# 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:** 9

**Project Number:** 1.70

**Project Title:** Moose population dynamics in southeastern Alaska

**Project Duration**: July 1, 2010–June 30, 2014

**Report Due Date:** September 1, 2011

**Principal Investigators:** Kevin S. White, Neil Barten, Ryan Scott, Anthony Crupi

**Cooperators:** Glacier Bay National Park, ADOT/PF

**Work Location:** Gustavus and Berners Bay, Alaska (GMU 1C)

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

**JOB/ACTIVITY 1a**: Estimate reproductive performance of radio-marked adult female moose

**Accomplishments**: We monitored pregnancy rates by collecting fresh fecal pellets from radio-marked adult female moose during late-February 2011 (Gustavus, n = 24, Berners Bay, n = 0). Fecal pellets were analyzed for progesterone concentration to determine pregnancy status (Joan Bauman, St. Louis Zoo). We also analyzed archived fecal pellets collected from previously captured animals of known reproductive status to validate laboratory assays (n = 145). During May 2011, we conducted aerial (Gustavus, n = 3; Berners Bay, n = 2) and ground-based surveys to determine calf status of radio-marked adult female moose (Gustavus, n = 34, Berners Bay, n = 30).

**JOB/ACTIVITY 1b:** Estimate survival of radio-marked adult female moose

**Accomplishments**: We monitored survival of radio-marked adult female moose (Gustavus, n = 38; Berners Bay, n = 32) each month via ground- or air-based radio-telemetry surveys. During 2010/2011, we investigated 10 mortality events involving radio-marked moose (Gustavus, n = 4; Berners Bay, n = 6).

**JOB/ACTIVITY 1c:** Estimate survival of calves associated with radio-marked adult female moose

**Accomplishments**: We monitored survival of calves associated with radio-marked adult female moose (Gustavus, n = 29; Berners Bay, n = 18) during May/June, November and April via ground- or air-based radio-telemetry surveys. During 2010/2011, we investigated 2 mortality events involving calves associated with radio-marked moose (Gustavus, n = 2; Berners Bay, n = 0).

**JOB/ACTIVITY 1d:** Estimate moose population size and composition.

**Accomplishments**: We conducted 2 aerial surveys during winter in order to estimate moose population size and composition (Gustavus, n = 1; Berners Bay, n = 1). During these surveys moose sighting probabilities were estimated using mark-resight techniques based on data collected from radio-marked adult female moose.

**JOB/ACTIVITY 1e:** Capture and radio-mark adult female moose.

**Accomplishments**: We did not conduct moose capture activities during this reporting period; our study plan scheduled moose captures every two years (i.e. March 2012 and 2014).

**JOB/ACTIVITY 1f:** Prepare annual reports.

**Accomplishments**: We prepared an annual progress report detailing activities conducted in Berners Bay, as required by a funding agreement with AKDOT/PF. We also prepared a report detailing activities conducted in the Gustavus area, to satisfy research permit requirements for Glacier Bay National Park.

**JOB/ACTIVITY 2a:** Synthesize population-specific demographic data.

**Accomplishments**: We estimated annual and seasonal survival (adult female and calf) and reproductive (calving, twinning and fecundity) rates for radio-marked adult female moose and associated calves monitored in Gustavus (2003-2011, n = 73) and Berners Bay (2006-2011, n = 67). We also estimated age-specific survival and reproductive rates for each population.

**JOB/ACTIVITY 2b:** Develop a moose population model for management applications.

**Accomplishments**: We developed and validated a 2-stage matrix population model parameterized using vital rate data summarized in Job 2a. The model was used to inform harvest management decisions for the Gustavus population and examine the potential for future harvest in the Berners Bay population.

## III. PUBLICATIONS

White, K. S. and N. L. Barten. 2010. Moose monitoring and assessment along the Juneau Access road corridor, southeastern Alaska. Research Progress Report. 9pp.

## VI. RECOMMENDATIONS FOR THIS PROJECT

This project should be continued as described in the study plan.

**Prepared by:** Kevin White

**Date:** 9/01/2011