Mountains, and Donnelly Flats. All (n = 17) radiocollared caribou were located. In addition to counting the radiocollared caribou groups, all other caribou located during the survey that were not associated with a radiocollared group were counted. Snow cover was complete throughout the survey area. Weather conditions were calm and clear, and sightability was good from the Delta River to Macomb Plateau; sightability was fair in the Knob Ridge and Robertson River areas due to low clouds and fog. The cost of aerial census and radiotracking conducted in RY12 was $4,520 for 9.4 hours of flight time (3.9 hours of Super Cub charter and 5.5 hours of helicopter charter).

During a spring rock ptarmigan survey on 26 May 2013, a cow and neonate were observed on top of Donnelly Dome, which was the furthest west that calving has been documented for MACH.

RY13—We conducted an aerial census and radiotracking flight on 6 October that resulted in a minimum count of 1,503 caribou (Table 1). Composition results were 48 bulls:100 cows (total bulls), and 20 calves:100 cows (Table 1). Caribou were distributed throughout the core MACH range from Bear Creek (Richardson Highway) on the west side of the range to the Robertson River on the east side of the range. Caribou were observed in the Bear Creek (west), Little Gold Creek, Ober Creek, Granite Creek, Jarvis Creek, McCumber Creek, Morningstar Creek, Daugherty Creek, Sheep Creek (west), Sawmill Creek, Bradford Creek, upper Gerstle River, upper Little Gerstle River, upper Johnson River, Bear Creek (east), Sheep Creek (east), Berry Creek, and upper Robertson River drainages, on the Macomb Plateau, and in the Granite Mountains. We observed the highest number of mature bulls high in the Jarvis and Ober Creek drainages and on the Macomb Plateau. Fifteen of the 17 radiocollared caribou were located during the survey, 2 of the collars were not heard by the radio tracking plane. All nonradiocollared groups were also counted. Sightability was good with complete snow cover and bright light throughout the MACH range, and the weather conditions were calm and clear. The cost of aerial census and radiotracking flights conducted in RY13 was $4,732 for 10.3 hours of flight time; this cost included 4.7 hours of the Super Cub charter and 5.6 hours of the helicopter charter.

RY14—We attempted an aerial census and composition flight on 21 October 2014. Poor weather conditions prevented us from surveying a large portion of the MACH range. No meaningful composition data was collected and only a portion of the MACH range was surveyed. During the survey only 450 caribou were observed in the areas we were able to survey, which consisted primarily of the lower drainages between Macomb Plateau and Jarvis Creek. Strong winds made the flight turbulent and even in the lower drainages beneath the cloud layer caribou observations were difficult to obtain. Overall, we have little confidence in the numbers from this survey due to the poor survey conditions.

RY15—No survey was conducted due to in adequate survey conditions.

RY16—During the census and radiotracking flight on 20 October 2016, 1,328 caribou were located by ADF&G staff; they were distributed from the Robertson River to Jarvis Creek (Table 1). The survey composition resulted in 68 bulls:100 cows (total bulls), and 41 calves:100 cows (Table 1). We were unable to survey from Jarvis Creek to the Delta River. The highest numbers of caribou were found on Knob Ridge, Macomb Plateau/Horn Mountain, and in the

McCumber/lower Granite Mountain regions. Groups of caribou were found by locating radiocollared caribou. Fourteen of the 16 radio collars were located by the radiotracking plane, which makes it likely that we were able to count most of the caribou throughout the MACH range. All nonradiocollared groups were also counted during the survey. Overall, the survey conditions were moderate to good, and sightability was fair in most of the survey area with little to no snow cover. A fog layer on the west end of the survey area prevented us from surveying the area from Jarvis Creek to the Delta River. Other weather conditions were calm winds and clear skies. For costs associated with this survey effort refer to the 2016 Macomb Caribou Composition Survey memo.

RY17—The census and radiotracking flight on 21 October 2017 located 729 caribou which were distributed from Berry Creek to the Richardson highway (Table 1). The survey composition resulted in 55 bulls:100 cows and 20 calves:100 cows (Table 1). We were unable to survey everything from Berry Creek east, which included Knob Ridge, upper Bear Creek (east), and the Robertson River due to low clouds. Six out of the 16 collars were not found due to inclement weather. These collar signals appeared to be on Knob Ridge where low ceiling prevented us from flying. With missing this many collars, it is likely we missed quite a few caribou in this survey. All caribou observed with or without collars were counted during the survey. We were also unable to survey the small area between the Richardson highway and the Delta River due to military training. However, no collars were in this area, so we are confident that very few caribou were located in this area. The rest of the collars were distributed from Macomb Plateau west to the Richardson Highway, with the majority of them being on Macomb Plateau. The area west of Jarvis Creek to the Richardson highway had a total of 355 caribou, which is one of the highest counts in that area on record. Also, interestingly enough, this area had the largest concentration of large bulls, in particular Donnelly Flats. Snow cover was good throughout much of the survey area making for good sightability conditions. Other weather conditions were fair to poor; conditions included moderate wind on the east side of the survey area, mostly cloudy skies, some blowing snow with a temperature of 16°F. Sightability was poor east of Macomb Plateau, but good from Macomb Plateau to the Richardson Highway. For costs associated with this survey effort refer to the 2017 Macomb Caribou Composition Survey memorandum.

Recommendations for Activity 1.1.

ADF&G area wildlife management staff recommends continuing the annual aerial minimum count abundance and composition surveys to estimate population status and trend in order to estimate the available hunter harvestable surplus.

ACTIVITY 1.2. Monitor caribou distribution throughout the RC835 hunting season.

Data Needs

Caribou distribution needs to be monitored throughout the hunting season to help track the rate of harvest, especially prior to the motorized portion of the hunting season.

Methods

ADF&G biologists conducted a flight to locate caribou groups before the start of the hunting season and then again 1 to 2 days prior to the motorized portion of the hunt. The collars were used to track caribou groups to see where they were in relationship to popular access points.

Results and Discussion

If harvest was large and coupled with large numbers of caribou being distributed through highly accessibly areas (primarily the Granite Mountains and the Jarvis Creek area) prior to motorized hunting, then the season was closed by Emergency Order. Reduced quotas during the 2016 and 2017 hunting seasons led to early closures in each of these years. The season closed 7 days early in 2016 with a quota of 40 bulls, and 1 day early in 2017 with a quota of 60 bulls (Table 2).

Recommendations for Activity 1.2.

Continue annual distribution flights during the RC835 hunting season to determine caribou locations in relationship to popular access points and to help gauge if the hunt should be closed early by Emergency Order to avoid overharvest.

2. Mortality-Harvest Monitoring and Regulations

ACTIVITY 2.1. Harvest monitoring via registration permit report data (Objective M2).

Data Needs

Annual registration report data are needed to track the number of harvested caribou and to help evaluate population size and the number of harvestable bulls available.

Methods

We monitored harvest by registration permit reports. Hunters were required to report within 2 days of harvest by phone, in person, or online. They reported harvest date and location, days hunted, transportation mode, commercial services used, and method of take. Harvest was tracked closely through the open hunting season to avoid overharvest. If harvest was approaching the quota or harvest objective an Emergency Order was issued to stop the harvest.

Season and Bag Limit

RY12–RY17—Hunting for MACH was conducted as Tier I registration permit hunt RC835 for resident hunters only during 10–27 August. The hunting season dates were set using ADF&G's discretionary permit authority to shorten the season from the 10 August–30 September framework. The portion of southern Unit 20D west of Jarvis Creek was closed to hunting, also using ADF&G's discretionary permit authority. The harvest quota was 70 bulls during RY12–RY15, 40 bulls in RY16, and 60 bulls in RY17. There were 2 days of hunter access by motorized vehicles and pack animals in the western portion of the hunt area during 26–27 August when the DCUA had no access restrictions during RY12–RY17. The season was closed by Emergency Order in RY16 prior to motorized hunting being allowed. In RY17 one day of motorized hunting was allowed.

Results and Discussion

Harvest by Hunters

Seventy-two caribou were harvested in RY12, 64 were harvested in RY13, 57 in RY14, 74 in RY15, 35 in RY16, and 55 in RY17. The intensive management harvest quota of 30–50 caribou harvested/year was met and exceeded each regulatory year of the report period (Table 2).

Table 2. Macomb caribou harvest data by registration permit hunt RC835, regulatory years 2000–2017, Alaska.

Regulatory year	Permits issued	Permits reported	Percent did not hunt	Percent successful hunters	Percent unsuccessful hunters	Harvest					Total harvest
						Bulls	(%)	Cows	(%)	Unk	
2000[a]	274	271	31	12	88	22	(100)	0	(0)	0	22
2001[a]	256	256	32	25	75	42	(98)	1	(2)	0	43
2002[a]	159	157	41	28	73	25	(100)	0	(0)	0	25
2003[a]	161	159	28	26	74	30	(100)	0	(0)	0	30
2004	76	76	58	22	78	7	(100)	0	(0)	0	7
2005	122	117	53	33	67	18	(100)	0	(0)	0	18
2006	106	103	46	38	63	21	(100)	0	(0)	0	21
2007	161	161	47	32	68	27	(100)	0	(0)	0	27
2008	267	267	37	29	71	48	(100)	0	(0)	0	48
2009	242	242	37	37	63	54	(96)	2	(4)	0	56
2010	326	326	33	31	69	67	(99)	1	(1)	0	68
2011	312	312	30	34	66	72	(99)	1	(1)	0	73
2012	308	301	29	34	66	72	(100)	0	(0)	0	72
2013	281	280	29	32	68	63	(98)	1	(2)	0	64
2014	381	380	33	22	78	56	(98)	1	(2)	0	57
2015	370	370	34	30	70	73	(99)	1	(1)	0	74
2016[a]	202	202	43	30	70	34	(97)	1	(3)	0	35
2017[a]	295	295	34	28	72	55	(100)	0	(0)	0	55

Note: Regulatory year begins 1 July and ends 30 June (e.g., regulatory year 2000 = 1 July 2000–30 June 2001).

[a] Hunt closed by emergency order.

Permit Hunts

Detailed permit information is provided in Table 2.

Hunter Residency and Success

The following percentage of successful hunters were nonlocal residents in Unit 20D during the reporting period: 82% in RY12, 91% in RY13, 72% in RY14, 76% in RY15, 83% in RY16, and 78% in RY17 (Table 3).

Nonlocal participation (state residents presiding outside of Unit 20D) in the RC835 hunt continues to increase while local participation (residents of Unit 20D) has plateaued (Table 3). This hunt is attractive to nonlocals as it is one of the few road accessible hunts in which they are able to participate. Local residents of Unit 20D have more options for caribou hunting such as the Unit 13 Nelchina caribou herd federal subsistence hunt. This hunt is not open to nonresidents of Alaska.

Harvest Chronology

As stated in the seasons and bag limits portion of the report the MACH season is August 10–August 27 unless closed early by emergency order. The highest amount of harvest typically occurs in the beginning of the season and then again during the end of the seasons when motorized access is allowed in the DCUA. The high harvest in the beginning is likely due to the fact many hunters like to get into the field as early as they can in order to try and beat the rush. The high harvest that comes during the 2 days when motorized access is allowed in the DCUA is likely because the hunt becomes substantially easier in terms of physical demand when motorized vehicles are allowed to be used. The harvest chronology per regulatory year is as follows:

RY12—26% of the harvest occurred in the first 8 days of the season, 28% during the second 8 days, and 44% during 26–27 August when motorized vehicles and pack animals were allowed in DCUA (Table 4). One bull was taken after the close of season.

RY13—28% of the harvest occurred in the first 8 days of the season, 28% during the second 8 days, and 42% during 26–27 August when motorized vehicles were allowed in the DCUA (Table 4). Date of harvest was unknown for 1 bull.

RY14—25% of the harvest occurred in the first 8 days of the season, 28% during the second 8 days, and 47% during 26–27 August when motorized vehicles were allowed in the DCUA (Table 4).

RY15—34% of the harvest occurred in the first 8 days of the season, 18% during the second 8 days, and 49% during 26–27 August when motorized vehicles were allowed in the DCUA (Table 4).

RY16—86% of the harvest occurred in the first 8 days of the season, 14% during the next 3 days. The season closed by Emergency Order after 20 August and therefore there was no harvest 21–27 August (Table 4).

Table 3. Macomb caribou hunter residency and success of RC835 registration permit hunters, regulatory years 2000–2017, Alaska.

	Successful					Unsuccessful					
Regulatory year	Local[a] resident	Nonlocal resident	Nonresident	Total	(%)	Local[a] resident	Nonlocal resident	Nonresident	Total	(%)	Total hunters
2000	11	11	0	22	(12)	89	75	0	164	(88)	186
2001	13	30	0	43	(25)	67	64	0	131	(75)	174
2002	10	15	0	25	(28)	30	36	0	66	(73)	91
2003	8	21	0	29	(26)	40	42	0	82[b]	(71)	111
2004	1	6	0	7	(22)	12	13	0	25	(78)	32
2005	10	8	0	18	(33)	13	24	0	37	(67)	55
2006	9	12	0	21	(38)	8	27	0	35	(63)	56
2007	12	15	0	27	(32)	14	44	0	58	(68)	85
2008	14	34	0	48	(29)	36	83	0	119	(71)	167
2009	16	40	0	56	(37)	30	67	0	97	(63)	153
2010	14	54	0	68	(31)	30	120	0	150	(69)	218
2011	17	56	0	73	(34)	32	112	0	144	(66)	217
2012	13	59	0	72	(34)	40	101	0	141	(66)	213
2013	6	58	0	64	(32)	23	111	0	134	(68)	198
2014	16	41	0	57	(22)	28	170	0	198	(78)	255
2015	18	56	0	74	(30)	34	138	0	172	(70)	246
2016	6	29	0	35	(30)	16	65	0	81	(70)	116
2017	12	43	0	55	(28)	22	119	0	141	(72)	196

Note: Regulatory year begins 1 July and ends 30 June (e.g., regulatory year 2000 = 1 July 2000–30 June 2001).

[a] Resident of Unit 20D.

[b] Residency of 3 unsuccessful hunters was unknown.

Table 4. Macomb caribou harvest chronology during registration permit hunt RC835, 2000–2017, Alaska.

	Harvest year														
Harvest date	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
10 Aug	–	–	–	4	5	2	4	3	4	6	8	3	4	5	4
11 Aug	–	–	–	3	0	3	3	4	1	3	3	0	3	6	5
12 Aug	–	–	–	1	1	6	1	2	0	1	3	2	6	5	5
13 Aug	–	–	–	2	3	2	0	3	4	1	1	2	3	4	3
14 Aug	–	–	–	2	1	4	2	0	1	4	1	1	3	6	1
15 Aug	19	4	2	0	1	0	3	2	0	1	1	1	3	2	0
16 Aug	9	0	3	0	3	1	0	1	0	0	0	4	3	0	1
17 Aug	1	0	2	0	0	2	2	1	2	3	1	1	0	2	3
18 Aug	1	0	0	2	3	3	0	0	1	5	0	1	0	2	2
19 Aug	0	1	1	1	1	0	0	0	2	4	0	0	0	1	3
20 Aug	0	0	5	1	2	0	2	3	3	1	2	0	0	2	4
21 Aug	0	0	3	0	0	3	2	8	2	1	6	0	2	–	2
22 Aug	0	0	0	0	0	0	1	2	1	1	0	3	2	–	0
23 Aug	0	1	0	1	4	2	1	0	1	2	1	3	1	–	1
24 Aug	0	0	0	2	0	1	0	5	0	1	3	5	3	–	4
25 Aug	0	1	1	1	3	1	3	7	5	5	6	4	5	–	3
26 Aug	–	–	–	–	–	12	23	17	28	27	19	13	26	–	14
27 Aug	–	–	–	–	–	4	8	10	18	5	8	14	10	–	–
28 Aug	–	–	–	–	–	1	–	–	–	1	0	–	–	–	–
Unknown	–	–	1	1	–	1	1	–	–	–	1	–	–	–	–
Total	30	7	18	21	27	48	56	68	73	72	64	57	74	35	55

RY17—40% of the harvest occurred in the first 8 days of the season, 35% during the second 8 days, and 25% during 26 August when motorized vehicles were allowed in the DCUA (Table 4). The season closed one day early by emergency order and therefore there was no harvest on 27 August.

Harvest Location

RY12—The majority of reported caribou harvest occurred in the Jarvis Creek drainage (53%) due to its location and network of trails. This drainage is easily accessed by motor vehicle from the Richardson and Alaska highways. Numerous hunters sought caribou in this area during the last 2 days of the hunt when motor vehicle access into the area was allowed. The Granite Mountains (18%) and Macomb Plateau (17%) had the second and third highest harvest rates (Table 5).

RY13—The majority of reported caribou harvest occurred in the Jarvis Creek drainage (41%), followed by Macomb Plateau (22%). Harvest increased significantly from previous years (17%) in the Unit 12 portion of the hunt area, where motorized access is allowed throughout the RC835 hunting season (Table 5).

RY14—The majority of reported caribou harvest occurred in the Jarvis Creek drainage (42%), followed by the Granite Mountains (21%), and Macomb Plateau (19%; Table 5). The Macomb Plateau continues to see more harvest each year. The rest of the harvest was fairly evenly distributed across the hunt area (Table 5).

RY15—The majority of reported caribou harvest occurred in the Jarvis Creek drainage (36%), followed by the Granite Mountains (23%), and Macomb Plateau (20%; Table 5).

RY16—The majority of reported caribou harvest occurred on Macomb Plateau, and at a significantly higher level than previous years (40%; Table 5). The Jarvis Creek drainage had the second highest harvest rate (26%), and Unit 12 had the third highest harvest rate (20%; Table 5). It should be noted that most of the Jarvis Creek drainage harvest typically comes during the motorized portion of the hunt. The 2 days of motorized hunting that typically occurs in the Jarvis Creek drainage did not take place in RY16 due to the season closing by emergency order on 20 August. The lack of motorized hunting shifted hunters to other areas, which explains the spike in harvest on both the Macomb Plateau and Unit 12.

RY17—The majority of reported caribou harvest occurred on Macomb Plateau (44%). The Jarvis Creek drainage had the second highest harvest (36%), while Unit 12 again had the third highest harvest (9%; Table 5). The lower harvest in Jarvis Creek can likely again be attributed to the season closing 1 day early by emergency order, and therefore restricting motorized hunting to just 1 day in the Jarvis Creek drainage.

Table 5. Macomb caribou harvest location during registration permit hunt RC835, regulatory years 2000 through 2017, Alaska.

	Harvest location/drainage							
Regulatory year	Jarvis Creek	Little and Big Gerstle rivers	Granite Mountains	Johnson River	Macomb Plateau	Robertson River	Unit 12	Unknown
2000	18	2	0	0	0	0	0	2
2001	24	0	3	0	13	0	1	2
2002	22	0	0	0	2	0	1	0
2003	23	0	0	0	6	1	0	0
2004	2	0	1	0	2	1	0	1
2005	4	0	2	1	10	1	0	0
2006	2	0	2	1	11	0	0	0
2007	9	0	0	1	14	2	1	0
2008	21	2	2	1	15	5	2	0
2009	30	5	10	1	14	1	7	0
2010	32	5	5	0	10	1	3	0
2011	40	6	3	0	14	6	4	0
2012	38	4	13	0	12	1	4	0
2013	26	3	10	0	14	0	11	0
2014	24	4	12	0	11	2	4	0
2015	27	7	17	0	15	1	7	0
2016	9	0	5	0	14	0	7	0
2017	20	2	3	0	24	1	5	0

Note: Regulatory year begins 1 July and ends 30 June (e.g., regulatory year 2000 = 1 July 2000–30 June 2001).

Transport Methods

During the reporting period, all-terrain vehicles (ATV) were the most common transport method for successful hunters, except in RY16 when motorized access was not permitted in DCUA due to an early closure (Table 6). In RY16, 6 people reported using a boat (Table 6).

Nonmotorized transport is likely the most common method of transportation when all other methods are combined (highway vehicle, walking, and other). The method of transport entitled "highway vehicle" on the permit report card refers to "how you got to where you started walking to begin your hunt." For RC835 there are very few areas within the hunt area that are directly accessible by highway vehicle. We expect that the majority of hunters who checked "highway vehicle" as their method of transport were walking to the hunt area from their vehicle. Additionally, biking is a popular method of transport within DCUA; however, "bicycle" is not a choice on the report card, therefore, it is likely that most of the hunters who reported "other" are also nonmotorized hunters. Therefore, we believe nonmotorized access likely continues to be the primary transportation method for hunters participating in the RC835 hunt (Table 6).

Table 6. Macomb caribou harvest percent by transport method, regulatory years 2000 through 2017.

Regulatory year	Harvest percent by transport method									
	Airplane	Horse	Boat	ATV[b]	Snowmachine	Other ORV[c]	Highway vehicle	Walking	Other	*n*
2000	0	0	0	46	0	46	4	0	4	22
2001	0	12	0	56	0	7	16	0	9	43
2002	4	0	0	0	0	8	40	0	48	25
2003	0	3	0	0	0	3	62	29	3	30
2004	0	14	0	14	0	0	58	14	0	7
2005	0	33	0	0	0	11	34	11	11	18
2006	10	24	0	0	0	5	46	5	10	21
2007	0	30	0	4	0	7	51	4	4	27
2008	8	15	0	25	0	4	32	8	8	48
2009	0	4	0	39	0	13	31	7	6	56
2010	1	12	1[d]	34	0	0	34	9	9	68
2011	0	15	1[d]	58	0	1	14	3	8	73
2012	0	7	0	43	0	3	29	6	12	72
2013	0	8	0	36	0	3	31	8	14	64
2014	4	4	0	37	0	5	41	2	7	57
2015	1	1	0	54	0	3	29	5	7	74
2016	0	3	6	0	0	6	63	11	11	35
2017	0	4	0	18	0	4	50	11	13	55

[a] Regulatory year begins 1 July and ends 30 June (e.g., regulatory year 2000 = 1 July 2000–30 June 2001).
[b] ATV = all-terrain vehicle.
[c] ORV = off-road vehicle.
[d] Airboat.

Other Mortality

There were 3 caribou harvested under a potlatch permit in February of 2016 in Donnelly Flats.

An unknown number of caribou mortalities were caused by motor-vehicle collision on the Richardson Highway in Donnelly Flats.

The Alaska State Troopers have investigated several caribou harvested illegally in Donnelly Flats during this reporting period. It is likely that additional illegal harvest occurred during the reporting period that ADF&G staff are unaware of.

Recommendations for Activity 2.1.

We recommend continuing the Tier 1 registration hunt permit hunt structure with the current reporting requirement of within 2 days of the kill in order to be able to make swift management actions to ensure that overharvest does not occur on this small road-accessible herd.

3. Habitat Assessment-Enhancement

If the population levels decreases significantly or suddenly, or hunters are reporting poor body condition, ADF&G area management staff will consider evaluating habitat quality, caribou body

condition, and assess the nutritional status of the MACH directly or indirectly where it is feasible. This might be accomplished through range assessment surveys or through visually inspecting caribou during surveys and capture/handling events. Hunter harvested caribou could also be assessed. At this time, data are not needed; we have no reason to believe caribou range or habitat quality is negatively affecting the MACH.

NONREGULATORY MANAGEMENT PROBLEMS OR NEEDS

In the western portion of MACH's range, all-terrain vehicle use poses the greatest potential impact to the herd and has risen exponentially in recent years, throughout the year, particularly in the Jarvis Creek drainage and Granite Mountains, even during the nonmotorized portion of the RC835 hunt. Anecdotal observations show an extensive network of ATV tracks across the tundra in the western portion of the RC835 hunt area. The amount of ATV traffic throughout the year may be causing localized habitat degradation. ADF&G staff will continue to monitor this impact on MACH's habitat on the western side of the MACH range where motorized vehicles are commonly used.

During the RC835 hunt, ongoing military activity in the western portion of MACH's range has continued to be contentious between hunters and the U.S. Army. The most popular access routes for the entire hunt, 12-mile crossing and 33-mile loop, are often closed for a portion of the hunting season. This forces hunters to take further, more difficult access routes within the hunt area. ADF&G management staff are currently working with the U.S. Army to explore alternatives to closing this area during the RC835 hunt. The best solution may be to further enhance existing access routes that are not on of military land, but still provide access to the McCumber Creek and Morningstar Creek drainages with similar travel time and effort.

Active mining occurred within the range of MACH during RY12–RY17, but not in core caribou habitat. Ongoing and future mining development will be monitored to assess the potential of disturbance to caribou and caribou habitat.

Data Recording and Archiving

- Harvest data and capture data are stored on an internal database housed on a server (http://winfonet.alaska.gov/index.cfm).

- All other electronic data and files such as survey memoranda and reports are located on the Delta Junction area wildlife biologist's computer hard drive: bwschmidt Home Drive (H:). Caribou data are archived in the WinfoNet Data Archive (project title: Delta area survey and inventory: caribou).

- Field data sheets, paper files, hard copies, etc. are located in a file cabinet in the ADF&G Delta Junction area office (MP 266.8, Richardson Highway, Delta Junction, Alaska), in the DWC area wildlife biologist's office; electronic copies are also stored in the WinfoNet Data Archive.

Agreements

None.

Permitting

None.

Conclusions and Management Recommendations

ADF&G met the population objective of 600–800 caribou during RY12–RY16. Minimum counts of the herd during RY12–RY16 ranged from 729 to 1,503 caribou. The harvest quotas were appropriate to allow opportunity for harvest of the biological surplus. Harvest in RY12 and RY15 slightly exceeded the management objective but did not exceed the harvest quota of 50–100 caribou allowed in regulation. We also achieved the amounts necessary and reasonable opportunity to hunt for subsistence needs (ANS) with the RY12–RY16 hunt structures and harvest quotas, because harvest remained within the 10–40 caribou needed for ANS.

Harvest increased significantly in Unit 12 during RY13 but returned to average harvest rates in RY14–RY16. This increase may have occurred due to there being more caribou in Unit 12 during the hunting season and hunters recognizing that motor vehicle use was allowed in Unit 12 when motor vehicle restrictions were in place for DCUA and MPCUA. Harvest has been gradually increasing in the Macomb Plateau Controlled Use Area. In RY16 when motorized hunting was not allowed in the DCUA, most of the harvest occurred on Macomb Plateau. More hunters also reported using boats in RY16 compared to other years when motorized access was allowed.

Members of the local community and the Delta Fish and Game Advisory Committee continue to regularly contact ADF&G staff to express concerns that fair chase rules and hunting ethics are violated by hunters, and the landscape is being damaged by motor vehicle use during the last 2 days of the RC835 hunt.

Caribou continue to be illegally taken in the closed area west of Jarvis Creek during both the open RC835 hunting season and outside of it as well. This take accounts for a portion of the harvest quota each year. The known number of caribou taken in the closed area is low, but chronic. In addition, an unknown number of caribou mortalities are caused annually by motor vehicle collision on the Richardson Highway in Donnelly Flats. It is possible these mortalities could reduce the harvestable surplus of the Macomb herd. If caribou continue to be taken under potlatch permits harvestable surplus could also be reduced as a result of the potlatch harvest. The MACH has now been placed on the potlatch exemption list. However, bull caribou can still be taken in the legal hunting area east of Jarvis Creek under a potlatch permit.

The cow and neonate observed on Donnelly Dome on 26 May 2013 was the first known documentation of possible parturition in this part of the MACH range. ADF&G records and anecdotal reports from past ADF&G staff and members of the local community have not documented caribou parturition in the western portion of the MACH range. Since 2013 more

caribou have been observed on the western portion of the range, but there have been no further newborn calf observations in this area.

Harvest monitoring and regulation will remain the primary methods in managing the MACH. The number of caribou in this herd will likely fluctuate over time, and it will be necessary to adjust the harvest quota to sustain the intensive management objectives and amounts necessary for subsistence needs.

We will continue to monitor caribou distribution prior to the motorized portion of RC835. Distribution can be an indicator of rate of harvest, and the distributional information is used to assess the potential for early closure of the season. Harvest is also monitored frequently during the 2 days of motorized access hunting.

We will continue annual abundance and composition surveys; however, harvest monitoring will continue to be the primary method in management of the MACH. We recommend the current Tier I registration permit hunt be continued during 10–27 August. We will continue to be prepared to close the hunt by emergency order if the harvest quota is achieved prior to the end of the season. We also recommend working with the Department of Public Safety, Alaska Wildlife Troopers, to enumerate the annual caribou vehicle collision mortalities within the Macomb herd range. In addition, we will increase monitoring effort for parturition in the western part of the MACH range with aerial surveys during calving season. And finally, we recommend continued consultation with the public and the Delta Fish and Game Advisory Committee to address concerns about the motorized portion of the RC835 hunt.

II. Project Review and RY17–RY21 Plan

Review of Management Direction

ADF&G will continue to manage the Macomb caribou herd for both consumptive and nonconsumptive uses to allow for maximum human use, which includes preventing habitat degradation. Management will include population abundance surveys, collaring female caribou to maintain an adequate sample of 15–20 collared caribou to track distribution, harvest monitoring, and disease screening.

GOALS

G1. Maintain a harvestable surplus of caribou with human consumption as a preferred use.

G2. Provide uncrowded hunting conditions while protecting critical caribou habitat. (The wording of this goal was altered slightly from goal 2 in the RY12–RY16 report section so "aesthetically pleasing hunting conditions" could be defined).

G3. Maintain caribou populations at a level that allows for nonconsumptive uses such as wildlife viewing and photography.

CODIFIED OBJECTIVES

Amounts Reasonably Necessary for Subsistence Uses

C1. There is a positive C&T finding with the amounts reasonably necessary for subsistence uses set at 10–40 caribou.

Intensive Management

C2. Intensive Management Population Objective of 600–800 caribou.

C3. IM harvest objective of 30–50 caribou.

MANAGEMENT OBJECTIVES

The RY12–RY16 management objectives were generally appropriate; however, the objectives will be altered slightly for RY17–RY21 to reflect clear and measurable objectives, which are the primary purpose for conducting management activities. Specifically, the objectives for the RY17–RY21 reporting period will be as follows:

M1. Maintain a fall population of 800 or more caribou.

M2. Maintain a sustainable harvest of 50 or more caribou.

REVIEW OF MANAGEMENT ACTIVITIES

1. Population Status and Trend

Assess the size and status of the population to determine the 5-year trend.

ACTIVITY 1.1. Conduct aerial minimum count abundance and fall composition surveys to estimate population status and trend (Objective M1).

Data Needs

Annual composition and population data is needed to determine population size and to enumerate the number of harvestable bulls available and calf recruitment.

Methods

Same as previous reporting period.

ACTIVITY 1.2. Monitor caribou distribution throughout the RC835 hunting season.

Data Needs

Caribou distribution needs to be monitored throughout the hunting season to help track the rate of harvest, especially prior to the motorized portion of the hunting season.

Methods

Same as previous reporting period.

ACTIVITY 1.3. Conduct aerial surveys to determine parturition rates of radiocollared females and/or determine calving locations.

Data Needs

Parturition (natality) rates can be a useful index to assess herd nutrition (Valkenburg et al. 2000). It is also important to track calving locations as the MACH has expanded its calving range in recent years. Tracking these changes will help ensure that this core habitat is protected.

Methods

A radiotelemetry flight will be conducted in late May or early June throughout the range of the MACH. VHF collars will be used to track caribou groups to determine calving locations, and if possible, determine the number of collared cows that have given birth.

ACTIVITY 1.4. Maintain a radiocollared sample of at least 20 VHF collared cow caribou in the MACH.

Data Needs

Collared caribou are needed for many management activities that are conducted for caribou. Collars are used in order to find caribou for abundance and composition surveys, tracking movements throughout the hunting season, along with almost every other management activity conducted.

Methods

Five-month-old female caribou will be periodically captured and fitted with VHF radio collars to maintain a sample size of at least 20 radiocollared females in the herd. To attach radio collars, we will capture caribou in October from a Robinson R-44 helicopter by immobilizing them with darts from a Pneu-Dart X-Caliber gas fired projector (rifle). A PA-18 Super Cub is also used for a cover plane to find groups of caribou for the helicopter and to help keep track of caribou once they are darted. Darts are loaded with 1.5 mg Thiafentanil and 20 mg xylazine hydrochloride. Once immobilized, we will fit the caribou with radio collars; weigh each animal; collect body measurements; score the body condition (Gerhart et al. 1996); draw blood (for serology, genetics, and trace mineral analysis); and record sex, age, and handling time. We will then give intramuscular injections of naltrexone to antagonize the Thiafentanil, and atipamezole to antagonize the xylazine.

ACTIVITY 1.5. Health monitoring of MACH.

Data Needs

Biological samples are needed to further enhance our baseline knowledge of the health of MACH, and to increase our preparedness for disease.

Methods

Hunters may be required to submit biological samples to ADF&G from harvested caribou. ADF&G staff will also try to collect samples from any nonhunting mortalities that are reported.

2. Mortality-Harvest Monitoring

ACTIVITY 2.1. Harvest monitoring via registration permit report data and contact with hunters (objective M2).

Data Needs

Annual registration report data and contacting hunters are needed to track the number of harvested caribou, caribou distribution in relationship to hunter access, to help evaluate population size, and the number of harvestable bulls available.

Methods

Same as previous reporting period.

3. Habitat Assessment-Enhancement

ADF&G biologists will assess the nutritional status of the population directly or indirectly where it is feasible. Data are not needed at this time. We have no reason to believe caribou range or habitat quality is negatively affecting the MACH at this time. If population levels decrease significantly or suddenly, or hunters are reporting poor body condition, we will consider evaluating habitat quality and caribou body condition through range assessment surveys or through visually inspecting caribou during surveys and capture/handling events. Hunter harvested caribou could also be assessed.

4. Management with Public Participation and Outreach

ACTIVITY 4.1. Provide information to state and federal regulatory processes and the public about the management of MACH.

Data Needs

In order for regulatory bodies and the public who engage in regulatory processes to understand management and biology of MACH, it is important for staff to communicate and coordinate with Fish and Game Advisory Committees and the Alaska Board of Game; this includes analyzing regulation proposals for the Alaska Board of Game.

Increasing public awareness of MACH population trends, disease, and management directions will provide the public with valuable information to make informed decisions when participating in these regulatory processes.

Methods

ADF&G staff will attend Fish and Game Advisory Committee and the Alaska Board of Game meetings to provide information about MACH biology and management and review and analyze

regulation proposals for the Alaska Board of Game. We will increase public awareness regarding important topics related to the herd through newsletters, brochures, news releases, and other documents.

NONREGULATORY MANAGEMENT PROBLEMS OR NEEDS

Continue working with the U.S. Army to explore alternative access routes into the RC835 hunt area when Army land is closed for training on the western side of the hunt area.

Ongoing and future mining development will be monitored to assess the potential of disturbance to caribou and caribou habitat.

Data Recording and Archiving

- Harvest data and capture data are stored on an internal database housed on a server (http://winfonet.alaska.gov/index.cfm).

- All other electronic data and files such as survey memoranda and reports are located on the Delta Junction area wildlife biologist's computer hard drive: bwschmidt Home Drive (H:). Caribou data are archived in the WinfoNet Data Archive (project title: Delta area survey and inventory: caribou).

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Agreements

None.

Permitting

None.

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