Alaska Department of Fish and Game

Wildlife Restoration Grant

Grant Number: AKW-10 Wildlife Restoration FY2016

Project Number: 12.01

Project Title: Mountain goat population dynamics in southeastern Alaska

Project Duration: 1 July 2010–30 June 2017

Report Due Date: 1 September 2016

PRINCIPAL INVESTIGATORS: Kevin S. White, Philip W. Mooney, Boyd Porter, David P. Gregovich

COOPERATORS: Bureau Land Management, City of Sitka, Coeur 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

---

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 = 7), Haines (n = 7) and Baranof Island (n = 5) during August–September 2014. 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 2014 in order to estimate mountain goat population size and composition (Lynn Canal, n = 2; Haines, n = 3, Baranof, n = 1, Cleveland Peninsula, n = 1). During these surveys mountain goat sighting probabilities were estimated based on data collected from radio-marked mountain goats.

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

We conducted aerial surveys in May-June 2015 (Lynn Canal, n = 2; Haines, n = 2; Baranof, n = 1; Cleveland Peninsula, n = 0) to determine kid status of radio-marked adult female mountain goats (Lynn Canal, n = 13; Haines, n = 14; Baranof, n = 11; Cleveland Peninsula, n = 4).

We monitored survival of radio-marked mountain goats (Lynn Canal, n = 28; Haines, n = 36, Baranof, n = 31; Cleveland Peninsula, n = 5) via air-based radio-telemetry surveys and/or from examining GPS-telemetry data. During 2013–2014, we investigated 15 mortality events involving radio-marked mountain goats (Lynn Canal, n = 8; Haines, n = 2; Baranof, n = 2; Cleveland Peninsula, n = 2).

OBJECTIVE 4: Determine seasonal habitat selection patterns.

Data collected from all GPS radio-marked mountain goats were archived in a geospatial database. A two-stage resource selection function (RSF) modeling framework was developed and described in White et al. (2012). Further refinements to the modeling framework (i.e. computer programming) were conducted in 2014–2015. Preliminary RSF analyses of Haines area mountain goat GPS location data were conducted in 2014/2015.

OBJECTIVE 5: Analyze data and prepare reports.

We prepared annual progress reports detailing activities conducted in Lynn Canal and Haines, as required by funding agreements with the BLM and Coeur Alaska. We had two papers accepted for publication in peer-reviewed journals.

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

JOB/ACTIVITY 1: Capture and radiocollar a sample of mountain goats in each study area.

Accomplishments: We captured and deployed GPS/VHF radio-collars on mountain goats in Lynn Canal (n = 6), Haines (n = 6) and Baranof Island (n = 6) during August 2015. Kevin White also contributed time and assistance capturing mountain goats on Kodiak island (n = 31) in July 2015; operational funding provided by ADFG/USFWS. All mountain goats were captured using helicopter darting methods.

JOB/ACTIVITY 2: Annually estimate mountain goat population size and composition in each study area.

Accomplishments: We conducted aerial surveys during September-October 2015 in order to estimate mountain goat population size and composition (Lynn Canal, n = 3; Haines, n = 3, Baranof, n = 3, Cleveland Peninsula, n = 0). During these surveys mountain goat sighting probabilities were estimated based on data collected from radio-marked mountain goats.

JOB/ACTIVITY 3A: Monitor reproductive success of female mountain goats in each study area

Accomplishments: We conducted aerial surveys in May-June 2016 (Lynn Canal, n = 2; Haines, n = 2; Baranof, n = 2; Cleveland Peninsula, n = 0) to determine kid status of radio-marked adult female mountain goats (Lynn Canal, n = 14; Haines, n = 11; Baranof, n = 10; Cleveland Peninsula, n = 0).

JOB/ACTIVITY 3B: <u>Monitor survival of adult female mountain goats in each study area.</u>

Accomplishments: We monitored survival of radio-marked mountain goats (Lynn Canal, n = 25; Haines, n = 38, Baranof, n = 31; Cleveland Peninsula, n = 0) via air-based radio-telemetry surveys and/or from examining GPS-telemetry data. During 2013–2014, we investigated 17 mortality events involving radio-marked mountain goats (Lynn Canal, n = 2; Haines, n = 9; Baranof, n = 7; Cleveland Peninsula, n = 0).

JOB/ACTIVITY 3C: <u>Monitor/estimate survival of mountain goat kids in each study area.</u>

Accomplishments: We conducted aerial surveys in May-June 2016 to determine kid status of radio-marked adult female mountain goats. We subsequently monitored these radio-marked females throughout the year to determine survival of their kids.

JOB/ACTIVITY 4: <u>Determine seasonal habitat selection patterns.</u>

Accomplishments: Data collected from all GPS radio-marked mountain goats were archived in a geospatial database. A two-stage resource selection function (RSF) modeling framework was developed and described in White et al. (2012). Further refinements to the modeling framework (i.e. computer programming) were conducted in 2015–2016. We conducted RSF analyses examining mountain goat resource selection patterns in the vicinity of the Kensington Mine (White and Gregovich 2016, White and Gregovich, in review).

JOB/ACTIVITY 5: <u>Data analysis and reporting.</u>

Accomplishments: We prepared an annual progress report detailing activities conducted in Lynn Canal, as required by funding agreements with Coeur Alaska. We prepared a wildlife research report related to RSF modeling analyses near the Kensington Mine. We had two papers published in peer-reviewed journals. We currently have one paper in review in a peer reviewed journal.

III.   PUBLICATIONS

R. Calero-Bernal, E. Van Wilpe, K. S. White, S. K. Verma, C. K. Cerqueira-Cezar, and J. P. Dubey. 2015. *Sarcocystis oreamni* n. sp. from the mountain goat (*Oreamnos americanus*). Parasitology Research, DOI 10.1007/s00436-015-4644-3

Fieberg, J. R., K. Jenkins, S. McCorquodale, C. G. Rice, and K. S. White. 2015. Do capture and survey methods influence whether marked animals are representative of unmarked animals? Wildlife Society Bulletin, 39: 713–720.

White, K. S. 2016. 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., and D. P. Gregovich. 2016. Mountain goat resource selection in relation to mining-related disturbance, near the Kensington Mine, Southeast Alaska. Wildlife Research Report, ADF&G/DWC/WRR-2016-2. Juneau, AK.

White, K. S., and D. P. Gregovich. (In Review). Mountain goat resource selection in relation to mining-related disturbance. Wildlife Biology.

VI. RECOMMENDATIONS FOR THIS PROJECT

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

Literature Cited

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 along the Juneau Access road corridor, Alaska. Alaska Department of Fish and Game. Final Wildlife Research Report ADF&G/DWC/WRR-2012-02. Juneau, AK.

White, K. S., and D. P. Gregovich. 2016. Mountain goat resource selection in relation to mining-related disturbance, near the Kensington Mine, Southeast Alaska. Wildlife Research Report, ADF&G/DWC/WRR-2016-2. Juneau, AK.

White, K. S., and D. P. Gregovich. (In Review). Mountain goat resource selection in relation to mining-related disturbance. Wildlife Biology.

Prepared by: Kevin White, Wildlife Biologist III

Submitted by: Anthony Crupi, Acting Research Coordinator

Date: 1 September 2016