

**FEDERAL AID ANNUAL  
RESEARCH 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-20

**SEGMENT NUMBER:** 6

**PROJECT NUMBER:** 1.67

**PROJECT TITLE:** Comparative nutritional status among 6 high density moose subpopulations in Interior Alaska

**PROJECT DURATION:** 1 July 2008–30 June 2018

**REPORT DUE DATE:** 1 September 2017

**PARTNER:** None

**PRINCIPAL INVESTIGATOR:** Graham G. Frye

**COOPERATORS:** John Haddix (U.S. Army), Kalin Seaton (former ADF&G Research Biologist)

**WORK LOCATION:** Interior Alaska (Units 20A, 20B, 20C, and 20D)

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**I. SUMMARY OF WORK COMPLETED THIS SEGMENT ON JOBS IDENTIFIED IN ANNUAL WORK PLAN**

**OBJECTIVE 2:** Estimate and evaluate nutritional differences among 6 high-density subpopulations using short yearling weights.

**JOB/ACTIVITY 2B:** Compare nutrition among 6 high-density subpopulations.

We continued work on an analysis comparing nutritional condition among the 6 populations, as well as several other populations at different nutritional levels across the state. We continued acquiring and proofing data for a comparison of trace mineral levels, 10-month weights, and pregnancy rates at individual and population levels.

**OBJECTIVE 6:** Evaluate the progression of nutritional differences between burned and unburned areas of Unit 20A.

**JOB/ACTIVITY 6A:** Evaluate use of recent burns by collared moose

We continued to collect location information to determine home ranges of GPS-collared moose relative to burn perimeters to examine whether these moose shifted use further

into burn areas over time. Because battery life was waning, we removed all but two of the remaining GPS collars from 20A cow moose and began downloading all location data from the collars.

**JOB/ACTIVITY 6B:** Determine nutritional differences between burned and unburned habitat.

In March 2017, we worked with Fairbanks Area staff to capture and weigh an additional 60 male and female moose short-yearlings in GMU 20B as part of their long-term monitoring program.

**JOB/ACTIVITY 6C:** Collect fine-scale movement information to determine movement and use patterns in burned and unburned habitat

We continued to collect GPS location information from GPS-collared adult female moose in burned and unburned habitats in GMU 20A.

**JOB/ACTIVITY 6D:** Prepare long-term monitoring strategy for GMU 20A population response to wildfires

Additional work was not conducted on this job/activity during this fiscal year.

**OBJECTIVE 7:** Write annual progress reports, write final report, and publish in peer-reviewed journals.

A progress report for this project was written in August 2016.

## **II. SIGNIFICANT DEVIATIONS AND/OR ADDITIONAL FEDERAL AID-FUNDED WORK NOT DESCRIBED ABOVE THAT WAS ACCOMPLISHED ON THIS PROJECT DURING THIS SEGMENT PERIOD**

### **III. PUBLICATIONS**

None.

### **IV. RECOMMENDATIONS FOR THIS PROJECT**

Among trace minerals examined, zinc levels in blood serum may provide some indication of nutritional status in moose. It correlates well with two well-established indices of nutrition: pregnancy rates and 10-month calf weights. However, more data collection and analysis are needed to confirm the relationship. If zinc proves to be a good indicator of nutritional condition, it may be logistical compliment to existing indices in terms of season and methods for data collection.

Male calf weights may increase more quickly than females following an improvement in range quality (or decreased intraspecific competition). The exact mechanism for this is unclear, though accelerated weight/size gain may be more important to fitness for males than females. This has ramifications for the use of calf weights as an index to nutritional condition- especially when monitoring changes in nutrition following habitat improvement or population decline. Recent calf weight data from Fairbanks Area fieldwork should be used in combination with weights

collected in 2009-2010 and 2001-2006 for this project and Fed Aid Project 1.51 to determine whether observed differences in weights among females and males over the last 15 years are biologically significant.

**PREPARED BY:** Graham G. Frye

**DATE:** 03 August 2017