

**Wildlife Restoration MULTI-YEAR GRANT
INTERIM PERFORMANCE REPORT**

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-29

PROJECT NUMBER: P1.0

PROJECT TITLE: Moose calf survival and nutrition in GMU 22D

PERIOD OF PERFORMANCE: March 23, 2018 – October 31, 2022

PERFORMANCE YEAR March 23, 2018 – March 23, 2019; year 2 of a 4-year grant

REPORT DUE DATE: Submit to Coordinator June 1, 2019; due to FAC June 30, 2019

PRINCIPAL INVESTIGATOR: Warren Hansen, Wildlife Biologist

COOPERATORS: Mandy Keogh, Wildlife Physiologist

Authorities: 2 CFR 200.328
2 CFR 200.301
50 CFR 80.90

I. PROGRESS ON PROJECT OBJECTIVES DURING PERFORMANCE YEAR

OBJECTIVE 1: Evaluate nutritional condition of moose in GMU 22D across summer and winter periods.

ACCOMPLISHMENTS: In April of 2018 we set out to capture, weigh and radio collar moose calves within the study area of Unit 22. This capturing effort took advantage of a previous S&I collaring project from the previous fall by recapturing those collared individuals to assess over winter weight loss. We recaptured 20 10 month old (short yearling) moose that had been captured in the fall of 2017 as 4-5 month olds; 16 radio collared females and 4 males identified by their ear tags. We captured an additional 38 short yearling calves that were not previously captured. Average fall weight was 210 kg, average spring weight was 181 kg resulting in an average over winter weight loss of 29 kg.

We extended the study area from 22D to include adjacent portions of Unit 22C. The expansion of the study area allowed us to find additional calves for capture and due to its proximity to Nome, allowed us to work in inclement weather when travel to Unit 22D was not possible.

In the fall of 2018 we captured a total of 66 moose calves. Weights were obtained from all moose. The average of all calf weights was 196 kg. In GMU 22D the average weight was 196 kg and in 22C was 194 kg. One calf weighed 103 kg and when removed from the data set the average weight is 200 kg. Average male weight was 205 kg and average female weight was 194 kg.

In the spring of 2019 we recaptured all radio collared females from the fall 2018 capture event, deployed an additional 4 collars on new females, and recaptured 5 males for a total 47 captures. Average spring weight of females was 174 kg and males were 190 kg.

These activities all fell within the expected budget for the project. It is still too early to make any inferences about the nutritional condition of this moose population.

OBJECTIVE 2: Evaluate cause and mortality rates of marked moose.

ACCOMPLISHMENTS: Our objective was to monitor the radio collared moose once per month for mortalities. During the winter of 2017/18 we detected no mortalities from December – March. During the months of April - June 2018, we detected 4 mortalities. Three of these mortalities were attributed to grizzly bear predation; one mortality was likely the result of starvation, and subsequently scavenged by a bear. During the winter of 2018/19 we detected 2 mortalities from the 2018 calf cohort. One appeared to be the result of starvation and the other is currently unknown due to weather related challenges in accessing the kill site.

We have been largely successful at adhering to the monthly monitoring schedule due to the availability of local aviation staff and ability to capitalize on good weather windows. Although, we were unable to radio track during the months of January and February 2019 due to inclement weather. We will not make any changes to our monitoring effort during the following year of this project.

This activity fell within the expected budget for the project. It is still too early to make any inferences about the mortality rates of this moose population.

OBJECTIVE 3: Evaluate nutritional quality of summer and winter forage species.

ACCOMPLISHMENTS: Winter and summer browse samples have been collected, but not yet assayed.

Winter browse samples have been sent to the ADF&G moose physiology lab in Palmer to assay for digestible protein and are currently in queue. Summer browse samples have been collected and are in queue for assay.

This activity has thus far fallen within the expected budget for the project. It is still too early to make any inferences about the nutritional quality of winter and summer forage.

OBJECTIVE 4: Evaluate age at first parturition.

ACCOMPLISHMENTS: No accomplishments have been made toward this objective. Parturition and twinning surveys will be conducted in early June of 2019 on the 2017 cohort of collard moose.

OBJECTIVE 5: Evaluate stress physiology utility of hoof tissue.

ACCOMPLISHMENTS: Fall captured moose in 2017 and 2018 were sampled and resampled during spring recapture events. Samples have been archived and have been shipped to the ADF&G wildlife physiology lab in Fairbanks. Samples are in queue to assay by wildlife physiologist Mandy Keogh. All captured moose were sampled meeting all sampling goals. No future changes will be made to the sampling protocol.

This activity fell within the expected budget for the project. It is still too early to make any inferences about the utility of stress hormone concentrations in this moose population.

II. SUMMARY OF WORK COMPLETED ON PROJECT TO DATE.

After 2 years of data collection, we have collected moose browse data and identified a 16.2% rate of browse removal and conducted 165 capture events. Average fall weight in 2017 was 210 kg and 196 kg in 2018. Average spring weight in 2018 was 181 kg and 175 kg in 2019 resulting in an average of 13.8% and 10.7% over winter weight loss respectively.

Over winter mortality has been low with 2 mortalities occurring in the winter of 2018/19. A total of 5 spring bear mortalities have occurred to date with 4 in 2018 and 1 in 2019.

We have collected winter and summer forage to identify digestible protein, but these samples have not yet been assayed. We have also collected hoof tissue to measure metabolites of the stress hormone cortisol, but this has also not yet been assayed.

This is year 2 of a 4 year grant. An additional year of data is needed before inference can be made about the nutritional condition and mortality rates of this moose population. Preliminary results suggest that calves enter winter in good nutritional condition, but lose a significant amount of body mass by spring, with spring weights bordering on levels that have been identified as being associated with nutritional stress. Despite a low browse removal rate that suggests sufficient winter forage, long and harsh winters may be playing a significant role in regulating winter weight. The 2017-18 winter was also considered a high snow depth year which may have exacerbated over-winter weight loss.

III. SIGNIFICANT DEVELOPMENT REPORTS AND/OR AMENDMENTS.

None.

IV. PUBLICATIONS

No publications have resulted from this project to date.

V. RECOMMENDATIONS FOR THIS PROJECT

This project will continue for 1 more year as initially outlined. We will not be employing any new methods as our current methods appear adequate.

Prepared by: Warren Hansen

Date: 5/20/19