ALASKA DEPARTMENT OF FISH AND GAME
DIVISION OF WILDLIFE CONSERVATION
PO Box 115526
Juneau, AK 99811-5526

Alaska Department of Fish and Game

Wildlife Restoration Grant

GRANT NUMBER: AKW-B-R3-2020

PROJECT NUMBER: P3.0

PROJECT TITLE: Alaska's Region III Caribou S&I program: Caribou Populations and Factors Influencing Their Status in Interior and Eastern Arctic Alaska

PERIOD OF PERFORMANCE: July 1, 2019 - June 30, 2021

PERFORMANCE YEAR: July 1, 2020 - June 30, 2021; year 2 of a 2-year grant

REPORT DUE DATE: Submit to FAC August 28, 2020

PRINCIPAL INVESTIGATOR: Darren L. Bruning, Fish and Game Coordinator, ADF&G

COOPERATORS: NA

I.PROGRESS ON PROJECT OBJECTIVES DURING PERFORMANCE YEAR

This caribou survey and inventory project was conducted throughout Region III. Wildlife management is divided in to 6 area offices within the region that reflect wildlife distribution and cultural differences. The 6 area offices manage the following caribou herds:

1. Chisana Caribou Herd (Unit 12)
2. Macomb Caribou Herd (Portions of Units 12 and 20D):
3. Delta Caribou Herd (Unit 20A)
4. White Mountains Caribou Herd (Units 20B, 20F and 25C)
5. Beaver Mountains, Big River-Farewell, Rainy Pass, Sunshine Mountain and Tonzona Caribou Herds (Units 19A, 19B, 19C, 19D, 21A and 21E):
6. Fortymile Caribou Herd (Units 20B, 20C, 20D, 20E, 25C)
7. Galena Mountain, Ray Mountains, Hodzana Hills, and Wolf Mountain Caribou Herds: (Units 20F, 21B, 21C, 21D, 24A, 24B, and 25D)
8. Porcupine Caribou Herd (Units 25A, 24B, 25D, and 26C)
9. Central Arctic Caribou Herd (Units 26B and 26C)

OBJECTIVE 1: Conduct 3 investigations by 06-30-2021.

Project statement objectives:

Objective 1: Population Size, Status, and Trend. Assess the size and status of each population to determine the 5-year trend.

1.1 Conduct aerial photocensus population surveys of 1-9 herds

Accomplishments:

- We attempted a photocensus of the Fortymile Herd on 9 July, 2020 using 17.5 hours of fixed-wing flight time, but aggregations were inadequate and the photocensus was unsuccessful

- In addition, GPS collars of the Fortymile Caribou Herd were monitored daily via satellite data downloads during the typical insect harassment periods (July 1–15, 2020 and June 10–30, 2021) to assess herd aggregations for photocensus surveys, but sufficient aggregations did not form to warrant a photocensus during these periods.

- GPS collars were monitored daily during the typical insect harassment period (July 1–15, 2020 and June 10–30, 2021) for sufficient aggregations for a photocensus, but sufficient aggregations did not form to warrant a photocensus or pre-photocensus survey flights for the Porcupine Caribou Herd.

1.1 Conduct aerial composition surveys of 1-9 herds

Accomplishments:

- We conducted an aerial composition count of 5,042 Central Arctic Caribou Herd caribou during 15–16 October 2020 using 13.5 hours of helicopter flight time and 11 hours of fixed-wing flight time.

- We conducted an aerial composition survey of 6,709 Fortymile Caribou Herd caribou on 8 October 2020 using 12.8 hours of helicopter flight time and 15.2 hours of fixed-wing flight time.

1.2 Process digital photos, enumerate caribou, and estimate caribou numbers for 1-9 herds

Accomplishments:

- Templates for the automated counting software (Count Things From Photos) were updated in 2020/2021 and we started using deep learning frameworks with ArcGIS Pro (with Image Analyst extension) to investigate whether automated counting would be possible by building our own detection models.

- Several equipment problems were dealt with over the course of the season: flight laptop failure in preseason testing (motherboard failure); a failed camera controller in the Beaver (motherboard failure); 206 GNSS reprogramming; hard drive corruption, and an electrical issue in the Beaver during the Western Arctic survey (outside of Region III). We were able to purchase replacements for the flight laptop and camera controller. The GNSS in the 206 was successfully reprogrammed with remote help from SoftNav in Canada. The electrical issue in

the Beaver prevented us from using the main system to complete a handful of groups on the Lisburne Peninsula (July 14th, Western Arctic – outside of Region III) so we used a handheld camera to complete the remaining groups. The problem was later identified as a bad wire going from the alternator to the voltage regulator.

- We made 2 requests to the department's office of information technology (OIT) to have network drive space in Fairbanks increased to allow for continued backup of photocensus imagery/data. We were notified that the drive space was full. We also learned that the data were not mirrored to Anchorage or Juneau. OIT is currently working on getting the existing data mirrored and we are in the process of discussing whether OIT will be able to support photocensus data storage going forward or if we will have to look to a vendor to store the data long-term.

- We maintained the herd integration database to manage radio collar data.

1.3 Conduct aerial minimum population survey of 1-6 small herds

Accomplishments:

- We conducted an aerial minimum population survey and composition count of 1,019 Macomb herd caribou on 20 October using 6 hours of helicopter flight time and 5 hours of fixed-wing flight time.

- We conducted an aerial minimum population survey and composition count of 499 Delta herd caribou in October using 3.1 hours of helicopter flight time and 4.0 hours of fixed-wing flight time.

- We conducted aerial minimum population surveys of the Galena Mountain, Wolf Mountain, Ray Mountains and Hodzana Hills herds on 27 May, 4 June, and 29 June by locating 69 radiocollared caribou and conducting pre-survey flights to assess aggregation from fixed wing aircraft during 16.6 hours of fixed-wing flight time. We used hand-held digital photography to capture caribou and enumerated caribou from photos.

- We conducted a minimum population survey during 6 July 2020, assessed population status, and monitored herd distribution of the Beaver Mountains–Sunshine Mountain herd.

- We conducted an aerial minimum population survey and composition count of 190 Chisana herd caribou in Alaska on 11 October using 5.3 hours of helicopter flight time.

1.4 Analyze mixing of 1–3 herds

- We monitored GPS collars via satellite during the winter Fortymile caribou herd hunting season to determine whether herd mixing occurred to assess potential harvest of other herds during the Fortymile winter hunt.

1.4 Conduct parturition surveys

- We conducted parturition and post-calving surveys of the Central Arctic Caribou Herd during June 2021 and assessed 100+ caribou in 51.6 hours of fixed-wing flight time.

- We conducted parturition and post-calving surveys of the Porcupine Caribou Herd during May and June 2021 and assessed 100+ caribou in 108 hours of fixed-wing flight time.

- We conducted parturition surveys of the Fortymile caribou herd during May 2021 to determine parturition rates of 88 caribou during 132 hours of fixed-wing flight time.

1.5 Radiocollar caribou

- We captured caribou and deployed 10 VHF radio collars on caribou from the Delta Herd, during 6 hours of fixed-wing and 3.5 hours of helicopter time.

- We captured caribou and deployed 7 GPS collars on caribou from the Hodzana Hills herd during 5.4 hours of fixed-wing and 3.2 hours of helicopter flight time.

- We purchased 33 GPS and deployed 65 GPS satellite radio collars for the Central Arctic Caribou Herd in June 2021, during 30.4 hours of fixed-wing and 27.3 hours of helicopter flight time. We downloaded satellite data for 30+ GPS radio collars.

- We purchased and deployed 15 GPS radio collars for the Porcupine Caribou Herd in April 2021 using 12 hours of helicopter time and 17 hours of fixed-wing flight time We downloaded satellite data for 15+ GPS radio collars.

- We deployed 14 (4 GPS; 10 VHF) total collars on Beaver Mountains-Sunshine Mountain caribou in April 2021. This was the first deployment of GPS collars in the management history of these herds, and the first VHF collars deployed in these herds since 1983. Seven total caribou were collared from each herd.

- During 5–7 and 9 October 2020 and 6–7 and 12 April 2021, we deployed 19 GPS collars in the Fortymile Caribou Herd on adults (5 bulls and 14 cows) and 21 VHF collars on short-yearling females. In addition, we captured 30 additional 4 month-old female calves to collect biological information. All short-yearlings captured in October were weighed, and biological data was collected on all caribou. These captures occurred during 89.0 hours of fixed-wing and 53.7 hours of helicopter flight time.

Objective 2: Mortality, Harvest Monitoring and Regulations. Assess the number of caribou harvested by hunters and other sources of mortality that might have an impact on each population.

2.1 Monitor harvest caribou harvest through field observations, hunter harvest reports, and contact with hunters

and

2.2 Analyze harvest data to determine harvest rate and effect on caribou populations.

Accomplishments:

- We monitored caribou harvest during the hunting season through field observations, hunter harvest reports, and contact with hunters. We analyzed 8,828 reports obtained from hunters for caribou hunting seasons varying 2–300 days in length (primarily during fall and winter), including caribou taken in a general hunt applicable throughout most of the region, 3 drawing permit hunts, 3 registration permit hunts, and 1 special permit. Harvest data were analyzed, and the results were applied to management planning and ongoing population assessment, including monitoring hunter reports of 25,900 registration hunt permits in 3 hunts with 2- to 3-day reporting requirements and in-field monitoring for 1 hunt during 2 days of heaviest harvest.

- We received 8 ceremonial harvest authorizations requesting 20 caribou.

2.3 Monitor herd location in relation to hunter access locations prior to and during hunting seasons.

Accomplishments:

- During August, we conducted aerial surveys of the Macomb Caribou Herd to assess range-wide distribution prior to and during the hunt and logged 6 hours of fixed-wing flight time, while locating 12 radiocollared caribou.

- We monitored GPS collars via satellite and conducted periodic aerial surveys of the Fortymile Caribou Herd during August–September 2020 and March 2021 to assess herd distribution and proximity to highways just prior to and during the fall and winter hunts.

2.4 Assess Natural Mortality:

- We estimated annual mortality of the Central Arctic Caribou Herd by calculating the death rate of 130 radiocollared caribou.

- We estimated adult female, short yearling female, and adult bull survival in the Porcupine Caribou Herd using 113 radiocollared caribou

Objective 3: Habitat Enhancement and Assessment. Assess the nutritional status of the caribou population directly or indirectly where it is feasible.

3.1 Monitor movement caribou to and from seasonal ranges through reconnaissance flights using both very high frequency (vhf) and satellite telemetry.

- We monitored 31 GPS radio collars on Ray Mountains and Hodzana Hills caribou to monitor herd distribution to assess seasonal range use.

- As part of the aerial minimum population survey of the Wolf Mountain, Ray Mountains and Hodzana Hills herds during May and June 2021 (objective 1.3) we determined distribution of these herds.

- We radio tracked VHF-collared caribou in the Beaver Mountains-Sunshine Mountain herds via aerial surveys from 22 April–30 June 2021 to identify calving grounds, confirm survival, and mark locations of VHF-collared individuals. These surveys were conducted opportunistically as time and weather allowed. During the same time period, we developed a database to manage radio collar data for the Beaver Mountains-Sunshine Mountain caribou herds.

- During 9 April 21- 30 June 2021, we monitored 4 GPS collars in the Beaver Mountains-Sunshine Mountain herd via satellite to determine movement patterns and help identify calving grounds, and aid in location of VHF collared caribou.

- We used GPS collar data to monitor seasonal Fortymile caribou herd movements using 75 radiocollared caribou

3.2 Monitor herd density

- We monitored Porcupine herd density during calving and seasonal migrations throughout the year in conjunction with flights and collar monitoring conducted under objectives 1, 2, and 4.

- We used GPS telemetry data to estimate calving grounds and concentrated calving grounds of the Porcupine Caribou Herd using 42 radiocollared caribou.

3.3 Work with land agencies and landowners and developers to minimize the impact of human activities on caribou habitat and to promote a near-natural fire regime.

Accomplishments:

- We worked with the Bureau of Land Management, National Park Service, private landowners, Alaska Fire Service, and developers to minimize the impact of human activities on caribou habitat.

Objective 4: Caribou Management with Public Participation and Outreach. Manage each caribou population with an emphasis on engaging the public through public meetings, working groups, educational materials, and incentive programs.

4.1 Prepare information for 5-year regional caribou management operational plans.

Accomplishments:

- Six area offices compiled information and data, and continued writing 7 five-year Caribou Management Reports and Plans for caribou herds named in section I. These reports include historical and current data, management directions, methods, Board of

Game actions, harvests and natural mortality, habitat assessments, and local and statewide non-regulatory issues. These 7 reports are in preparation and are expected to be completed in FY2022 and posted at the following location: http://www.adfg.alaska.gov/index.cfm?adfg=librarypublications.wildlifepublications&sort=all&species=Caribou&publicationtype=Species+Management+Report+%28and+Plan%29&submit=Search

4.2 Provide information to state and federal regulatory processes on caribou management.

Accomplishments:

- Six area offices communicated and coordinated with and attended meetings of 15 local Fish and Game Advisory Committees, the Alaska Board of Game, 3 Federal Regional Advisory Councils, the Federal Subsistence Board, Office of Subsistence Management, numerous local village councils and Native corporations, the North Slope Borough wildlife department, and the Wrangell–St. Elias Subsistence Resource Commission about caribou management and to prepare, review and analyze biological information for proposals for the Alaska Board of Game and the Federal Subsistence Board. The number of meetings attended was reduced, and many meetings, including the regular Statewide Board of Game meeting, were cancelled due to COVID-19 concerns. Region III staff contributed to the revised Board of Game meetings through videoconference and teleconference.

- We prepared the caribou portion of Upper Yukon–Tanana Predation Control Area's Annual Intensive Management Report for the Board of Game to comply with regulatory requirements for Intensive Management programs, as listed in Section IV.

- We used satellite collar locations to determine caribou distribution during spring military exercises. Based on this information, we provided recommendations for avoidance areas to the military during May 15–June 5.

4.3 Complete and mail 1-4 herd-specific newsletters to the public and other interested parties in order to disseminate information about that herd's recent population status, management and research, and regulatory changes

Accomplishments:

- We printed and mailed a Fortymile Caribou Herd newsletter to 10,000 recipients.

4.4 Develop updated population objectives and recommended regulations in cooperation with the public and other agencies.

ACCOMPLISHMENTS:

- Data and information from activities in objectives 1–4 was used by biologists in 6 area offices to review population and harvest objectives to determine whether each objective remained relevant during the current year and assessed whether harvest was impacting each population.

4.5 Attend meetings with resource management agencies, oil companies, and caribou users with the intent of minimizing conflicts between the herd and major development projects.

- Six area offices worked with the Bureau of Land Management, National Park Service, Fish and Wildlife Service, private landowners, Alaska Fire Service, and developers to regarding caribou in Region III.

- Assistant Northeast Area Biologist Jason Caikoski served as co-chair of the Porcupine Caribou Technical Committee meeting. In this capacity, he organized, prepared, and analyzed biological information for the PCTC, and communicated regularly with his associated co-chair and the committee.

II. SUMMARY OF WORK COMPLETED ON PROJECT TO DATE.

Results of objectives 1–4 will be summarized in the report portion of the 5-year caribou management report and plan, scheduled to be published in FY2022.

III. SIGNIFICANT DEVELOPMENT REPORTS AND/OR AMENDMENTS.

In addition to progress noted in section I, more costs than expected were expended in contractual and supplies due to the following:

1. Contractual: increased hourly rates for fixed-wing and helicopter flight time

Also, the following are additional actions that were accomplished at no cost to the department:

1. Blood from Beaver Mountains-Sunshine Mountain caribou was sampled for genetic analyses. The genetic analyses will include assessment of relatedness to other caribou herds and determination of presence/absence of reindeer genes.

IV. PUBLICATIONS

Annual Report to the Alaska Board of Game on Intensive Management

Caribou portion of the Annual Report to the Alaska Board of Game on Intensive Management For Fortymile Caribou with Wolf Predation Control in the Upper Yukon–Tanana Predation Control Area of Game Management Units 12, 20B, 20D, 20E and 25C. February 2021. http://www.adfg.alaska.gov/static/research/programs/intensivemanagement/pdfs/2021_uytpcp_intensive_management_annual_report.pdf

No other publications were completed during the report period.

V. RECOMMENDATIONS FOR THIS PROJECT

We recommend continued funding for this project in order to effectively survey, inventory and manage caribou populations in Interior and Northeast Alaska.

Prepared by:

Date: October 2021