

**Alaska Department of Fish and Game  
Division of Wildlife Conservation  
September 2008**

## **Noninvasive sampling of brown bears**

**Sean Farley**

**Research Annual Performance Report  
1 July 2007–30 June 2008  
Federal Aid in Wildlife Restoration  
W-33-6  
Study 4.37**

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# FEDERAL AID ANNUAL RESEARCH PERFORMANCE REPORT

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

**PROJECT TITLE:** Non-invasive sampling of brown bears

**PRINCIPAL INVESTIGATOR:** Sean Farley

**COOPERATORS:** Dr. Sandy Talbot, USGS Molecular Ecology Laboratory, Anchorage, Alaska

**FEDERAL AID GRANT PROGRAM:** Wildlife Restoration

**GRANT AND SEGMENT NO.** W-33-6

**PROJECT NO.** 4.37

**WORK LOCATION:** Region II, ADF&G

**STATE:** Alaska

**PERIOD:** July 1, 2007 – June 30, 2008

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## **I. PROGRESS ON PROJECT OBJECTIVES SINCE PROJECT INCEPTION**

**OBJECTIVE 1:** Develop methodology to non-invasively collect biological materials from bears using the McNeil River area.

Equipment was purchased and fecal samples in the summer of 2006.

**OBJECTIVE 2:** Collect biological samples from bears that have been harvested.

Most area biologists submitted samples from bears they sealed. Totals are listed below.

**OBJECTIVE 3:** Clean, curate, and archive samples.

Samples are being processed.

**OBJECTIVE 4.** Determine the effectiveness of sample collection procedures.

A subset of samples is being analyzed.

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

JOB/ACTIVITY 2A: ADFG staff will be provided materials and training sufficient to enable them to collect small amounts of biological material from bears during the course of sealing. Collection materials will be purchased, and along with written materials, provided to staff. Procedures will be established for the timely submission of samples.

Over 2,500 sampling kits were distributed to all Region II area offices. Each kit contained sterile buccal swabs and Eppendorf microcentrifuge tubes filled with “Longmire” buffer. A total of 626 samples were returned of which sealing certs have been entered for 237 (40 black, 197 brown). Samples were collected from all area offices except Ketchikan, Petersburg, and Kodiak.

JOB/ACTIVITY 3A: Samples collected during objectives 1 and 2 will be cleaned in the laboratory and sorted according to potential for DNA extraction. Archival sub-samples will be appropriately processed and retained at -84C. Laboratory supplies will be purchased. A -84C freezer will be purchased.

As of 8 Sept 2008 there have been 626 sample returned to the laboratory. Data describing each sample have been entered in ADFG sealing certificates, of which 237 are in a spreadsheet. The remaining data has yet to be entered.

JOB/ACTIVITY 4: A random subset of all samples will have mitochondrial and nuclear DNA extracted and amplified. The sex, species, and individual identification of each sample will be determined. The effectiveness of the sampling methods will be determined. QIAamp DNA stool mini kits, QIAamp DNA mini kits, various chemicals, primers, and polymerases will be purchased. An agreement with the Molecular Ecology Laboratory (MEL) of the USGS in Anchorage will be established for their assistance with final laboratory analysis.

We will begin processing samples after the fall harvest is complete. Fifty one samples were extracted with phenol:chloroform, two samples were extracted with MZV salt extraction. All but the the MZV extracted samples and three of the phenol:chlororm samples produced Fluorometer readings in excess of 400 ng/ul samples.

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

None.

**IV. PUBLICATIONS**

None at this time.

**V. RECOMMENDATIONS FOR THIS PROJECT**

None.

**VI. APPENDIX**

None.

4.37 Non-invasive Sampling of Brown Bears  
FY08 Annual Performance Report

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APPROVAL DATE: \_\_\_\_\_