

**Alaska Department of Fish and Game  
Wildlife Restoration Grant**

**Grant Number:** W-33

**Segment Number:** 11

**Project Number:** 12.01

**Project Title:** Mountain goat population dynamics in southeastern Alaska

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

**Report Due Date:** September 1, 2013

**Principal Investigators:** Kevin S. White, Neil Barten, Ryan Scott, Anthony Crupi, Phil Mooney, Boyd Porter, Dave Gregovich

**Cooperators:** Bureau Land Management, City of Sitka, Couer Alaska, Glacier Bay National Park, U.S. Forest Service

**Work Location:** Lynn Canal (GMU 1C/1D), Haines (GMU 1D), Baranof Island (GMU 4), Cleveland Peninsula (GMU 1A/1B), Kodiak Island (GMU 8), Alaska

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**I. PROJECT OBJECTIVES DURING LAST SEGMENT**

**OBJECTIVE 1:** Capture and radio-collar a sample of mountain goats in each study area.

We captured and deployed GPS/VHF radio-collars on mountain goats in Lynn Canal (n = 9), Haines (n = 9), Baranof Island (n = 5) during Aug-Oct 2012. All mountain goats were captured using helicopter darting methods.

**OBJECTIVE 2:** Annually estimate mountain goat population size and composition in each study area.

We conducted aerial surveys during September-October 2012 in order to estimate mountain goat population size and composition (Lynn Canal, n = 3; Haines, n = 3, Baranof, n = 1, Cleveland Peninsula, n = 2). During these surveys mountain goat sighting probabilities were estimated based on data collected from radio-marked adult female moose.

**OBJECTIVE 3:** Monitor reproductive success and survival of mountain goats in each study area.

We conducted aerial surveys in May-June 2013 (Lynn Canal, n = 4; Haines, n = 3; Baranof, n = 2; Cleveland Peninsula, n = 0) to determine kid status of radio-marked adult female mountain goats (Lynn Canal, n = 12; Haines, n = 9; Baranof, n = 6; Cleveland Peninsula, n = 6).

We monitored survival of radio-marked mountain goats (Lynn Canal, n = 37; Haines, n = 29, Baranof, n = 23; Cleveland Peninsula, n = 8) via air-based radio-telemetry surveys and/or from examining GPS-telemetry data. During 2012-2013, we investigated 21

mortality events involving radio-marked mountain goats (Lynn Canal, n = 13; Haines, n = 4; Baranof, n = 3; Cleveland Peninsula, n = 1).

**OBJECTIVE 4: Determine seasonal habitat selection patterns.**

We developed resource selection function (RSF) models using GPS location data collected from 124 mountain goats in the Lynn Canal area. These data were combined with remote sensing covariate data to derive models for the summer and winter periods. Resulting models were validated using the k-fold cross validation technique. Complete technical details are described in White et al. 2012.

**OBJECTIVE 5: Analyze data and prepare reports.**

We prepared annual progress reports detailing activities conducted in Lynn Canal, Haines and Baranof Island, as required by funding agreements with the BLM, Coeur Alaska and the City of Sitka. We also prepared a report describing aerial survey technique development activities to satisfy funding requirements for the USFS. We had one paper accepted for publication in a peer-reviewed journal.

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

**JOB/ACTIVITY 1: Capture and radio-mark mountain goats.**

**Accomplishments:** We captured and deployed GPS/VHF radio-collars on mountain goats in Lynn Canal (n = 9), Haines (n = 9), Baranof Island (n = 5) and Kodiak Island (n = 15). All mountain goats were captured using helicopter darting methods.

**JOB/ACTIVITY 2: Estimate mountain goat population size and composition.**

**Accomplishments:** We conducted aerial surveys during September-October 2010 in order to estimate mountain goat population size and composition (Lynn Canal, n = 3; Haines, n = 3, Baranof, n = 1, Cleveland Peninsula, n = 2, Glacier Bay, n = 3). During these surveys mountain goat sighting probabilities were estimated based on data collected from radio-marked adult female moose.

**JOB/ACTIVITY 3: Estimate reproductive performance and survival of radio-marked mountain goats**

**Accomplishments:** We conducted aerial surveys (Lynn Canal, n = 3; Haines, n = 3; Baranof, n = 1; Cleveland Peninsula, n = 0) to determine kid status of radio-marked adult female mountain goats (Lynn Canal, n = 12; Haines, n = 9; Baranof, n = 6; Cleveland Peninsula, n = 6).

We monitored survival of radio-marked mountain goats (Lynn Canal, n = 37; Haines, n = 29, Baranof, n = 23; Cleveland Peninsula, n = 8) via air-based radio-telemetry surveys and/or from examining GPS-telemetry data. During 2010-2011, we investigated 21 mortality events involving radio-marked mountain goats (Lynn Canal, n = 13; Haines, n = 4; Baranof, n = 3; Cleveland Peninsula, n = 1).

**JOB/ACTIVITY 4:** Determine seasonal habitat selection patterns.

**Accomplishments:** GPS location data were compiled and archived from 162 radio-marked mountain goats (Lynn Canal, n = 131; Haines, n = 23, Baranof, n = 7, Cleveland, n = 1) in preparation for resource selection function (RSF) modeling data analyses planned for winter 2014-15. However, RSF models were developed for the Lynn Canal study area and published in White et al. (2012) and White et al. (in press)

**JOB/ACTIVITY 5:** Data analysis and reporting.

**Accomplishments:** We prepared annual progress reports detailing activities conducted in Lynn Canal and Baranof Island, as required by funding agreements with DOT/PF, Coeur Alaska and the City of Sitka. We also prepared a report describing aerial survey technique development activities to satisfy funding requirements for the USFS.

We had one paper accepted for publication in a peer-reviewed journal.

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

None.

**V. PUBLICATIONS**

White, K. S., A. Crupi, R. Scott, and B. Seppi. 2012. Mountain goat movement patterns and population monitoring in the Haines-Skagway area, Alaska. Research progress report. Alaska Department of Fish and Game, Juneau, AK.

White, K. S., P. Mooney and K. Bovee. 2012. Mountain goat movement patterns and population monitoring on Baranof Island. Research progress report. Alaska Department of Fish and Game, Juneau, AK.

White, K. S. and G. W. Pendleton. 2012. Mountain goat population monitoring and survey technique development. Research progress report. Alaska Department of Fish and Game, Juneau, AK.

White, K. S., D. P. Gregovich, G. W. Pendleton, N. L. Barten, R. Scott, A. Crupi and D. N. Larsen. 2012. Mountain goat population ecology and habitat use near the Kensington Mine, Alaska. Research progress report. Alaska Department of Fish and Game, Juneau, AK.

White, K. S., D. P. Gregovich, G. W. Pendleton, N. L. Barten, R. Scott, A. Crupi and D. N. Larsen. In press. Modeling resource selection of mountain goats in southeastern Alaska: applications for population management and highway development planning. Proceedings of the Biennial Symposium of the Northern Wild Sheep and Goat Council.

**VI. RECOMMENDATIONS FOR THIS PROJECT**

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

**Prepared by:** Kevin White

**Date:** 8/22/13