

**FEDERAL AID
ANNUAL PERFORMANCE REPORT**

ALASKA DEPARTMENT OF FISH AND GAME
DIVISION OF WILDLIFE CONSERVATION
PO Box 115526
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Annual PROGRESS REPORT SHELL AND INSTRUCTIONS

The purpose of this report is to summarize significant findings and their management implications for the entire project. This template is based on Federal Aid reporting requirements as found in the Federal Aid Handbook, Chapter 11 <http://wsfrprograms.fws.gov/subpages/toolkitfiles/fah52211.pdf>

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

Grant Number: T-21 **Segment Number: 1**
Project Number: 14.0
Project Title: Baseline Community Surveys of Alpine and Subalpine Habitats in Southeast Alaska
Project Duration: 16 April 2011 – 30 June 2015
Report Period: 1 July 2013 – 30 June 2014
Report Due Date: 30 September 2014
Principle Investigator: Karen Blejwas, ADF&G
Project Location: Southeast Alaska (GMUs 1 – 5)

I. SUMMARY OF WORK COMPLETED ON JOBS FOR LAST SEGMENT PERIOD ONLY *Briefly describe how Federal Aid funds were spent on each active job, listing the results achieved during only this segment period (1 paragraph each). If a job was not accomplished as planned, very briefly tell why.*

Objectives:

1. Collect baseline information on the presence and distribution of species in alpine and subalpine habitats across Southeast Alaska.

Accomplishments:

Four alpine sites across Southeast Alaska were surveyed in July, 2013. The first site, near Mahoney Mt. on Revillagigedo Island (Mahoney; 55.41283, -131.58032), was surveyed on July 6-10, the second site, north of the head of Freshwater Bay on Chichagof Island (Chichagof; 57.9832, -135.20992), was surveyed on July 17-22, the third site, near Hawthorne Peak on the mainland above Gastineau Channel (Hawthorne; 58.24400, -134.24374), was surveyed on July 19-23, and the fourth site, near Baturin Lake on Baranof Island (Baranof; 56.41273, -134.85507) was surveyed on July 27-31.

The four sites increased our regional coverage. The Mahoney site had southern and mainland influence and a recent introduction of mountain goats. The Baranof Island site (Baturin Lake)

was on the outer coast (lower elevation, but treeless) and near a potential glacial refugium. Chichagof Island (Freshwater Bay) was the only site where the transect area was entirely on limestone bedrock, providing a good comparison with the other limestone site (Dall Island). The Hawthorne site was chosen because of logistical (weather) constraints. It was close to the Juneau Icefield and similar to the Heintzlemann Ridge site. It contained a wide variety of habitats including meadows, ridges, talus and mammals (marmots, mountain goats) that influence vegetation.

A combination of temperature and relative humidity dataloggers were deployed at 4 locations at each site, spanning the elevational range of the survey area. Hobo temperature loggers were programmed to record every 4 hours for 2 years and were buried 10 cm deep in the soil to measure temperatures in the active soil layer. Ibutton temperature and relative humidity dataloggers were attached to vegetation above ground and programmed to record every 6 hours for 2 years.

Plants

At each site a 2 km transect was laid out along the accessible terrain to maximize inclusion of variation in micro topography and vegetation at a given site. Kitty LaBounty established a total of 20 rectangular 50-m² vegetation plots spaced 100 m apart along each transect. One additional plot was sampled at the Freshwater Bay site on Chichagof Island to capture vegetation that was present in the study area but not sampled by the transect. Percent cover of all vascular and nonvascular plants and lichens was recorded for each plot. Taxa difficult to identify with certainty in the field were collected for verification. Latitude, longitude, elevation, slope, aspect, topography were also recorded at each plot using a Trimble Juno. Procedures followed the USDA Forest Service non-forested vegetation sampling protocol.

There were 46 vascular plant collections deposited in the UAM Herbarium, several of which represented range extensions. Three species were the first collections of a species on Chichagof Island (*Saxifraga adscendens*, *Parnassia kotzebuei*, *Carex glacialis*); two represented the second collections on Chichagof island (*Myosotis alpestris*, *Astragalus harringtonii*, *Coeloglossum viride*). One species, *Draba juvenilis*, was the fourth record for southeastern Alaska. Another species collected on Chichagof Island (*Kobresia simpliciuscula*) was the first record in southeastern Alaska and only the second collection in the state. Another species *Mimulus lewisii* was the fourth collection on Baranof Island and one of six total in the UAM herbarium. The Bryophyte and Lichen collections are being processed.

Site	Plots	Vascular Plant species	Unique Taxa
Baranof Island	20	69	5
Freshwater Bay (Chichagof Island)	21	117	16
Hawthorne (north Mainland)	20	86	4
Revillagegado Island	20	55	2

Birds

Catherine Pohl conducted repeated avian point counts and area searches at all 4 sites; surveys included and extended past the small mammal and vegetation/insect transects. Habitat

information was collected in association with the point counts and area searches. In addition to the timed surveys, incidental observations also proved productive.

Insects

Sayde Ridling placed insect pitfall traps inside or immediately adjacent to each of the 20 vegetation plots on the transects. The pitfall traps were emptied once per day. A 20 cm x 20 cm refuge trap (cardboard square) was placed in each plot to sample slugs and snails. Each plot was also searched once for 10 minutes during the survey period for terrestrial macroinvertebrates. Opportunistic collections of macroinvertebrates were conducted throughout the survey period.

Specimens were stored in high-grade ethanol and kept frozen when possible to enable later extraction of high quality DNA. Samples have been processed in the Entomology Preparation Lab at the University of Alaska Museum. All samples have been sorted and had their specimens either mounted on pins or stored in 70% ethanol vials. All pinned specimens and vials have been databased by lab technicians resulting in 5,193 specimens or lots (lots being vials with multiple specimens such as spiders) curated into the University of Alaska Museum for a total estimate for all 10 sites of 12,844 specimens. Identifications await refinement, however. For example, most of the beetles are identified only to the order Coleoptera. Refinements of these identifications will result in most being identified to genus or species and all to family.

Pitfall traps contained a good sampling of spiders and beetles of the families Carabidae and Staphylinidae. These three taxa are often used ecological indicators and the analysis of these data should allow a zoological comparison to the botanical characterization along these transects. A fairly thorough sampling of the alpine dung beetle fauna was obtained. These beetles are ecological indicators dependent on a healthy mammal dung supply. Bear dung, a rich resource for these beetles, was common at all sites. Adjacent to snow fields an assemblage of predacious and scavenging beetles, including a number of specialists (Bembidion and Phlaeopterus spp.) restricted to such habitats was sampled. The genus Phlaeopterus, in particular, was exciting to find because species of this genus are extremely localized and not common throughout their range (from Northern California to the Alaska Range). Additionally, the genus is taxonomically unrevised with a number of known undescribed species in Alaska. It is likely that some of the samples taken during this inventory were of these undescribed species. This fauna, and these Phlaeopterus in particular, are dependent on alpine snow fields for their persistence. As such, they are potential conservation targets under most projected climate change scenarios. Other taxa of interest included a surprising number of annelids - both earthworms and pot worms, in addition to a variety of snail species.

This URL will display all the specimen data for 2013:

<http://arctos.database.museum/saved/2013-ADFG-alpine>

Mammals

Karen Blejwas and Bryan McLean established 2 traplines approximately 500 m long at each site. The traplines were generally aligned with the vegetation transects and covered both

alpine and subalpine habitats. A total of 125 Museum special and 50 Victor rat traps were set on each transect for a total of 1400 trap nights per site. Pitfalls were set opportunistically and bat detectors were deployed at 1 or more locations at each site.

Diversity was higher, but abundance lower than in previous years, with a total of 72 specimens of 9 different species collected from all 4 sites. Although only 12 small mammals were trapped at the first site on Revillagigedo Island, diversity there was the highest of any site, with 6 species represented, including the only 2 northern bog lemmings to be trapped during the three years of the study. The Hawthorne site, on the northern mainland, also had high diversity, with 5 species. The only water shrew trapped during the study was taken here. As expected, diversity on Baranof and Chichagof Islands was very low; *Sorex cinereus* was trapped on both islands and was the only species trapped on Baranof Island; a second species, *Microtus oeconomus*, was trapped on Chichagof. All sites recorded bats; all were *Myotis sp.* and most of the calls were probably little brown bats (*Myotis lucifugus*).

Scientific Name	Common Name	Mahoney	Chichagof	Hawthorne	Baranof	Total
<i>Microtus longicaudus</i>	long-tailed vole	2	0	25	0	27
<i>Microtus oeconomus</i>	root vole	0	14	0	0	14
<i>Myodes gapperi</i>	northern red-backed vole	3	0	0	0	3
<i>Peromyscus keenii</i>	Keen's mouse	1	0	1	0	2
<i>Sorex cinereus</i>	common shrew	1	2	0	8	11
<i>Sorex monticolus</i>	dusky shrew	3	0	4	0	7
<i>Sorex palustris</i>	water shrew	0	0	1	0	1
<i>Synaptomys borealis</i>	bog lemming	2	0	0	0	2
<i>Marmota caligata</i>	hoary marmot	0	0	5	0	5
Total		12	16	36	8	72

2. Compare biogeographic patterns in species distribution across taxa.

Accomplishments: Work on this objective will begin once all the identifications have been finalized and the data compiled.

3. Quantify and compare the observed diversity and composition of alpine and subalpine bird, mammal, and arthropod communities across Southeast Alaska.

Accomplishments: Work on this objective is in progress. Compilation of the mammal data has been completed and analysis is in progress; compilation of the bird data is in progress. Identifications of arthropods are being refined.

4. Characterize the habitats present at each site; quantify and compare habitat diversity within and among sites.

Accomplishments: The habitat data have been compiled and the analysis is in progress.

5. Quantify and compare the habitat relationships for birds, mammals, and arthropods in alpine and subalpine habitats in Southeast Alaska.

Accomplishments: Work on this objective will begin once analysis of the habitat data is complete.

II. PUBLICATIONS

None.

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

None.

IV. RECOMMENDATIONS FOR THIS PROJECT

None.

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