

**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: W-33

SEGMENT NUMBER: 10

PROJECT NUMBER: 5.20

PROJECT TITLE: Habitat evaluation techniques for moose management in Interior Alaska

PROJECT DURATION: 1 July 2007–30 June 2013 (extended 1 year)

REPORTING PERIOD: 1 July 2011 – 30 June 2012

REPORT DUE DATE: 1 September 2012

PRINCIPAL INVESTIGATORS: Thomas F. Paragi and Kalin A. Kellie

COOPERATORS: Ronald Barry (Ronald Barry Consulting), Jennifer Schmidt (University of Alaska Fairbanks)

WORK LOCATION: Interior Alaska (Region III)

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

OBJECTIVE 1: Develop a spatial model of winter habitat occupancy by moose to quantify the area to which density estimates should be extrapolated when setting population objectives for intensive management.

JOB/ACTIVITY 1B: Conduct sampling of snow accumulation at the landscape scale to predict snow depth.

We installed 10 snow stakes in Unit 21E in August 2011 in collaboration with project 1.69 (moose movements).

OBJECTIVE 2: Improve understanding of the relationship between proportional removal of browse production and moose twinning rate in the boreal forest of Interior Alaska to gauge the utility of browse removal as an alternative index to when nutritional condition of moose hinders productivity.

JOB/ACTIVITY 2A: Estimate browse production (kg/ha) and proportional removal.

We conducted browse surveys in 3 sections of Unit 20A during late March and early April 2012: central hills, western flats, and western hills. We also began drafting a manuscript comparing change in proportional browse biomass removal with increase and decrease in moose density.

JOB/ACTIVITY 2B: Conduct moose twinning surveys in browse surveys areas. Galena area staff conducted a twinning survey in Unit 24B on 30 May and 1 June 2012.

OBJECTIVE 3: Create an archive of moose survey and harvest information to permit spatial analysis of population and harvest trends.

JOB/ACTIVITY 3A: Collate historic moose survey and harvest/sealing records for moose, bears, and wolves as attributes of an associated spatial extent for electronic storage, analysis, and display.

After presenting earlier results (completed in FY10) and identifying geographic archive gaps at the December 2011 regional meeting, we utilized a volunteer (Camille Grundhauser) to scan moose survey and telemetry information from the Delta and Tok offices for backup archive to prevent accidental loss at rural offices. We also color scanned topographic maps with data for archive through a local commercial service.

OBJECTIVE 4: Write annual progress reports, a research interim technical report in FY10, and a final technical report. Give presentations at scientific forums, particularly in Alaska. Publish results in peer-reviewed journals for jobs where results have utility outside Region III.

JOB/ACTIVITY 4: The annual progress report for FY11 was completed and we began drafting a final report and various manuscripts (details in section IV).

We continued discussions with a contract biometrician (Ronald Barry) as we worked toward a manuscript on modeling predicting snow depth and variance of depth across Interior Alaska (job 1b) and modeling habitat selection by female moose in Unit 19D based on presence or absence of a calf and environmental variables including snow depth (job 1d).

OBJECTIVE 5: Evaluate the potential to increase browse production with prescribed fire in subalpine habitat and the subsequent response in browse removal by moose (job amended to study plan 28 October 2008).

JOB/ACTIVITY 5A: Conduct an experimental burn by aerial ignition of fine fuels in spring to evaluate the vegetative response in current annual growth.

This job was terminated after the FY11 reporting period because of logistic difficulties described previously.

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

JOB/ACTIVITY 2A – We trained 2 colleagues from the Glennallen office as they assisted us in conducting the browse survey in the Unit 20A western foothills. After they collected

data in Unit 13A in April, Paragi proofed their electronic data entry and estimated biomass removal and architecture indices. We also used browse data collected in a prior project (5.10) and prior years in this project in the design a proposed study by Kellie Seaton of moose ecology in recent burns.

JOB/ACTIVITY 3A – We worked with the regional analyst/programmer (Robert DeLong) to evaluate an online archive for metadata that describes in detail the purpose of data collection and definition of variables so data sets (paper and electronic) may be archived in digital format for safe long-term storage and use by future researchers.

JOB/ACTIVITY 3A – Kalin Kellie coauthored and submitted a publication examining trends in moose harvest and bias in harvest data to the *Journal of Wildlife Management*.

III. PUBLICATIONS

None.

IV. RECOMMENDATIONS FOR THIS PROJECT

In FY13 we will finish preparing 3 manuscripts for peer-reviewed publication: modeling results from jobs 1b and 1d and a comparison of browse metric changes coincident with moose density changes from job 2a. We will conduct 2 browse surveys in Unit 20A in late winter 2013 in collaboration with other management and research projects. We will work with the regional programmer/analyst to prepare database files of historic browse surveys back to 2000 for migrating to an internal server (WinfoNet) for archive along with the software for analyzing data, similar to a system now used for moose population surveys. Survey data archive for rural offices and the regional office will continue as volunteer and technician help is available. We will focus on documenting metadata from a recently completed study by Paragi (project 10.1 on sharp-tailed grouse) and for 2 research biologists leaving the agency in the near future. Results from jobs not slated for publication will be summarized in a final report due 1 September 2013.

PREPARED BY: Thomas F. Paragi

DATE: 1 August 2012