

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

**Grant Number:** AKW-10 Wildlife Restoration FY2016  
**Project Number:** 19.10  
**Project Title:** Region I research planning, design, and support  
**Project Duration:** 1 July 2003–30 June 2017  
**Report Due Date:** 1 September 2015  
**Principal Investigators:** Rodney W. Flynn and Dave P. Gregovich  
**Work Location:** Southeast Alaska (RI)

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**I. PROGRESS ON PROJECT OBJECTIVES DURING LAST SEGMENT**

**OBJECTIVE 1:** Conduct strategic evaluations of research needs based on current management needs and objectives.

Design and support are an important part of maintaining a high quality research program. Planning is needed at many levels from strategic planning to planning experimental protocols of individual projects. A research plan is necessary to develop and maintain program direction, structure, and function that complement the Division of Wildlife Conservation's (DWC) strategic plan. Short and longer-term research priorities were established through discussions and meetings with regional and headquarters staff. Additional discussions were held with others outside of the regional staff, including other regions, federal management agencies, and universities. Research questions were designed to answer management questions. Regional priorities were reevaluated related to this new information and in conjunction with potential funding.

**OBJECTIVE 2:** Develop research design alternatives based on identified priorities.

In the evaluation of regional research priorities, alternative studies were considered for all projects. Final decisions on topic selection, research design, and field techniques were based on an analysis of the likelihood of accomplishing the research objectives, logistical considerations, and available staffing and expertise to work on the study.

**OBJECTIVE 3:** Compare alternative research designs using specific evaluation criteria.

Research designs were reevaluated and modified as necessary with the input of our statistical and biological staffs, based on information learned in previous years.

**OBJECTIVE 4:** Conduct routine and sophisticated statistical and population estimation analyses.

We coordinated with our staff biometrician in the review of projects. In addition, our staff biometrician conducted various analyses of research data for final reports and publications. We also consulted with our research analyst to improve the support capabilities of our research program. The research analyst collected, processed, and analyzed spatial data used to provide information on wildlife-habitat relationships. Foremost amongst such habitat-related analyses are resource selection functions (RSFs) which assign probabilities to wildlife species use of various landscape features.

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

### **JOB/ACTIVITY 1: Establish research program priorities**

**Accomplishments:** Short and longer-term research priorities were evaluated through discussions and meetings with regional staff, other regions, federal management agencies, and universities. Regional priorities were reevaluated related to this new information and in conjunction with potential funding. Because of partnering opportunities and targeted funding for specific wildlife species, regional staff identified additional priorities in the areas of wolf and brown bear population assessment. These projects were in addition to ongoing research priorities for brown bears, moose, mountain goats, and Sitka black-tailed deer.

### **JOB/ACTIVITY 2: Develop research design alternatives**

**Accomplishments:** Alternative studies were considered for several of the projects, especially for the POW wolf population assessment and Yakutat brown bear population assessment. Final decisions on topic selection, research design, and field techniques were based on an analysis of the likelihood of accomplishing the research objectives, logistical considerations, and available staff to work on the study.

### **JOB/ACTIVITY 3: Evaluate research designs**

**Accomplishments:** Research designs were reevaluated and modified as necessary with the input of our statistical staff, based on information learned in previous years. We adjusted the design of the wolf population estimation project.

### **JOB/ACTIVITY 4: Statistical and population estimation/biometric services**

**Accomplishments:** We coordinated with our staff biometrician in the review of projects. We provided technical support for various staff as needed. These analyses mostly focused on habitat selection. We developed landscape habitat factors for use in studies spanning multiple projects and species, including projects related to mountain goats, martens, deer, brown bears, and moose. We created and maintained software for use in habitat selection studies.

We assessed DWC data management needs and worked towards creation of data management standards as part of the Data Management Working Group.

Research Analyst Dave Gregovich played an important role in several divisional research projects which resulted in output critical to DWC's mission. Dave also worked to build divisional capacity for future wildlife resource selection and movement studies, and provided educational outreach to outside professionals. Dave assisted Kevin White in analyzing and writing a paper on mountain goat habitat selection in the area of the Kensington Mine. Dave analyzed elk habitat selection and movement patterns and provided much of the writing for an ADF&G technical report on this topic. He also has collected and processed habitat and animal location data for use in RSFs for Sitka black-tailed deer (with Karin McCoy). Dave assisted Anthony Crupi on a brown bear den site selection study in the Yaktuat area.

Dave has co-authored two papers in progress on the effects of climate change on temperate rainforests and one on alpine ecosystems, in collaboration with UAS, ADF&G, and USFS colleagues. Dave assisted Kevin White and Dr. Taal Levi (OSU) on an analysis for a paper on the effects of climate change on survival and demographics of mountain goats.

Dave is also currently working on a pilot project with intern Andre Fetzer to map wildlife habitat on Douglas Island near Juneau. The foreseen output will be a high-resolution map of vegetation types relevant to management questions on Douglas Island and the region as a whole, which will be published to the Southeast Alaska GIS Library (<http://seakgis.alaska.edu>) Dave also performed a comparative analysis of digital elevation model data for use in Southeast Alaska wildlife studies. Finally, Dave conducted a workshop on habitat selection sponsored by UAF and the BLM ([www.rsf.alaska.edu](http://www.rsf.alaska.edu)).

### III. PUBLICATIONS

White KS and DP Gregovich. *In Press*. Mountain goat resource selection in relation to mining-related disturbance. *Wildlife Biology*.

Lowell R, DP Gregovich, L Beier, R Flynn, and T Schumacher. 2016. Elk movement patterns and habitat use on Etolin and Zarembo Islands, Southeast Alaska. ADF&G Technical Report. In progress.

Buma B, SC Saunders, AL Bidlack, DP Gregovich, and DA DellaSala. 2016. Crossing critical ecosystem thresholds: emergent freeze and fire disturbance dynamics in temperate rainforests. Manuscript in preparation

Bidlack AL, GH Roffler, AJ Johnson, DP Gregovich, KS White et al. *In progress*. Climate change effects on alpine ecosystems within the North Pacific Coastal Temperate Rainforest. Manuscript in preparation.

White KS, DP Gregovich and T Levi. Demographic effects of climate on an alpine ungulate: a matrix population modeling approach. Manuscript in preparation.

Gregovich, D. IfSAR DEM exploration and comparison with LiDAR- and SRTM-derived DEMs in northern Southeast Alaska. Internal ADF&G document.

**IV. RECOMMENDATION FOR THIS PROJECT**

This project should be continued as described in the project statement.

**Prepared by:** Dave Gregovich and Anthony Crupi

**Submitted by:** Anthony Crupi, Acting Research Coordinator

**Date:** 8 September 2016