

**Wildlife Restoration OPERATING 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-B-R3-2020 FY20

**PROJECT NUMBER:** 1.73

**PROJECT TITLE:** Long-term effects of predator reductions on moose abundance, survival, nutrition, and hunting harvest in the Unit 19D East moose management area

**PERIOD OF PERFORMANCE:** July 1, 2019–June 30, 2020

**REPORT DUE DATE:** September 1, 2020

**PRINCIPAL INVESTIGATOR:** Danny Caudill, ADF&G

**COOPERATORS:** None.

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**I. PROGRESS ON PROJECT OBJECTIVES DURING PERFORMANCE YEAR**

**OBJECTIVE 1A:** Estimate moose numbers and population composition in the Unit 19D East MMA.

**ACCOMPLISHMENTS:** No survey or activity was planned during the report period per the project statement. However, management staff conducted a GSPE survey in the fall of 2019 and these data will be incorporated into ongoing research analyses and archived with the research data.

**OBJECTIVE 1B:** Determine annual survival rates and primary causes of mortality of moose calves.

**ACCOMPLISHMENTS:** No capture or activity was planned during the report period per the project statement.

**OBJECTIVE 1C:** Determine condition, survival rates, and causes of mortality of yearling moose.

**ACCOMPLISHMENTS:** We monitored the previously captured (in previous reporting periods) moose. This sample of moose has become skewed (toward old age) as no captures have been conducted recently and as a consequence unlikely to be representative of the population. However, these moose should be monitored to ensure all the collars and animals reach the end of their lives without the equipment (i.e. radiocollars) causing harm to the individuals. Remaining collars should go off air within the next few years. If

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problems with the equipment are detected the animal should be captured and the equipment should be removed from the individual.

OBJECTIVE 1D: Determine twinning rates of moose in the MMA.

ACCOMPLISHMENTS: Due to travel restrictions local management staff conducted a twinning survey 25, 28, 30, and 31 May 2020. 41 cows with a single calf and 7 cows with twins were observed.

OBJECTIVE 2: Conduct moose browse surveys.

ACCOMPLISHMENTS: No survey was planned during the reporting period per the project statement.

OBJECTIVE 3: Wolf population estimation.

ACCOMPLISHMENTS: No survey was planned during the reporting period per the project statement. However, survey conditions were optimal during the winter and a survey was conducted March 9–11 2020 by 3 contract pilots. The pilots observed 21 wolves in 8 groups in the 8,314 km<sup>2</sup> wolf control zone (the original boundary was used for year to year consistency) within Unit 19D east.

OBJECTIVE 4A: Bear population estimation.

ACCOMPLISHMENTS: No capture or survey was planned during the report period per the project statement. However, marked bears should be monitored to ensure all the collars and animals reach the end of their lives without the equipment (i.e. radiocollars) causing harm to the individual. Remaining collars should go off air within the next few years. If problems with the equipment are detected the animal should be captured and the equipment should be removed from the individual.

OBJECTIVE 4B: Estimate black bear harvest rates.

ACCOMPLISHMENTS: No radio-marked bears were harvested in the study area during the report period.

OBJECTIVE 5: DNA analysis.

ACCOMPLISHMENTS: No analysis was necessary during the reporting period.

OBJECTIVE 6: Literature review, data analysis, report writing, and publication of results.

ACCOMPLISHMENTS: The principal investigator reviewed the literature and completed reports. Data from the moose population survey and twinning surveys were compiled and preliminarily analyzed. The principal investigator and an ADFG biometrician are working on an analysis path to combine all of the population size survey data into a single analysis for a final report. Do date all of the population size estimates have been analyzed as stand-alone surveys and trends have been calculated from those results. The preceding project 1.62 (see results in Keech et al. 2011) was largely able to ignore a burn that occurred in the study area in 2002 because the effect of the burn on moose habitat was minimal at that point in time (see Keech et al. 2011). However, during the course of

this project the burn has reach an age where it could have produced enhanced moose habitat and accordingly an optimal analysis on the effect of predator control should attempt to “control” for the effect of this variable. The PI and an ADFG biometrician are actively exploring potential avenues to analyze these data and incorporate the habitat changes (i.e. burn) both internally and in consultation with statisticians outside the agency. While not explicitly stated in this objective, the data collected over the life of this project and its predecessor (1.62) should be compiled into a single source for each objective (i.e. one database for all twinning data). This is particularly important because this project and its predecessor have spanned 3 PIs and multiple changes to data collection protocols. Doing so will ensure the usability of the nearly 2 decades of data collected by individuals not directly involved with the field collection of the data.

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

All accomplishments completed to date are outlined in the specific objectives above or in previous years’ annual reports (2012–present). The black bear population has returned to pre-translocation size. Moose density has increased since predator populations were manipulated. Moose twinning rate has declined recently and browse removal has increased. For specific accomplishments see the specific objectives in accomplishments sections of this and previous years. During this reporting period a moose twinning survey was planned and implemented. A wolf survey was opportunistically completed. Upon completion of the field portion of the surveys, the collected data were compiled and summarized. Bears and moose that were radiomarked in previous reporting periods were monitored. Relevant literature was reviewed, and annual reports were completed. The data collected during this reporting period were compiled and integrated with data collected over the life of the project. Creating a single database containing all of the data for each objective over the life of the project is ongoing.

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

None.

## **IV. PUBLICATIONS**

None during the reporting period.

## **V. RECOMMENDATIONS FOR THIS PROJECT**

The project should continue as planned. Funds should be set aside in this or other S&I projects to ensure the welfare of previously (during the course of this study) marked animals. The final analysis of this project should attempt to incorporate changes to the study area that have occurred over the last 20 years. Funds (i.e. staff time) should be allocated to archive the data collected over the course of this and its predecessor (1.62) project to ensure future usability.

**Prepared by:** Danny Caudill

**Date:** 8/20/2020