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: 2018 - 2022

PERFORMANCE YEAR March 23, 2019 – March 23, 2020; year 3 of a 4-year grant

REPORT DUE DATE: Submit to Coordinator May 29, 2020

PRINCIPAL INVESTIGATOR: Warren Hansen

COOPERATORS: None

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 the fall of 2019 between October 30, 2019 and November 4, 2019 we captured 68 moose across units 22D and 22C (41 females and 27 males). The average weight of females was 191.4 kg and males were 198.2 kg. In the spring of 2020, between April 6 and April 28 we recaptured 38 of 41 females and 11 males. Female average weight was 182.3 kg and Male average weight 195 kg.

These activities all fell within the expected budget for the project. The analysis of this 3-year dataset of overwinter weight change will conclude in the spring 2020. Results are not yet available for this report.

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 2019/20 we detected no mortalities from the time of collaring in the fall to the time of recapture in the spring through the end of April. In the month of May, three mortalities have been detected. One of those mortalities was a confirmed grizzly bear kill and the other two have yet to be verified. The timing and pattern of these mortalities follows the previous two years of monitoring.

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.

This activity fell within the expected budget for the project.

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 and summer browse samples are currently stored in ADF&G freezer space in Nome. Samples will be sent to the moose physiology lab in Palmer to assay for digestible protein.

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 mid-May through early June 2020 on the 2017 and 2018 cohort of collared moose.

We are unable to meet this project objective with the current project budget. We will be seeking additional funding extension to meet this objective.

OBJECTIVE 5: Evaluate stress physiology utility of hoof tissue.

ACCOMPLISHMENTS: Fall captured moose in 2017, 2018 and 2019 were sampled and resampled during spring recapture events. Samples have been archived and have been shipped to the ADF&G wildlife physiology lab in Douglas. The 2017 cohort samples have been assayed and analyzed. The 2018 samples are currently being assayed and the 2019 cohort is in queue with wildlife physiologist Mandy Keogh. Although Mandy no longer works for DWC, she has agreed to finish assaying all the samples for this project. All captured moose were sampled meeting all sampling goals.

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 4 years of data collection, we have collected moose browse data and identified a 16.2% rate of browse removal and conducted 329 capture events. Average fall weight in 2017 was 210 kg, 196 kg in 2018 and 190 kg in 2019. Average spring weight in 2018 was 181 kg, 175 kg in 2019 and 184 kg in 2020 resulting in an average of 13.8%, 10.7% and 3.2% 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 with 4 in 2018, 1 in 2019 and 3 mortalities have been detected in the 2019 cohort to date.

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. Only the 2017 cohort has been assayed. The 2018 and 2019 cohorts are currently being assayed or in queue to be assayed.

This is year 3 of a 4-year grant. In the final year of this project, analysis and inference will be made using all collected data regarding 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. An exception to this pattern is the 2019 cohort where weigh loss was considerably less and, in some cases, individual calves gained weight. 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. The 2019/20 winter received less snow and the snow load did not come until much later in the winter.

III. SIGNIFICANT DEVELOPMENT REPORTS AND/OR AMENDMENTS.

None.

IV. PUBLICATIONS

No publications have resulted from this project to date.

V. RECOMMENDATIONS FOR THIS PROJECT

The capture component of this project has concluded. Radio tracking to monitor parturition, twinning and mortality will continue for the duration of this project pending a budget extension. We will not be employing any new methods as our current methods appear adequate.

Prepared by: Warren Hansen

Date: 5/4/2020