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-R5-2020

**PROJECT NUMBER:** P16.0

**PROJECT TITLE:** The Status of Muskox and Factors Influencing Their Populations

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

**PERFORMANCE YEAR**: July 1, 2019 - June 30, 2020; year 1 of a 2-year grant

**REPORT DUE DATE:** Submit to FAC August 28, 2020

**PRINCIPAL INVESTIGATOR:** Phillip Perry, Region V Management Coordinator

**COOPERATORS:**

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Authorities: 2 CFR 200.328
2 CFR 200.301
50 CFR 80.90

## II. SUMMARY OF WORK COMPLETED ON PROJECT TO DATE.

### Region wide Activities:

Prepare biennial regional musk ox management reports.

A musk ox management report was not due to be prepared during this reporting period.

Provide information to state and federal regulatory processes on muskox management.

Area management staff reviewed State and Federal regulatory proposals, attended regulatory process meetings, and presented muskox information to the State Board of Game, State Fish and Game Advisory Committees, Federal Subsistence Board, and Federal Subsistence Regional Advisory Councils.

### Unit 18:

Conduct annual aerial censuses of the Nunivak and Nelson Island populations to estimate population size and determine age-sex composition.

Area management staff conducted a minimum count survey for muskox on Nelson Island on 25 June 2020. During the 2020 Nelson Island muskox minimum count we observed a

total of 64 groups of muskoxen totaling 462 animals. Group size of muskoxen ranged from 1 to 21 animals with an average of 7 animals per group. The mature bull to mature cow ratio was 60B:100C and the calf to mature cow ratio was 76c:100C. Composition of the total count is the following: 87 bulls 3-years and older, 144 cows 3-years and older, 53 2-year-olds, 68 yearlings, 109 calves of the year.

Area management staff staff conducted a minimum count survey for muskox on Nunivak Island on 10 June through 12 June 2020. During 16.6 hours of survey time we observed a total of 112 groups of muskoxen totaling 701 animals. Group size of muskoxen ranged from 1 to 25 animals with an average of 6 animals per group. The mature bull to mature cow ratio was 72B:100C and the calf to mature cow ratio was 63c:100C. Composition of the total count is the following: 139 bulls 3-years and older, 193 cows 3-years and older, 107 2-year-olds, 140 yearlings, 122 calves of the year.

Capture muskox to attach radio collars. (All animal capture activities will follow the protocols established in the ADF&G Division of Wildlife Conservation "Animal Welfare Policy" and its wildlife capture and restraint manual.)

No animals were captured during this reporting period.

Monitor the population size, distribution, and dispersal of musk ox onto the mainland through location of radio-collared animals, harvest reporting, contacts with the public, and field observations.

We talked with residents, local pilots, local Advisory Committees (AC), federal Regional Advisory Councils (RAC), Board of Game (BOG) members, USFWS personnel, and media about sightings of muskox on the mainland for this reporting period. A log of these sighting including group size and locations is being maintained in the Bethel office. The population on the Y-K Delta was last survey in June of 2019, 274 muskoxen were observed.

Monitor hunting and other mortality factors through harvest reporting, contacts with the public, and field observations.

One hundred and thirty-eight (154) muskox were harvested on Nunivak Island during the RY19 hunting season; 83 bulls and 71 cows. Thirty-seven (32) muskox were harvested on Nelson Island during the RY19 hunting season; 14 were cows, and 18 were bulls.

Work with local Advisory Committees, village representatives, and other agencies to promote the establishment of a huntable muskox population on the mainland.

The department discussed possible changes to hunt seasons, allocations, and bag limits for Nunivak Island, Nelson Island, and mainland muskox population. Most AC members want to see the mainland population grows before considering the establishment of a hunting season.

Work with local residents to rescue stranded muskoxen as needed and reduce kills of nuisance animals.

Two bulls were reported stranded on a small island near Nunivak during this reporting period. No nuisance animals had to be dispatched, during this reporting time.

Continue to develop and utilize the ongoing cooperative muskox management plans (such as the *Nelson Island Musk ox Herd Cooperative Management Plan*) in cooperation with the public and other agencies.

The Nelson Island Muskox Herd Cooperative Management Plan was talked about at AC meetings, but there was no attempt to change or update the document in this reporting period.

**Units 22 and 23SW (the portion of Unit 23 west of and including the Buckland River drainage):**

Census muskox during March and April to estimate population size on a projected schedule: 2017, 2019, etc.

An abundance survey was not scheduled to be completed during this reporting period. A muskox population survey was last completed in February and March of 2017. The estimated abundance throughout the known range of the Seward Peninsula muskox population at that time was 2353 muskox (95% CI: 1908-2936). Following the cancelation of the muskox abundance survey in 2019 a survey was subsequently scheduled to be completed in March and April of 2021.

Conduct on-ground age/sex composition surveys during March and April to determine population structure and yearling recruitment.

A composition survey was not scheduled to be completed during this reporting period. Range wide composition surveys were last completed during March and April 2019. Results of this survey included estimates of the proportion of mature bulls ( $\hat{p}_{MB}$) and recruitment from throughout the known range of the Seward Peninsula muskox population which were 20% (95% CI: 17%-19%) and 15% (95% CI: 14%-16%) respectively. A composition survey is scheduled to be completed in the spring of 2021 in conjunction with the completion of an abundance survey through out the range of the population.

Capture muskox to attach radio collars. (All animal capture activities will follow the protocols established in the ADF&G Division of Wildlife Conservation "Animal Welfare Policy" and its wildlife capture and restraint manual.)

No muskox were captured during the reporting period

Monitor distribution, and movements of musk ox through location of radio-collared animals, aerial surveys, harvest reporting, contacts with the public, and field observations.

Seasonal movements of collared muskoxen were monitored using monthly fixed-wing aircraft telemetry flights. After snow-melt and during calving, muskoxen were observed at down-slope locations in proximity to lush, and more fertile, river bottoms where browse included grasses and willows exposed from melting snow and ice. Telemetry flights found that radiocollared muskoxen increased their movements throughout the summer as collared muskoxen moved seasonally between GMU 22DSW, 22C, 22B, 22D

Remainder, and 22E. These movements support census results that suggest muskoxen groups make annual movements between subunits and managers should consider a broader based geographical approach to hunt management if human harvest patterns allow.

2 collared female muskox died during the 2019 calendar year yielding an estimated 94% annual survival rate (95% CI: 81% to 99% n=35). Mortality estimates of adults are likely conservative from the perspective of the population because the collared cohort, adult females, is likely to have higher survival rate than any other age-sex grouping.

This small sample of collared muskoxen represents <2% of the Seward Peninsula population as of 2017, and is not randomly distributed throughout the population, so localized events such as icing, or different predator regimes may preclude the use of this mortality rate as representative of the entire population. Lastly, the selection of animals for capture is not truly random, as obviously injured, or diseased animals were intentionally not selected

Examine dead muskoxen to look for causes of death, disease, mineral deficiencies, and contaminants.

Staff visited mortality sites of both radiocollared and non-collared muskox and collected samples to look for causes of death. Muskox carcasses are quickly scavenged on the Seward Peninsula so samples are not always possible to collect.

Participate in the Seward Peninsula Musk ox Cooperators Group meetings and facilitate exchange of information and ideas between agencies and user groups.

The Seward Peninsula Muskox Cooperators Group has not met since January 2008. Information related to on-going hunt management has been made available to the Cooperators Group (through the Chair) and another meeting will likely occur in the future.

Monitor hunting and other mortality factors through harvest reporting, contacts with the public, and field observations.

Hunting was by Tier II subsistence permits in GMU 22B, 22C, 22D, 23SW, and 22E. Federal Subsistence permits were also issued in GMU 22B, 22D, 22E and 23SW.

The 2019-2020 harvest quota for Seward Peninsula muskox hunts was 33 muskox and hunters harvested 28 muskox, 85% of the quota.

Work with local reindeer herders to identify and minimize conflicts between reindeer and muskoxen in an effort to conserve muskoxen and allow for population growth and expansion.

Activities related to reindeer herding occurred in Units 22 and 23SW. Nome staff provided information for the annual Reindeer Herders Association meeting.

Encourage cooperation and sharing of information among agencies and users of the resource in developing and executing management and research programs.

Nome staff worked closely with BLM and NPS staff to coordinate management activities. Staff attended Seward Peninsula Regional Advisory Council meetings and reported on muskox population status and hunt administration.

Provide orientation for registration and drawing permit muskox hunters in Units 22 and 23.

Department staff used in-person and telephone interviews and web-based orientation information on the ADF&G website to provide hunters and the public with muskox identification, sex and age classification and hunting information. Staff distributed a previously completed hard copy muskox identification booklet for use by hunters and wildlife viewers during the reporting period; it is available to the public at ADF&G offices.

Continue to develop and utilize the ongoing cooperative muskox management plans (such as the *Seward Peninsula Musk ox Cooperative Management Plan*) in cooperation with the public and other agencies.

The cooperative muskox management plan is in the process of being updated and is being reviewed by cooperating agencies.

Survey muskox and evaluate population sex/age composition in Unit 23NW and southwestern Unit 26A (Cape Thompson population) at least once every 3 years on a projected schedule: 2020, 2023, etc.

The Cape Thompson population extended count area was surveyed by ADF&G and National Park Service (NPS) using modified distance sampling techniques. The preliminary estimate for the traditional count area is 743 -1193 muskoxen (95% CI).

No composition counts were attempted due to Covid-19 pandemic federal shutdown.

Assist with census projects and conduct muskox composition surveys in eastern Unit 26A (ANWR population).

The ANWR muskox population is low and assistance with counting and composition work was used to extend the survey area in Unit 26A.

Record muskox observations during surveys of other types of wildlife in Units 23 and 26A to document range expansion of the population.

Moose surveys in Unit 23 revealed muskox continue to expand their range eastward in the unit. Muskox were not seen during caribou surveys in southwestern Unit 26A.

Monitor hunting and other mortality factors through harvest reporting, contacts with the public, and field observations.

Hunting in Unit 23 NW was split between Federal drawing and Tier II subsistence permit TX107 with a bag limit of 1 bull muskox. Six permits were issued and 6 muskox were reported taken.

All muskox hunts in Units 26A and 26B were closed in 2006 due to declining numbers and remained closed during RY17. Some interest was expressed by hunters in Wainwright to open a musk ox season.

One muskox was taken via DLP, salvaged meat was donated to the hospitals long term care for elders.

Examine dead muskoxen to look for causes of death, disease, mineral deficiencies, and contaminants.

No work completed; dead muskox were not encountered.

Use public education to improve understanding of the conservation value of hunting regulations and obtain better harvest data through increased harvest reporting.

We talked to students, hunters and other individuals regarding hunting, wildlife management, and conservation of muskoxen in Units 23 and 26A.

Encourage cooperation and information exchange among agencies and musk ox user groups to develop and implement management objectives.

ADF&G and NPS conducted cooperative abundance surveys in Unit 23 in June 2020.

We worked with the North Slope Borough Fish and Game Management Committee to make recommendations for management decisions in Unit 26A.

Evaluate whether musk ox population growth will adversely affect resident reindeer and caribou populations.

Reindeer are no longer present in Unit 26A, although reports from villages indicate people believe muskox displace caribou. Seasonal movements of caribou indicate frequent overlap with locations where muskox occur.

**Units 23NW, and 26A:**

Survey muskox and evaluate population sex/age composition in Unit 23NW and southwestern Unit 26A (Cape Thompson population) at least once every 3 years on a projected schedule: 2020, 2023, etc.

The Cape Thompson population traditional count area was surveyed by ADF&G and National Park Service (NPS) using modified distance sampling techniques. The preliminary estimate for the traditional count area is 175 – 320 (95% CI) muskoxen.

The 26A population count area was surveyed by ADF&G and National Park Service (NPS) using modified distance sampling techniques. The preliminary estimate for the 26A count area is 350 – 631 (95% CI) muskoxen.

Assist with census projects and conduct muskox composition surveys in eastern Unit 26A (ANWR population).

The ANWR muskox population is low but growing and assistance with counting and composition work was used from Unit 26A staff.

Record muskox observations during surveys of other types of wildlife in Units 23 and 26A to document range expansion of the population.

Moose surveys in Unit 23 revealed muskox continue to expand their range eastward in the unit. Muskox were not seen during caribou surveys in southwestern Unit 26A.

Monitor hunting and other mortality factors through harvest reporting, contacts with the public, and field observations.

Hunting in Unit 23 NW was split between Federal drawing and Tier II subsistence permit TX107 with a bag limit of 1 bull muskox. Six permits were issued and 6 muskox were reported taken.

All muskox hunts in Units 26A and 26B were closed in 2006 due to declining numbers and remained closed during RY19. There was one nuisance musk ox permit issued in the fall of 2019 but no muskox were harvested on this permit. Hunters in Point Lay, Wainwright, Barrow, Atqasuk and Nuiqsut all have expressed interest in having a musk ox season.

Examine dead muskoxen to look for causes of death, disease, mineral deficiencies, and contaminants.

No work completed; dead muskox were not encountered.

Use public education to improve understanding of the conservation value of hunting regulations and obtain better harvest data through increased harvest reporting.

We talked to students, hunters and other individuals regarding hunting, wildlife management, and conservation of muskoxen in Units 23 and 26A.

Encourage cooperation and information exchange among agencies and musk ox user groups to develop and implement management objectives.

ADF&G and NPS conducted cooperative composition surveys in Unit 23 in April 2017 finding 59 bulls (4 year and older):100 cows (3 year and older).

We worked with the North Slope Borough Fish and Game Management Committee to make recommendations for management decisions in Unit 26A.

Evaluate whether musk ox population growth will adversely affect resident reindeer and caribou populations.

Reindeer are no longer present in Unit 26A, although reports from villages indicate people believe muskox displace caribou. Seasonal movements of caribou indicate frequent overlap with locations where muskox occur.

## III. SIGNIFICANT DEVELOPMENT REPORTS AND/OR AMENDMENTS.

For FY2020 this project was underspent by about $64,000, or 16%. About 75% of this was staff time. Some of the surveys that we scheduled to complete for muskox did not occur this year due to scheduling conflicts and reduced ability for staff to travel due to Covid-19 restrictions. This development reduced the amount of supplies necessary for the project.

## IV. PUBLICATIONS

None.

## V. RECOMMENDATIONS FOR THIS PROJECT

Many expenditures varied from the original grant submission and there are several reasons for this:

1. As a result of the Covid-19 pandemic in the spring and subsequent fallout to projects, the ADFG Commissioner mandated a 50% cut in travel.
2. The bulk of the region's travel budget was in the Coordination project.
3. The total operating budget available to Region 5 each year is determined by HQ. Region 5 has traditionally taken the approach of depositing these funds into projects based upon a very broad estimate, and then moving funds across grant projects throughout the year as project needs arise. This very generalized approach, while allowing needed spending flexibility, has resulted in large discrepancies between costs indicated in the grant request and the final expenditures of each project within the grant. This approach has also made it difficult for USFWS to determine if projects are cost-effective as the project budget estimates are not specific to the work described.
4. Staff in Region 5 are also being reminded to code time to individual projects as they conduct work by species.

To rectify these discrepancies amongst individual species' survey & inventory projects between budget requests vs. expenditures, the Region 5 grant will be restructured to create an operating grant that encompasses all survey, inventory, and coordination activities for all species into one project (the new TRACS reporting platform allows for this type of restructure). This should alleviate the budget/expenditures discrepancies problem while still maintaining maximum flexibility.

**Submitted by:** Phillip Perry, Region V Management Coordinator