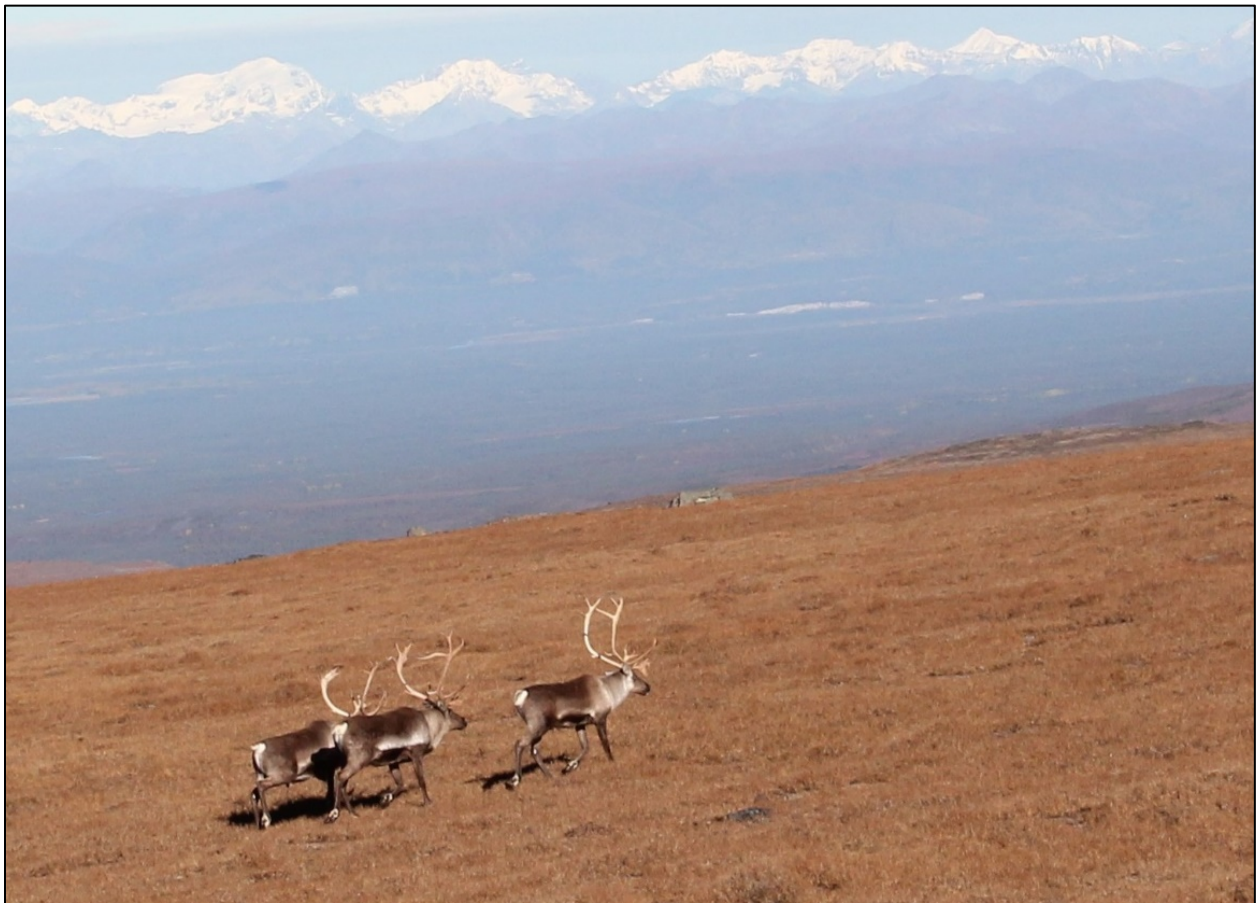


Mentasta Caribou Herd Management Report and Plan, Game Management Unit 11:

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

Heidi L. Hatcher



2018 National Park Service photo by Judy Putera.



2020

Mentasta Caribou Herd Management Report and Plan, Game Management Unit 11:

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

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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 five 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 five 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 the Division of Wildlife Conservation.

Species management reports and plans are available via the Alaska Department of Fish and Game's public website (www.adfg.alaska.gov) or by contacting Alaska Department of Fish and Game's Division of Wildlife Conservation, PO Box 115526, Juneau, AK 99811-5526; phone: (907) 465-4190; email: dfg.dwc.publications@alaska.gov. The report may also be accessed through most libraries, via interlibrary loan from the Alaska State Library or the Alaska Resources Library and Information Services (www.arlis.org).

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Cover Photo: Mentasta herd bull caribou wander high above the Copper River Valley. 2018 National Park Service photo by Judy Putera.

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Purpose of this Report

This report provides a record of survey and inventory management activities for the Mentasta caribou herd in Unit 11 for the 5 regulatory years 2012–2016 and plans for survey and inventory management activities in next 5 regulatory years, 2017–2021. A regulatory year (RY) begins 1 July and ends 30 June (e.g., RY12 = 1 July 2012–30 June 2013). This report is produced primarily to provide agency staff with data and analysis to help guide and record its own 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) Division of Wildlife Conservation (DWC) launched this 5-year report to more efficiently report on trends and describe potential changes in data collection activities. It replaces the caribou management reports of survey and inventory activities that were previously produced every 2 years.

I. RY12–RY16 Management Report

Management Area

Unit 11 (12,784 mi²) consists of that area draining into the headwaters of the Copper River south of Suslota Creek and the area drained by all tributaries into the east bank of the Copper River between the confluence of Suslota Creek with the Slana River and Miles Glacier (Fig. 1). Most of Unit 11 is included in the Wrangell–St. Elias National Park and Preserve. Unit 11 is dominated by mountainous terrain, including high altitude peaks (16,000 ft), glaciers, ice fields, and alpine habitat. Major river drainages include the Copper River and the Chitina River, which are bordered by spruce forests. Unit 11 supports populations of Dall sheep, plains bison, moose, caribou, brown bears, black bears, wolves, and wolverines, among other species. Unit 11 includes portions of three of Alaska's 32 ecoregions: the Wrangell Mountains, the Chugach-St. Elias Mountains, and the Copper River Basin. Maps for current Unit 11 boundaries and special management areas can be found at: <http://www.adfg.alaska.gov/index.cfm?adfg=maps.main>.

Summary of Status, Trend, Management Activities, and History of the Mentasta Caribou Herd in Unit 11

The Mentasta caribou herd (MECH) is a small barren-ground caribou herd with population estimates that have ranged from a high of 3,160 animals in 1987 to a low of 261 animals in 2005. The range of the Mentasta herd encompasses the northern slopes of Mount Drum and Mount Sanford, and spreads northeast to and across the Tetlin National Wildlife Refuge into Yukon, Canada near Beaver Creek, and northwest toward the Mosquito Flats (Putera and Miller 2018; Fig. 2). The herd traditionally calves and summers along the northern and western slopes of the Wrangell Mountains within Unit 11 and within the boundaries of Wrangell–St. Elias National Park and Preserve (WRST). MECH animals have varying wintering strategies, with some animals wintering at high elevations among the northeast mountain slopes in Unit 11 or the Mentasta Mountains, and some animals wintering in the flats either north or south of the Mentasta Mountains. MECH range overlaps the migratory path of the Nelchina caribou herd (NCH), which currently numbers roughly 35,000 animals. NCH animals sometimes winter with MECH animals on MECH wintering range. In some years, Chisana animals may join the mix on

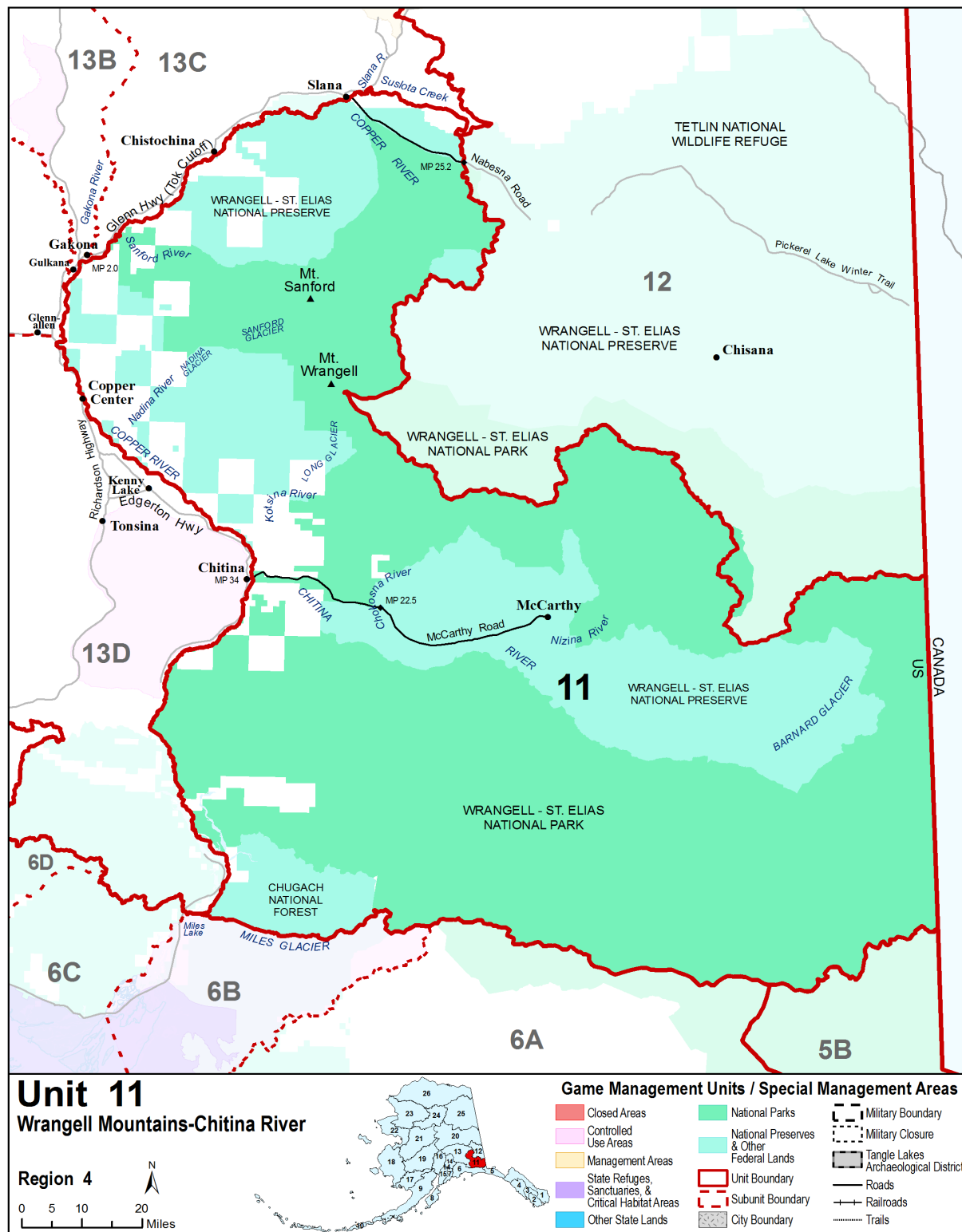


Figure 1. Map of the boundaries of Game Management Unit 11 in Southcentral Alaska.

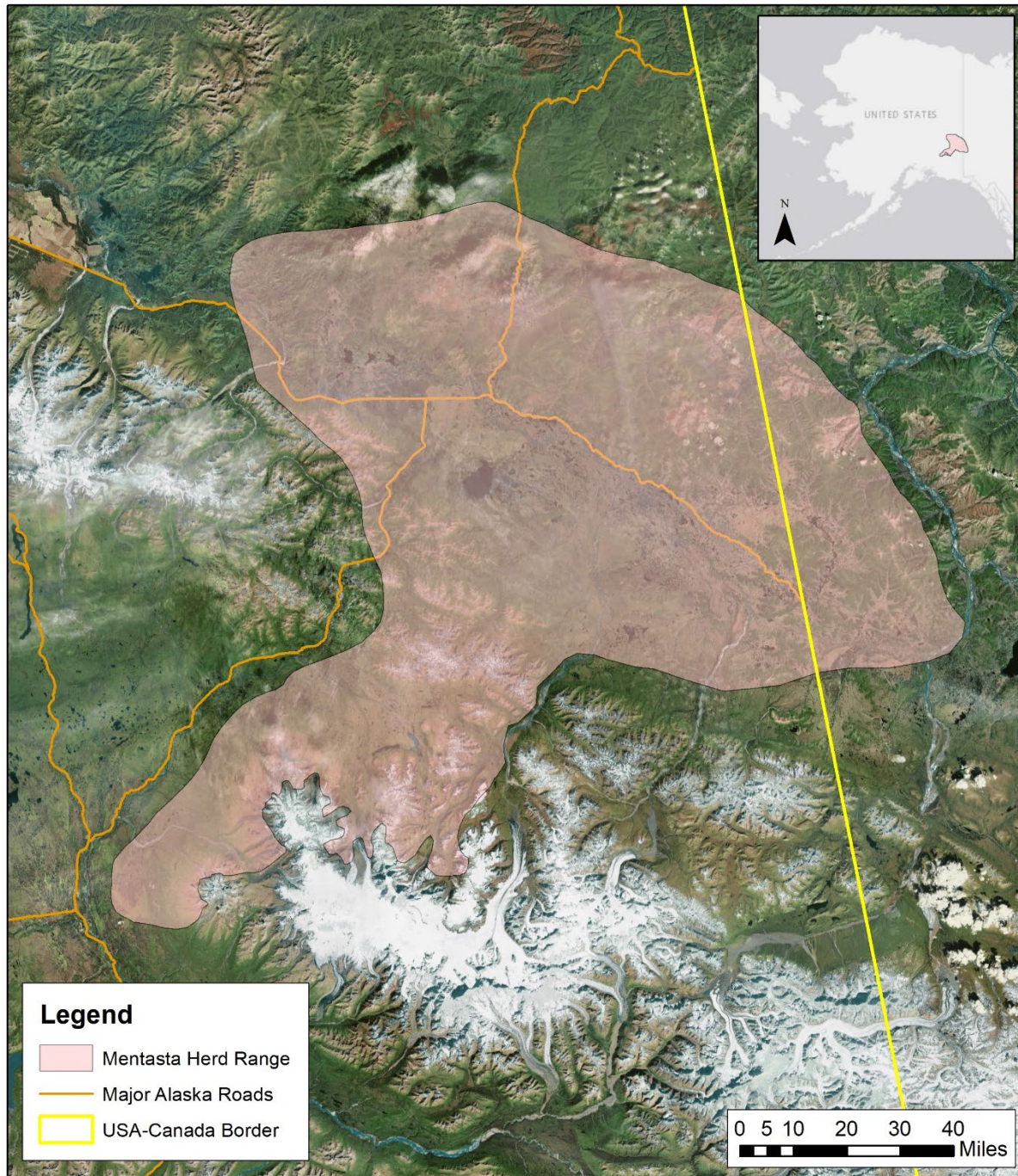


Figure 2. Map of the range of the Mentasta caribou herd, Alaska (Putera and Miller 2018).

the wintering grounds. Genetic research indicates that the Chisana herd is genetically distinct from either the NCH or the MECH, but that gene flow does exist between NCH and MECH animals (Roffler et al. 2012; Mager et al. 2014). Microsatellite (i.e., nuclear) DNA analyses demonstrated genetic exchange, indicating that NCH and MECH may function as metapopulations. Differentiation in mitochondrial DNA between the 2 herds, however, indicates that the females of each herd, in addition to showing strong fidelity to their respective calving

grounds, function genetically independently, which demonstrates that gene flow between the herds is male-mediated (Roffler et al. 2012).

Regular surveys of the Mentasta caribou herd began in the early 1970s. Little information on the MECH is available before this time, but there were records of caribou in the Wrangell Mountains before 1920 (Skoog 1968). From 1973 to 1987 the estimated herd size varied from 2,200 to 3,160 and averaged 2,660 caribou (Tobey 1993). Count data indicated slow herd growth from 1973 through 1985, followed by a decline through 2005. The herd has remained at low levels (260–500 animals) since that time (J. Putera, Wildlife Biologist, WRST, Copper Center, personal communication).

Early MECH management (1960s and early 1970s) included long hunting seasons (7–8 months) and liberal bag limits (3–4 caribou) as the MECH was relatively inaccessible and harvest was believed to be low (Tobey 1993). During years when the NCH wintered on MECH range, reported MECH harvest was high (288–1,693 caribou annually between 1968 and 1971), but many of those animals were believed to be from the NCH. MECH season and bag limit were reduced in 1972 (season: 50 days in fall; bag limit: one caribou). Reported harvest declined to 81–236 caribou annually 1972 to 1976. In 1977, a draw hunt was implemented to regulate MECH permits. A state registration hunt opportunity was established for subsistence hunters in 1986. Due to low population numbers and low recruitment levels, caribou hunting opportunities were closed for Unit 11 in 1989. A federal subsistence hunt opportunity for Unit 11 was available to federally qualified hunters beginning in 1990, but that was closed in 1992 due to low population levels, poor recruitment, unknown incidental harvest, and the availability of NCH as an alternative subsistence resource (Route et al. 1995).

Research conducted from 1987 to 1990 on MECH productivity and survival indicated the population at that time was limited by low recruitment, and that calf mortality was most likely due to high rates of predation (Lieb et al. 1994). While results did not indicate that range conditions were adversely affecting the herd, Lieb et al. (1994) strongly recommended the implementation of range condition studies to evaluate the wintering ranges in Units 11 and 12, which are often shared by MECH, NCH, and Chisana animals.

Caribou exclosures were developed in WRST in 1982 with the intention of monitoring vegetation trends and range conditions for MECH spring, summer, and fall range (Martin 1983). Exclosures were revisited in 1993; while concerns were raised regarding the methodology of the establishment of the exclosures and comparison plots, as well as the length of time required to detect differences in lichen growth/cover, Jenkins et al. (1997) determined that there was not sufficient evidence to indicate that caribou had significantly influenced vegetative growth since the establishment of the exclosures. No further range studies have been conducted.

Additional recruitment studies conducted between 1990 and 1997 supported the hypothesis that MECH population growth was being limited by calf mortality, largely due to predation (Jenkins and Barten 2005). Jenkins and Barten postulated that the herd would continue to decline until a low-density dynamic equilibrium was reached which would then be modulated by fluctuations in predator densities. Subsequent MECH surveys have been conducted by WRST and indicate that since 1999 the herd has roughly stabilized at low population numbers, fluctuating between 260 and 512 animals (J. Putera, Wildlife Biologist, WRST, Copper Center, personal communication).

Sightability models have been applied to summer counts since 2001 to estimate summer abundance (Putera and Miller 2018).

Management Direction

Management direction of the MECH is largely influenced by the herd's tendency to spend the majority of its time within WRST, which is a park that mandates that managers provide hunting opportunity for federally qualified subsistence users whenever possible (Alaska National Interest Lands Conservation Act [ANILCA], Sec. 801). Harvest strategies have been developed with the intention of incorporating rather than influencing the natural fluctuations in caribou abundance, composition, and productivity in Unit 11.

EXISTING WILDLIFE MANAGEMENT PLANS

Direction in the *North Wrangell Mountains caribou management plan* (ADF&G 1976) was modified over the years through public comments, staff recommendations, and Alaska Board of Game (Board of Game, board) actions, until ADF&G participated in developing an interagency *Mentasta Caribou Herd Cooperative Management Plan* (Cooperative Management Plan; Route et al. 1995). ADF&G's management of the herd is consistent with the goals and management established in the 1995 Cooperative Management Plan.

GOALS

- Allow for natural population fluctuations (free from human manipulation for the express purpose of maximizing yield for humans).
- Allow for human consumption as a component of the predator/prey system, sharing the naturally occurring production of caribou with existing predators.
- Place a strong emphasis on nonconsumptive use and prioritize consumptive opportunities for federally qualified subsistence users, allowing state harvest when the available take exceeds the level needed to provide a reasonable opportunity to federally qualified users.

To achieve these goals, the Cooperative Management Plan stipulates that management of MECH should:

- Allow for human harvest that will have minimal effects on the production, composition, and abundance of MECH.
- Provide harvest priority to federally qualified subsistence users and allow state harvest to occur whenever possible.
- Monitor the herd demographics and harvest such that all pertinent data on the health of the herd are collected and disseminated to all agencies and citizens concerned with their management.

CODIFIED OBJECTIVES

Amounts Reasonably Necessary for Subsistence Uses

The Board of Game made a positive customary and traditional use determination for the Mentasta caribou herd in Unit 11, but no amount reasonably necessary for subsistence has been determined (5 AAC 99.025).

Intensive Management

There are no intensive management plans for Unit 11. The Board of Game has determined that neither moose nor caribou in Unit 11 provide high levels of harvest for human consumptive use (5 AAC 92.108).

MANAGEMENT OBJECTIVES

- When the 2-year mean for calf recruitment meets or exceeds 80 calves, allow an annual fall harvest quota of between 15% and 20% of that mean recruitment.
- When the 2-year mean fall bull:cow ratio is at or above 35 bulls:100 cows:
 - Allow for “bulls only” harvest at population levels below 2,000 caribou
 - Allow for “either sex” bag limit when population levels exceed 2,000 caribou.
- Minimize incidental harvest of MECH in winter hunts where MECH intermingle with other herds.
- Administer harvest as follows:
 - When a fall harvest quota is available, harvest opportunity will be provided by permit only for the area within Unit 11 and that portion of Unit 12 west of the Nabesna River within the drainages of Jack Creek, Platinum Creek, and Totschunda Creek.
 - When the fall harvest quota is greater than 70 caribou, provide hunting opportunity for both federally qualified subsistence users and state authorized hunters. State permits will be issued under a limited entry system such as Tier II, drawing, or registration. Federal subsistence users will be provided priority with a longer season. State and federal managers will work closely to ensure total harvest does not exceed the fall quota.
 - When the fall harvest quota is 70 or fewer caribou, harvest opportunity will only be available to federally qualified subsistence users. When the quota drops below 30 caribou, permits will be allocated among federally qualified subsistence users in accordance with the priority system established by the Federal Subsistence Board and determined on a case-by-case basis as the situation arises.

MANAGEMENT ACTIVITIES

1. Population Status and Trend

ACTIVITY 1.1. Population estimation and composition

Data Needs

Estimating the population size of the MECH is essential for managing under the decision framework outlined in the Cooperative Management Plan.

Methods

WRST attempts to conduct an aerial census of the MECH in late June at least every other year. Summer herd composition data are collected during the census. Fall composition surveys are conducted as well. WRST maintains radio collars on female caribou within the herd and collar information is used to develop a sightability model that is used in combination with composition data to derive fall population estimates (WRST caribou study plan/project statement). The WRST study plan aims to maintain 40-50 radiocollared females within the herd. ADF&G staff assist with WRST MECH population monitoring activities when possible.

Results and Discussion

During this reporting period, WRST completed an MECH census in 2013 and 2017 and fall composition surveys during 2013 and 2015–2017 (Table 1). Fall population estimates were derived for 2013 and 2017. Abundance estimates (corrected for sightability) suggest that the MECH has maintained above 400 animals during this reporting period. Calf-to-cow ratios remain low compared to NCH ratios during this same time period. Bull-to-cow ratios were above 70 bulls:100 cows every year during this reporting period as expected from a caribou herd that is not being harvested for human consumption.

Recommendations for Activity 1.1

Modify. Recent abundance increases in the NCH have resulted in increased public interest in caribou hunting opportunities in Unit 11 when the NCH migrates through. Caribou hunting has remained closed in Unit 11 due to concerns about incidental harvest of MECH animals when NCH animals are migrating through the area. A reliable method of monitoring herd mixing would be necessary to allow future hunting opportunities of NCH in Unit 11.

ADF&G will coordinate with WRST to work toward maintaining the desired number of radio collars within the MECH herd with a focus on deploying satellite collars to improve monitoring of herd movements and herd mixing. Should population numbers approach management thresholds, surveys will be conducted more frequently (increase to an annual basis). An effort will be made to monitor calf recruitment to inform the harvest threshold described in the Cooperative Management Plan. If the herd remains at low population levels, 40 radiocollared females may not be necessary for adequate herd representation. Managers should convene to reassess and update the Cooperative Management Plan, including the desired number of radio collars, herd monitoring efforts, and population thresholds for management and harvest decision-making.

Table 1. Unit 11 Mentasta caribou herd abundance estimates and composition data, Alaska, regulatory years 2012–2016.^a

Calendar year	June calf:100 cow	September calf:100 cow	September bull:100 cow	September abundance estimate
2012	-	34	84	-
2013	38	23	77	512
2014 ^b	-	-	-	-
2015 ^c	-	33	73	-
2016 ^c	-	33	142	-
2017	11	18 ^d	86 ^d	429

^a Data provided by J. Putera, Wrangell–St. Elias National Park and Preserve, Copper Center.

^b No surveys were conducted in 2014.

^c No census was conducted in 2015 or 2016.

^d Nelchina caribou fall migration through the Mentasta range affected September composition ratios in 2017.

2. Mortality-Harvest Monitoring and Regulations

ACTIVITY 2.1. Monitor the caribou harvest through hunter harvest reports.

Data Needs

Currently, harvest monitoring provides an opportunity for ADF&G or Alaska Wildlife Troopers to provide informational outreach and clarify regulations to hunters who report hunting or harvesting a caribou in Unit 11. If the MECH population increases sufficiently to implement the harvest framework outlined in the management objectives, harvest monitoring will be essential for maintaining harvest within established quotas.

Methods

During years when state hunts are offered, individuals must obtain a caribou harvest ticket from ADF&G and are required to report on their ticket after successful harvest, or after the end of the season. State hunt reports are recorded in DWC’s WinfoNet database, which is queried annually to obtain harvest numbers. Federal harvest reports are recorded in the federal subsistence database.

Season and Bag Limit

There are currently no federal or state hunting opportunities for caribou in Unit 11.

Results and Discussion

Harvest by Hunters

During this reporting period, 2 hunters reported hunting caribou in Unit 11 in 2012, 1 hunter in 2013, 1 hunter in 2014, 2 hunters in 2015, and 1 hunter in 2016. All hunters reported hunting on general caribou harvest tickets. Of those, 1 hunter in 2015 (the only nonresident caribou hunter reporting in Unit 11 during this reporting period) reported harvesting a bull caribou. The

successful hunter used commercial transport to the field (airplane) and hunted 9 days. No other caribou harvests were reported in Unit 11.

Alaska Board of Game Actions and Emergency Orders

None.

Recommendations for Activity 2.1

Continue.

3. Habitat Assessment-Enhancement

No activities have occurred during this reporting period.

NONREGULATORY MANAGEMENT PROBLEMS OR NEEDS

Data Recording and Archiving

- State caribou harvest data are stored on the WinfoNet server (<http://winfonet.alaska.gov/index.cfm>). Federal harvest data is stored in the federal subsistence database.
- Population survey and estimate data are obtained from WRST and stored electronically on the Glennallen Shared Drive (O:\DWC\BGDIF\Caribou).

Agreements

The *Mentasta Caribou Herd Cooperative Management Plan* represents a long-standing inter-agency agreement published by WRST in 1995. The Cooperative Management Plan has not been reevaluated since it was published. Management agencies should reassess and update the plan to reflect current herd status and consider alternative management strategies.

A data sharing agreement is in place to provide species harvest data to Wrangell-St. Elias National Park and Preserve for RY90 through RY20 (Appendix A).

Permitting

Not applicable.

Conclusions and Management Recommendations

The MECH appears to have stabilized at a low-density dynamic equilibrium, as can be expected of a low-density ungulate population in an area with relatively high levels of predation (National Research Council 1997). Population dynamics and observed body condition of Mentasta animals suggest that low recruitment due to predation continues to be a limiting factor for the herd. With no change in predation expected within WRST, the herd may not increase to the numbers seen prior to the decline that occurred in the late 1980s and early 1990s. The agencies involved in

developing the Cooperative Management Plan should reconvene to reassess and update the plan to reflect the current status of the herd and determine if harvestable surplus is available; if a surplus is available, new thresholds should be developed for harvest.

II. Project Review and RY17–RY21 Plan

Review of Management Direction

MANAGEMENT DIRECTION

The existing MECH management direction coincides with the WRST mission as well as ADF&G statewide goals for caribou within the framework of species conservation (ADF&G 2002).

GOALS

No changes recommended.

CODIFIED OBJECTIVES

Amounts Reasonably Necessary for Subsistence Uses

No changes recommended.

Intensive Management

No changes recommended.

MANAGEMENT OBJECTIVES

Stakeholders should revisit the Cooperative Management Plan to ensure that the plan remains relevant and appropriate to interagency management goals and objectives.

The management framework outlined in the RY12–RY16 management report section above and the Cooperative Management Plan (or a modified Cooperative Management Plan, as it becomes available) will be presented to the Board of Game for approval, to allow state harvest implementation as planned if population and recruitment objectives are achieved in the future.

REVIEW OF MANAGEMENT ACTIVITIES

1. Population Status and Trend

ACTIVITY 1.1. POPULATION ESTIMATION

Data Needs

Additional data are necessary to monitor and determine herd mixing with the NCH, to determine if opportunity to harvest NCH can be offered in Unit 11 without allowing for MECH harvest.

Minimum count surveys may be necessary on a more frequent basis should population numbers begin to reach management thresholds. Calf recruitment data is necessary to determine harvestable surplus based on the management framework currently in place.

Methods

In addition to the methods outlined in the report section, ADF&G will coordinate with WRST to deploy satellite collars to monitor herd movements and herd mixing. ADF&G will also coordinate with WRST to develop a method of estimating calf recruitment, such as denoting yearlings during minimum count surveys, or deploying radio collars on calves of the year to monitor survival.

2. Mortality-Harvest Monitoring

ACTIVITY 2.1. Monitor the caribou harvest through hunter harvest reports.

No changes recommended.

Data Needs

No change from report.

Methods

No changes recommended.

3. Habitat Assessment-Enhancement

No changes recommended.

NONREGULATORY MANAGEMENT PROBLEMS OR NEEDS

Data Recording and Archiving

No changes recommended.

Agreements

The current data sharing agreement with WRST expires after RY20 and will be renewed prior to its expiration date.

Permitting

None applicable.

Acknowledgments

Special thanks to Judy Putera with Wrangell-St. Elias National Park & Preserve for conducting MECH survey and inventory, maintaining MECH radio collars, and collaborating on Unit 11 wildlife management.

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Appendix

Data sharing agreement for wildlife data with the Wrangell-St. Elias National Park and Preserve.

**AGREEMENT FOR USE OF WILDLIFE DATA
BETWEEN
ALASKA DEPARTMENT OF FISH & GAME (ADF&G)
AND
WRANGELL-ST. ELIAS NATIONAL PARK AND PRESERVE**

This agreement covers the following two files to be transferred to Wrangell-St. Elias National Park and Preserve: 1) harvest data files for bison, black bear, brown bear, caribou, moose, mountain goat, sheep, and wolves in Game Management Units 11 and 12 by UCU, including location of kill by major and minor subdivisions, method of take, date of kill, horn, skull, or antler morphometric data, and sex for the regulatory years 1990–1991 through 2014–2015; and 2) a .shp file delineating UCU boundaries. ADF&G will provide harvest data for species listed for regulatory years 2015–2016 through 2020–2021 upon request by Wrangell St Elias National Park.

This information is released to, and may be used by, Wrangell-St. Elias National Park and Preserve under the following conditions:

1. The information will be used to monitor harvest of bison, black bear, brown bear, caribou, moose, mountain goat, sheep, and wolf populations within the Park boundaries.
2. Harvest information will not be published, publically disseminated, or presented by the NPS or its contractors at the spatial resolution of latitude and longitude of a kill site or by watershed defined as a Uniform Coding Unit (UCU) in ADF&G data.
3. The information will not be released to others except to persons in a contractual relationship with Wrangell-St. Elias National Park and Preserve who will be performing work for or on behalf of Wrangell-St. Elias National Park and Preserve, on a need-to-know basis, in which case Wrangell-St. Elias National Park and Preserve will require the contractors to agree to and abide by the conditions in this document.
4. The NPS agrees that the harvest location data is protected from disclosure under state law and will make every effort to keep it confidential under federal law, and will notify ADF&G if there is a Freedom of Information Act request for the data.

Under the above conditions, ADF&G agrees to release the attached information, and Wrangell-St. Elias National Park and Preserve agrees to receive and use it.

Signature on file _____

Date April 4, 2016

Maria Gladyszewski, Deputy Director, Division of Wildlife Conservation, ADF&G

Signature on file _____

Date 4/7/2016

Eric Veach, Acting Superintendent, Wrangell-St. Elias National Park and Preserve

