

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

GRANT NUMBER: AKW-19 5.0

PROJECT TITLE: Mountain Goat Population Dynamics on Baranof Island

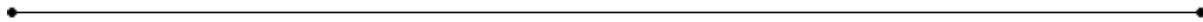
PERIOD OF PERFORMANCE: 1 July 2016–30 June 2020

PERFORMANCE YEAR: 1 July 2017–30 June 2018

REPORT DUE DATE: 1 September 2017

PRINCIPAL INVESTIGATOR: Kevin S. White

COOPERATORS: US Forest Service (Sitka Ranger District)



I. PROGRESS ON PROJECT OBJECTIVES DURING PERFORMANCE YEAR

JOB/ACTIVITY 1: Capture and radio-collar mountain goats on Baranof Island.

Accomplishments:

During August 2016, we captured and deployed GPS radio-collars on 4 mountain goats on Baranof Island to satisfy specific requirements for this project. Additional animals were captured during summer 2017 using helicopter darting methods, in conjunction with mountain goat capture activities being conducted as part of a separate project. Following capture, we collected biological samples (i. e. blood, tissue, fecal pellets, hair) and recorded morphological characteristics. Biological samples will later be analyzed for this (i.e. microhistological diet analyses for summer habitat assessment) and other related projects (i.e. genetics, health/disease assessment).

JOB/ACTIVITY 2: Conduct aerial surveys to estimate population size on Baranof Island.

Accomplishments:

We conducted 3 aerial surveys during September-October 2017 on southern and northern Baranof island. During surveys data were collected and used to estimate population size using mountain goat mark-resight and aerial survey sightability models. During aerial surveys in our research study area, located in central and northern Baranof Island, we observed 511 mountain goats (409 adults, 102 kids, 20.0% kids, 216 groups). We observed 26 of the 29 radio-marked mountain goats (90%) resulting in a Chapman mark-resight population estimate of 568 ± 65 mountain goats in our research study area.

JOB/ACTIVITY 3: Conduct aerial surveys to monitor fecundity and survival on radio- collared mountain goats on Baranof Island.

Accomplishments:

We conducted 1 aerial telemetry surveys during May 2018 to determine fecundity of radio-marked mountain goats on Baranof Island. In addition, during July 2017- June 2018, we conducted 5 aerial surveys to assess mountain goat survival status. Survival and reproductive data were analyzed to derive vital rate estimates. During the June 2017-May 2018 biological year, 7 (5 males, 2 females) of the 32 mountain goats (21 males, 11 females) monitored died resulting in an annual survival estimate of 0.77 ± 0.07 ; an estimate substantially lower than the long-term average (0.87 ± 0.02 , $n = 202$ mountain goat years). During the May –June 2018 parturition period we observed 8 of 12 radio-marked adult female mountain goats with kids at heel (0.67 ± 0.14); an estimate statistically comparable to the long-term average (0.62 ± 0.05 , $n = 86$).

JOB/ACTIVITY 4: Develop resource selection models for mountain goats on Baranof Island.

Accomplishments:

Mountain goat GPS location data collected via radio-collars during July 2017 – June 2018 were downloaded and archived in computer databases. We did not conduct resource selection data analyses; such analyses will be conducted once GPS data collection activities are completed (i.e. 2020).

JOB/ACTIVITY 5: Conduct summer mountain goat habitat field surveys on Baranof Island.

Accomplishments:

During July 2017, we visited 3 alpine sites on Baranof Island (Mt Verstovia, Gavan Hill and Lake Diana) and collected 16 mountain goat samples from eight different commonly consumed forages. All samples were sent to the Washington State University – Wildlife Nutritional Analysis Laboratory for plant chemical analyses. All samples were successfully analyzed to determine digestible energy and protein concentration (Table 1).

II. SUMMARY OF WORK COMPLETED ON PROJECT TO DATE.

Since 2016, we captured and deployed GPS radiocollars on four mountain goats, as per the specifications of this project; additional mountain goats in the same project area were captured as part of a separately funded project. We have routinely (bimonthly) monitored radiocollared mountain goats via aerial telemetry to gather survival and reproductive data. In addition, we have annually conducted aerial surveys for estimating mountain goat population size. In order to

characterize nutritional quality of key summer food items, we collected samples (n = 27) from eight plant species in five areas.

III. SIGNIFICANT DEVELOPMENT REPORTS AND/OR AMENDMENTS.

None

IV. PUBLICATIONS

None.

V. RECOMMENDATIONS FOR THIS PROJECT

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

Prepared by: Kevin White, Wildlife Biologist III

Date:

Table 1. Nutritional characteristics of alpine plants collected on Baranof Island, June-July 2017.

Species	Location	Date	%CP	GE (cals/gm)	DP (g/100g forage)	%DDM	%DE	DE (kcal/g)
<i>Carex macrochaeta</i>	Lake Diana	7/6/17	20.35	4865.0	15.0	72.3	72.8	3.5
<i>Carex macrochaeta</i>	Lake Diana	7/5/17	16.39	4746.0	11.3	73.5	74.0	3.5
<i>Carex macrochaeta</i>	Gavan Hill	6/30/17	13.11	4604.0	8.3	74.3	74.9	3.4
<i>Carex macrochaeta</i>	Verstovia	6/29/17	19.13	4683.0	13.9	75.5	76.1	3.5
<i>Cornus canadensis</i>	Lake Diana	7/6/17	7.70	4398.0	3.3	73.5	74.0	3.2
<i>Epilobium</i> sp.	Lake Diana	7/6/17	21.05	4635.0	15.7	79.1	79.8	3.7
<i>Geum calthifolium</i>	Lake Diana	7/6/17	10.63	4472.0	6.0	76.8	77.4	3.4
<i>Juncus mertensianus</i>	Lake Diana	7/5/17	12.19	4872.0	7.4	68.9	69.2	3.4
<i>Lupinus nootkaensis</i>	Lake Diana	7/5/17	24.82	5040.0	19.2	73.2	73.7	3.7
<i>Lupinus nootkaensis</i>	Lake Diana	7/6/17	25.09	4937.0	19.4	74.1	74.6	3.7
<i>Lupinus nootkaensis</i>	Verstovia	6/29/17	21.79	4959.0	16.4	73.5	74.1	3.6
<i>Nephrophyllidium crista-galli</i>	Lake Diana	7/6/17	17.61	4765.0	12.5	70.2	70.6	3.3
<i>Nephrophyllidium crista-galli</i>	Gavan Hill	6/30/17	19.83	4852.0	14.5	59.9	59.9	2.9
<i>Nephrophyllidium crista-galli</i>	Verstovia	6/29/17	17.87	4723.0	12.7	68.7	69.0	3.2
<i>Vaccinium</i> sp.	Lake Diana	7/6/17	15.94	5176.0	10.9	58.2	58.1	3.0
<i>Vaccinium</i> sp.	Verstovia	6/29/17	14.79	5271.0	9.9	51.3	51.0	2.7