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-R-5-2019

PROJECT NUMBER: P1.0

PROJECT TITLE: Moose Evaluating Nutritional Indices GMU 18

PERIOD OF PERFORMANCE: 2019 - 2023

PERFORMANCE YEAR: March 23, 2020 – March 23, 2021; Year 2 of a 3-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 current browse removal rates and optimal sample size and design needed to reduce variance and bimodal sampling results.

Task 1: Measure browse removal rates as per (Paragi et al. 2015) in all study sites.
Task 2: Explore stratification effects variability of results.
Task 3: Implement alternative browse sampling scheme in the field.

ACCOMPLISHMENTS: In April of 2019 we conducted a standard browse survey on the Lower Yukon study area. We increased our sample size from 30 units to 39 units in an effort to account for the bimodal distribution of browse that we have observed in previous samples. We estimated an average removal rate of 24%. I have not yet performed a post-hoc exploratory analysis of sampled strata to manipulate the bimodal distribution of the data. A browse survey was scheduled for April 2020 for the Piamiut study area but were cancelled due to the COVID-19 global pandemic (See significant development report).

OBJECTIVE 2: Evaluate nutritional condition of moose between two study sites and estimate the effects of density, plant nutritional quality, and browse removal rates on twinning rate and short yearling weights between the 2 sites.

Task 1: Capture and weigh short yearling moose in all sites in the spring.

Task 2: Measure twinning rates of moose across sites.

Task 3: Test for association between weight and twinning rate controlled for the nutritional quality of each site.

ACCOMPLISHMENTS: In April of 2019 we captured, and radio collared 41 female short yearling moose and 12 males. Average female weight was 151 kg and males were 165 kg. Captured calves will not be parturient until age 2 or 3. Twinning and parturition surveys are scheduled for the spring of 2021 using the 2019 collared cohort and consecutive survey of each cohort thereafter. Twinning surveys of random cows by management staff have taken place in May 2019 in both study sites. Staff identified twinning rates at 19.6% in the Paimiut study area and 33.7% in the Lowest Yukon study site (Oster, 2019).

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

ACCOMPLISHMENTS: Representative winter browse species were collected during the 2019 browse survey. All samples were lost due to a freezer failure where the samples were stored. New samples will be collected in 2021 in both study sites when the next browse survey is scheduled.

OBJECTIVE 4: Evaluate stress physiology of keratinized hoof tissue and the relationship to other metrics of nutritional stress.

ACCOMPLISHMENTS: Hoof tissue was collected from all captured moose. Tissue sample were lost due to a freezer failure where the samples were stored. Sample collection will continue in the following two capture events.

OBJECTIVE 5: Evaluate movement patterns and emigration of moose from the study areas.

ACCOMPLISHMENTS: The GPS collars that were deployed are currently functioning well and are collecting movement data. After one year of GPS collar data collection, we have not observed any collared moose migrating out of their respective study area. It is likely too early in the study to draw any broad conclusions regarding movement.

SUMMARY OF WORK COMPLETED ON PROJECT TO DATE.

In total we captured 53 short yearling moose and deployed 40 GPS collars on female short yearlings in April 2019. Average female weight was 151 kg and average male weight was 165 kg. A browse survey was completed in the Lowest Yukon and twining surveys conducted in both the Lowest Yukon and Paimiut study areas. Winter browse nutritional samples and hoof tissue samples were collected but were lost in a freezer failure. New samples would normally have been collected in 2020, but collection will be postponed until 2021 due to COVID-19. Movement and mortality data are currently being collected but is too early to make any major inference on trends and rates.

III. SIGNIFICANT DEVELOPMENT REPORTS AND/OR AMENDMENTS.

A significant development for this project has been the delay of spring field work due to the COVID-19 global pandemic. Due to state mandates and community health restrictions, I deemed it unreasonable to carry out the field work with non-local staff. An additional 40 GPS radio collars were ordered and delivered, but because of the pandemic all field work associated with this project was delayed and the collars were not deployed. I anticipate that we will be able to continue this project as scheduled in the spring of 2021 and extend the field component of the project to 2022. Apart from the one-year delay of the project due to COVID-19, I do not anticipate any changes to the budget or study design of the project.

IV. PUBLICATIONS

Oster, K. (2019, June 4). GMU 18 Moose Twinning Survey Summary. Alaska Department of Fish and Game Memorandum.

V. RECOMMENDATIONS FOR THIS PROJECT .

This research will continue for 3 more years. No significant changes will be made to the study design or data collection in the following year.

Prepared by: Warren Hansen

Date: 5/4/2020