

**Alaska Department of Fish and Game  
Division of Wildlife Conservation  
2007**

**Identification of factors affecting calf production,  
calf survival and survival of female adult  
moose in Game Management Unit 13**

**Bruce Dale**

**Research Annual Performance Report  
1-July 2006-30 June 2007  
Federal Aid in Wildlife Restoration  
W-33-5  
Project 1.64**

This is a progress report on continuing research. Information may be refined at a later date

If using information from this report, please credit the author and the Alaska Department of Fish and Game. The reference may include the following: Dale, B. 2007. Identification of factors affecting calf production, calf survival and survival of female adult moose in Game Management Unit 13. 1 July 2006 – 30 June 2007. Alaska Department of Fish and Game. Federal aid in wildlife restoration research annual performance report, grant W-33-5, project 1.64. Juneau, Alaska.

**FEDERAL AID  
ANNUAL RESEARCH PERFORMANCE REPORT**

ALASKA DEPARTMENT OF FISH AND GAME  
DIVISION OF WILDLIFE CONSERVATION  
PO Box 115526  
Juneau, AK 99811-5526

**PROJECT TITLE:** Identification of factors affecting calf production, calf survival, and survival of female adult moose in Game Management Unit 13

**PRINCIPAL INVESTIGATOR:** Bruce Dale

**COOPERATORS:** NONE

**FEDERAL AID GRANT PROGRAM:** Wildlife Restoration

**GRANT AND SEGMENT NR.:** W-33-5

**PROJECT NR.:** 1.64

**WORK LOCATION:** Game Management Unit 13A, Southcentral Alaska. The exact boundaries will be determined by movements of radio-collared moose, research needs, and other related research projects but will likely include the drainages of the Oshetna River, Tyone River, Nelchina River, and Goose Creek and may include the drainages of Tolsona Creek and Moose Creek.

**STATE:** Alaska

**PERIOD:** July 1, 2006 – June 30, 2007

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**I. PROGRESS ON PROJECT OBJECTIVES SINCE INCEPTION**

**OBJECTIVE 1:** Continue to monitor the dynamics of GMU 13A moose population.

We have monitored the dynamics Unit 13A moose population since project inception. The monitoring has primarily focused on productivity and secondarily on calf survival. These 2 parameters have been revealed to be the 2 dominant processes defining the dynamics of the Unit 13A moose population.

**OBJECTIVE 2:** Utilize multiple predator-multiple prey models to assess the role of predation on population dynamics.

Less work has been devoted to this objective as the moose population in Unit13A is currently affected more by a single predator. Various multiple prey models are being considered that can spatially account for the spatial dynamics of caribou. However, little is know about prey-switching by bears among caribou and moose calves. Studies are being designed to provide the fundamental predator dynamics of bears in a 2-prey system.

**OBJECTIVE 3:** Assess habitat selection of moose.

We have continued to collect habitat use information in Unit 13A through aerial telemetry data. Any spatial variation in the productivity and calf survival data (Objective 1) will be used to identify an appropriate scale to evaluate availability of habitats.

## **II. SUMMARY OF WORK COMPLETED ON JOBS IDENTIFIED IN ANNUAL PLAN THIS PERIOD**

### JOB/ACTIVITY 1: Population monitoring.

Each year we will capture and radio collar 5-10 female yearlings to serve as an annual cohort. All cohorts will be monitored through time to assess calf, yearling, and adult survivorship (Pollock et al. 1989), productivity, and rate of population increase (Eberhardt 1985).

We captured 10 calves in November 2006 and 9 calves in March 2007. In addition, we monitored survivorship and productivity of previous cohorts. We did not have any captured related mortalities.

### JOB/ACTIVITY 3: Habitat selection.

We will use location data from already deployed GPS collars along with the GIS layers discussed above to assess habitat selection by moose across seasons and across reproductive class. We collected information on information on habitat use by aerial radiotracking several times during the summer and in early and late winter.

### JOB/ACTIVITY 4: Moose nutritional condition.

We will conduct paired captures of up to 30 adult female moose and their calves in the fall and following spring to assess the nutritional condition of these individuals and determine changes across winter.

We captured and handled 25 cows and 10 calves in the fall and 25 cows and 9 calves the following spring. All of the fall captures that survived the winter we recaptured and evaluated in the spring for changes in condition over winter. We assessed pregnancy of all adults through blood assays and measured rump fat with ultra-sound. We did not have any captured related mortalities.

### JOB/ACTIVITY 5: Factors affecting calf survival.

We will collect up to 20 calves each in Unit 20A and unit 13A and compare nutritional status, growth, development, and frequency of pathologies to identify factors that may affect calf survival rates in Unit 13.

We did not collect or necropsy any calves. We will not collect any more until all the results are in from the previous year's collection and we can determine if additional collections are necessary.

### JOB/ACTIVITY 6: Reports/meetings.

Results of study and progress on objectives will be reported on. In December, I presented an update on GMU 13 moose research at the division's regional meeting in Anchorage.

**III. ADDITIONAL FEDERAL AID-FUNDED WORK NOT DESCRIBED ABOVE THAT WAS ACCOMPLISHED ON THIS PROJECT DURING THIS SEGMENT PERIOD**

None.

**IV. PUBLICATIONS**

None.

**V. RECOMMENDATIONS FOR THIS PROJECT**

None.

**VI. APPENDIX**

None.

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APPROVAL DATE: \_\_\_\_\_