

**Alaska Department of Fish and Game
Division of Wildlife Conservation
2007**

Non-invasive sampling of brown bears

Sean Farley

**Research Annual Performance Report
1 July 2006–30 June 2007
Federal Aid in Wildlife Restoration
Grant W-33-5
Project 4.37**

This is a progress report on continuing research. Information may be refined at a later date.

If using information from this report, please credit the author and the Alaska Department of Fish and Game. The reference may include the following: Farley, S. 2007. Non-invasive sampling of brown bears. 1 July 2006 – 30 June 2007. Alaska Department of Fish and Game. Federal aid in wildlife restoration research annual performance report, grant W-33-5; project 4.37. Juneau, Alaska.

**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:Lem Butler (King Salmon Area Biologist) & USGS Molecular Ecology Laboratory

FEDERAL AID GRANT PROGRAM:Wildlife Restoration

GRANT AND SEGMENT NR.: W-33-5

PROJECT NR.:4.37

WORK LOCATION:McNeil River area, Southcentral Alaska

STATE: Alaska

PERIOD:July 1, 2006 – June 30, 2007

I. PROGRESS ON PROJECT OBJECTIVES SINCE PROJECT INCEPTION

This project began on July 1, 2006.

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

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

JOB/ACTIVITY 1: Building upon efforts of previous McNeil sanctuary staff, barbed wire wrapped posts will be placed at key points of the sanctuary routinely accessed by staff and bears. Staff will be trained to collect hair from posts. Equipment (barbed wire, posts, collection materials) will be purchased and supplied to staff. Procedures will be established for the timely submission of samples.

No work was done on this job.

JOB/ACTIVITY 1B. Previous researchers have reported success at utilizing fresh feces for both mitochondrial and nuclear DNA extractions. Staff will be trained to collect small samples of fresh feces during their daily travels. Collection materials will be purchased and provided to staff. Procedures will be established for the timely submission of samples.

Staff collected 12 fecal samples in the summer of 2006. We purchased Qiagen stool kits for DNA extraction. Laboratory work has not commenced.

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

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.

ADFG area biologists and staff were provided with over 3,000 sterile cheek swabs and over 3,000 locking Eppendorf microcentrifuge tubes filled with Longmire's solution. Detailed instructions were sent with all collecting equipment to staff, and follow-up contact was initiated. Several areas requested additional material partway through the summer and the request was honored.

OBJECTIVE 3: Clean, curate, and archive samples.

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.

Approximately 300 samples have been returned to Anchorage, and are being stored in the -20C freezer. Upon closure of the fall 2007 hunting season all remaining samples will be returned to Anchorage and stored in a freezer.

OBJECTIVE 4. Determine the effectiveness of sample collection procedures.

JOB/ACTIVITY 4A. 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.

An agreement has been established with the USGS Molecular Ecology Laboratory in Anchorage to provide assistance with DNA analysis. This laboratory work will begin in approximately one month.

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

None.

IV. PUBLICATIONS

None.

V. RECOMMENDATIONS FOR THIS PROJECT

None.

VI. APPENDIX

None.

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APPROVAL DATE: _____