Alaska Department of Fish and Game
Wildlife Restoration Grant

GRANT NUMBER: AKW-29

PROJECT NUMBER: 2.0

PROJECT TITLE: Demography and Sources of Mortality in Unit 17 Moose

PERIOD OF PERFORMANCE: March 23, 2018 - March 23, 2019

PERFORMANCE YEAR: July 1, 2018 – Oct. 31, 2022; year 1 of a ~5-year grant.

REPORT DUE DATE: Submit to Coordinator 1 June 2019; due to FAC 29 June 2019

PRINCIPAL INVESTIGATOR: Kassidy Colson – ADF&G Wildlife Biologist II

COOPERATORS:

●──●

Authorities: 2 CFR 200.328
              2 CFR 200.301
              50 CFR   80.90

I.   PROGRESS ON PROJECT OBJECTIVES DURING PERFORMANCE YEAR

OBJECTIVE 1: *Document reproductive and nutrition related metrics for Unit 17 moose.*

ACCOMPLISHMENTS: Twenty adult females were captured in April 2018. Eighteen had pregnancy status diagnosed via pregnancy specific protein B (PSPB). A total of 58 adult females were monitored through calving period for calf production and twinning rate information. A delay in funding availability affected plans to capture 10-month-old individuals in spring of 2018. Additionally, this delay shortened the necessary capture time and we could not accomplish the use of ultrasonography to determine MAXFAT. In March 2019, a total of 26 adult females were captured, including 4 new adults and 22 previously collared adults. All (26) 2019 adult females had pregnancy status diagnosed via PSPB. Rump fat thickness was measured in 21 individuals, and 12 10 month-old female moose were weighed.

OBJECTIVE 2: *Determine survivorship of calf, yearling, two-year-old, and adult moose, as well as likely sources of mortality.*

ACCOMPLISHMENTS: We monitored 77 unmarked moose calves through the 2018 parturition season. Due to limitations with helicopter availability we were unable to capture a new cohort of 10-month-old calves in 2018. We followed the previous cohort through fall recruitment, however due to poor early spring weather we were unable to survey them for annual recruitment.

OBJECTIVE 3: *Investigate the spatial and temporal pattern in mortality amongst calf and adult moose, and how this relates to landscape predation risk.*

ACCOMPLISHMENTS: In 2018, 20 adult female moose were captured and fitted with GPS collars, and 10 wolves were captured and fitted with GPS collars, mostly north of the study area (see project titled: Unit 17 Wolf Demography, Abundance, and Movement). Information collection is ongoing, precluding analysis at this time. A total of 58 adult females were monitored through the calving period and were located at calving sites. Calf mortality was monitored, however no calf mortality sites were investigated, and causes of adult mortalities were determined without ground visits. In 2019, a total of 16 new collars were deployed, including 4 GPS collars on adult females and 12 VHF collars on 10 month-old female moose. A total of 5 wolves were being monitored as of the end of the reporting period, again mostly north of the study area (see project titled: Unit 17 Wolf Demography, Abundance, and Movement).

II.   SUMMARY OF WORK COMPLETED ON PROJECT TO DATE.

This project is in the first year of a five year project; as such, results should be considered preliminary and subject to change. Twenty-four adult females were captured and fitted with remote-downloadable GPS radio collars. With the inclusion of 38 previously radiomarked individuals, 58 adult cows were monitored through the 2018 parturition season. In 2018, 18 of the newly captured adults had their pregnancy status diagnosed through the use of PSPB, of which 17 (94%; 95% CI = 71%-99%) were diagnosed as pregnant. In 2019, 24 of 26 (92%; 95% CI = 74%-99%) were diagnosed as pregnant.

Parturition in 2018 was similar to the previous year, with the first calf born on 12 May, the last observed birth on 2 June, and the peak number of calves alive was 28 May. Median date of calving of observed calves was 21 May. Twinning rate of adults ≥36-months-old was 65% (95% CI = 50%-77%). Seven out of eight 24-months-old cows were observed with calves at heel. Calf survivorship to June 4th was 42% (95% CI = 32%-54%), while calf survivorship to June 23rd was 30% (95% CI = 21%-41%). Median date of death for observed calves was 28 May. Four out of 58 adults died during the calving season (7%; 95% CI = 2%-17%). Adult mortality was due to brown bears (*Ursus arctos*) in all cases where cause could be determined.

Nutritional metrics were generally high, including a high proportion of adults ≥36-months-old producing twins (65%; 95% CI = 50%-77%) in 2018, and an average 10 month-old female

weight of 434 lbs. (SD = 22 lbs. n = 7). However, late winter rump fat was moderate (1.8 cm, SD = 0.8, n = 21).
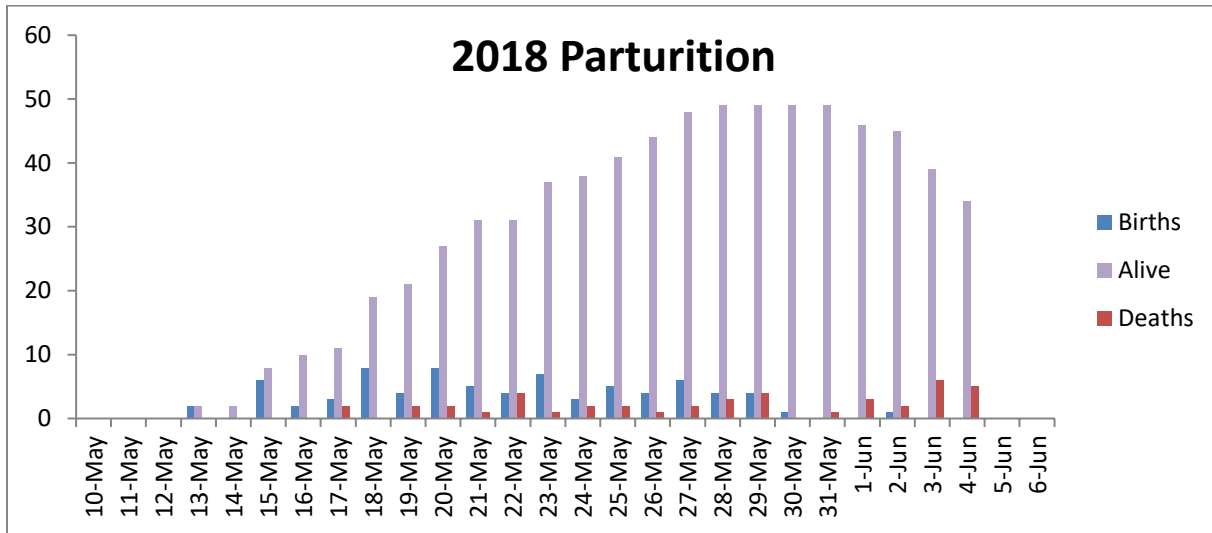
III.   SIGNIFICANT DEVELOPMENT REPORTS AND/OR AMENDMENTS.

During the reporting period, the following amendment was submitted:

This project was initially funded at $150,000 with a project end date of 30 June 2019. The existing funding will be spent as described in the project statement and will be exhausted during FY19. This amendment will add an additional **$430,000** to the project and extend it through **FY22**. The request will supplement the funding already in place for FY19, fully fund field activities in FY20 and FY21, and fund the project through completion in FY22. Increasing the level of funding and extending the length of the project will allow the objectives described in the project statement to be addressed more thoroughly but no new objectives will be added.

IV.   PUBLICATIONS
We are still in the data collection phase of the project and do not yet have any publications associated with this project.

V.   RECOMMENDATIONS FOR THIS PROJECT
Project has been extended and will continue four more years.

Prepared by: Kassidy E. Colson – ADF&G Wildlife Biologist II

Date: 28 May 2019