

# FEDERAL AID ANNUAL RESEARCH PERFORMANCE REPORT

ALASKA DEPARTMENT OF FISH AND GAME  
DIVISION OF WILDLIFE CONSERVATION  
PO Box 115526  
Juneau, AK 99811-5526

## Alaska Department of Fish and Game State Wildlife Grant

**Grant Number:** W-33 **Segment Number:** 12  
**Project Number:** 4.43  
**Project Title:** Spatial relationships, harvest vulnerability, and harvest rates of brown bears on the northern mainland coast of Southeast Alaska  
**Project Duration:** 1 July 2009–30 June 2016  
**Report Due Date:** 1 September 2014  
**Principal Investigators:** Anthony Crupi, Rodney Flynn, LaVern Beier  
**Cooperators:** Wrangell-Saint Elias National Park & Preserve  
**Work Location:** Mainland coast of Southeast Alaska from Glacier Bay National Park to Icy Bay, including the Yakutat and Malaspina Forelands

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

**OBJECTIVE 1:** Describe seasonal spatial relationships of brown bears in a portion of GMU 5 including seasonal home ranges and habitat selection.

Since the inception of the study we have captured and GPS radiocollared 79 brown bears (40 males, 39 females) in game management unit (GMU) 5A. Of these, 17 brown bears (10 males, 7 females) were captured at the landfill in Yakutat. In GMU 5B, we captured and deployed GIS collars on 18 brown bears (10 males, 8 females).

By the end of the reporting period, we had retrieved 74 GPS radiocollars from 67 individual bears. We have performed preliminary analyses of location data investigating seasonal movement patterns, animal home range size, and den site selection.

**OBJECTIVE 2:** Estimate harvest rate of brown bears.

We sent 177 tissue samples collected between 2009 and 2013 to Wildlife Genetics International (WGI) for DNA analysis. We collected 147 samples in GMU 5A, and collected 30 samples in GMU 5B. We collected DNA tissue samples from live-captured bears (100), hunter-harvested bears (70), and other human-caused mortalities (7).

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

**JOB/ACTIVITY 1a:** Capture bears, deploy GPS radiocollars

We captured 22 brown bears (13 males, 9 females) in GMU 5A during the reporting period. The bears were processed and outfitted with GPS-equipped radiocollars. Using standard helicopter darting techniques, we captured 16 bears on the Yakutat Forelands near the beach, and one adult male in the high alpine. Two of the captured bears had been previously radiocollared; we retrieved their old collars and deployed new GPS

radiocollars. We also foot snared 5 bears along salmon streams and outfitted the traps with Spot satellite transmitters to notify us via email when a bear was captured. Using this innovative technology allowed us to quickly respond to captured bears and resulted in significant cost savings.

**JOB/ACTIVITY 1b: Retrieve collars**

By the end of the reporting period, we had retrieved 74 GPS radiocollars from 67 individual bears.

**JOB/ACTIVITY 1c: Download and analyze location data.**

Brown bear GPS radiocollar data have been downloaded and entered into a geographical database. The location data have been analyzed according to seasonal movement patterns, animal home range size, and den site selection.

**JOB/ACTIVITY 1d: Prepare reports and publications**

We completed a final wildlife research report detailing the research conducted near the Malaspina Glacier titled, “Movement patterns, home range size, and resource selection for brown bears near the Malaspina Glacier in Alaska”. It is currently being formatted for publication.

**JOB/ACTIVITY 2: Collect DNA samples**

We collected DNA from 20 live-captured brown bears and 10 harvested bears in GMU 5A. The DNA samples have been processed and archived. The bears harvested in the fall season were sent to (WGI) for DNA analysis and those collected in the spring will be submitted to WGI in the autumn.

**Job/Activity 2b: Estimating harvest rate**

At the conclusion of the project we will estimate harvest rate using a closed population model in Program MARK. The live-captured and hair-snare samples will constitute “marked” samples and hunter-harvested bears will constitute recaptures.

**Job/Activity 3a: Estimating the density of brown bears in the Yakutat Forelands**

We collected 849 hair samples for the GMU 5A brown bear density estimate. We collected 569 samples from 490 hair snares, 269 samples from 41 scent-baited barbed wire corrals, and 11 samples from 6 rub trees. We sent these samples to WGI for DNA extraction and analysis.

**III.** Not applicable

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

None.

4.43 Spatial relationships, harvest vulnerability, and harvest rates of brown bears on the northern mainland coast of Southeast Alaska  
FY14 Annual Research Performance Report

## **V. PUBLICATIONS**

Flynn, R. W., L. R. Beier and S. B. Lewis. 2012. Spatial relationships and harvest vulnerability of brown bears in the Malaspina Forelands of Southeast Alaska. Interim wildlife research report. Alaska Department of Fish and Game, Juneau, AK. USA

Crupi, A. P., R. W. Flynn, L. R. Beier, D. P. Gregovich, and J. N. Waite. 2014. Movement patterns, home range size, and resource selection for brown bears near the Malaspina Glacier in Alaska. Alaska Department of Fish and Game, Final Wildlife Research Report. ADF&G/DWC/WRR-2014-2, Juneau, AK, USA.

## **VI. RECOMMENDATIONS FOR THIS PROJECT**

In the upcoming year, we will continue field work in Yakutat following objectives and job activities outlined in the current project statement.

**Prepared by:** Anthony Crupi

**Date:** 09/01/2014