

FEDERAL AID ANNUAL RESEARCH PERFORMANCE REPORT

ALASKA DEPARTMENT OF FISH AND GAME
DIVISION OF WILDLIFE CONSERVATION
PO Box 115526
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PROJECT TITLE: Population demographics of Kenai brown bears

PRINCIPAL INVESTIGATOR: Sean Farley

FEDERAL AID GRANT PROGRAM: Wildlife Restoration

GRANT AND SEGMENT NO. W-33-7

PROJECT NO. 4.38

WORK LOCATION: Kenai Peninsula

STATE: Alaska

PERIOD: July 1, 2008 – June 30, 2009

I. PROGRESS ON PROJECT OBJECTIVES SINCE PROJECT INCEPTION

FY 08 was the first year of the project.

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

JOB/ACTIVITY 1A: Collect demographic data. Data will be collected by collaring a subset of peninsula bears with vhf radio collars and following them for several years to collect data cub production, litter size, cub survival, adult survival, age of weaning, estimated age of first reproduction (where possible), inter birth interval, and annual natural mortality rate.

Telemetry flights were conducted and Animal productivity determined Data are summarized below. There are 35 animals being monitored.

JOB/ACTIVITY 2A: Data analysis. Collaborate with Dr. Sandy Talbot of the USGS Molecular Ecology laboratory in Anchorage, Alaska to look for individual maternal lineages of Kenai Peninsula brown bears. Where possible, perform a genealogical reconstruction of maternal lineages for the past 10 years. Relate that information with reproductive success from past radio-collared work.

In Summer 2008 2 males were captured, Fall 2008 3 females were captured, and in spring 2009 8 females and 1 male were captured.

JOB/ACTIVITY 3A: Model development. Explore analysis of data from jobs 1 and 2 to construct predictive model(s) combining biological covariates (genetic relatedness, differential reproductive fitness, demographic data) of Kenai brown bears.

The following vital rate information was calculated for the Kenai brown bear population, using data collected through 2008. Models are conventional Euler-Lotka equations, modified by Testa (1996) and following Eberhardt and Siniff (1977) and Eberhardt 1985.

Female survivorship 0.9215 +- 0.044
Average age at reproduction: 5years
Birth rate: 0.3474 (0.3186 – 0.3590)
Cub survivorship:
 cub-of-the-year (COY) 0/62 – 0.68
 yearling 0.58 – 0.62
 two-year old 0.99
Litter size:
 COY 2.187 mean; 0.739 sd
 yearling 2.10 mean; 0.662 sd
 two year old 2.018 mean; 0.707
Interbirth interval
 1995 – 2008 3.05 mean; 0.4 sd
 1995 – 2000 3.17 mean; 0.39 sd
 2000- 2008 3.08 mean; 0.49 sd
Population productivity (Lambda): 1.02 (0.96 – 1.08)

Literature Cited:

- Eberhardt, L.L. and D.B. Siniff. 1977. Population dynamics and marine mammal management policies. *Journal of the Fisheries Research Board of Canada* 34(2): 183-190.
- Eberhardt, L.L. 1985. Assessing the dynamics of wild populations. *Journal of Wildlife Management* 49(4):997-1012.
- Testa, J.W. 1996. Using annual approximations of birth rate in models for species with multiannual reproductive cycles. *Marine Mammal Science* 12(3): 428-433.

JOB/ACTIVITY 4A: Attend conferences and training, write and present papers.

No meetings were attended this year.

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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