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

Alaska Department of Fish and Game
Wildlife Restoration Grant

GRANT NUMBER: AKW-23

PROJECT NUMBER: 4.45

PROJECT TITLE: Literature review and data assimilation of grizzly bear populations to understand sustainable rates of harvest

PERIOD OF PERFORMANCE: 1 July 2016–30 June 2019

PERFORMANCE YEAR: July 1, 2017 - June 30, 2018 (Project Year 2 of 3)

REPORT DUE DATE: 1 September 2018

PRINCIPAL INVESTIGATOR: Kerry L. Nicholson

COOPERATORS: John Merickel (Region III Biometrician I/II), Danny Caudill (Region III Wildlife Biologist III)

I. PROGRESS ON PROJECT OBJECTIVES DURING PERFORMANCE YEAR

OBJECTIVE 1: Conduct a literature review on 1) grizzly bear population and harvest data worldwide; 2) population and harvest data on grizzly bears in Interior and Arctic Alaska; 3) sustainable harvest for grizzly bears; 4) models of grizzly bear population dynamics.

JOB/ACTIVITY 1A: Compile and collect literature of harvest on grizzly bears.

ACCOMPLISHMENTS: Federal funds were used to pay salaries associated with collecting these data and it is an ongoing activity.

OBJECTIVE 2: Assess current management needs regarding grizzly bear populations throughout the Interior and Arctic regions of Alaska.

JOB/ACTIVITY 2A: Review survey and inventory reports and management reports to identify gaps in each region regarding grizzly bear population dynamics

ACCOMPLISHMENTS: Federal funds were used to pay salaries associated with collecting these data and it is an ongoing activity. Management reports have been compiled and

information for individual regions will be summarized. Upon pursuit of this objective, it has highlighted the need for a specific workshop or meeting with the Area Biologists to understand their needs in addition to overall general biological understanding of grizzly bear biology in Northern and Interior Alaska.

OBJECTIVE 3: Compile and analyze available data on Interior and Arctic grizzly bear populations.

JOB/ACTIVITY 3A: Assess status, composition and abundance of grizzly bear populations relative to harvest and compare with other estimates where data are available.

ACCOMPLISHMENTS: We compiled all the historic harvest regulations in interior and arctic Alaska. We also compiled the historic grizzly bear sealing data for interior and arctic Alaska. Analyses of these compiled datasets are ongoing.

JOB/ACTIVITY 3B: Estimate population parameters (e.g., reproduction, survival and mortality) for grizzly bears

We ran cursory analyses on Reynolds and Ver Hoef (2000) 1981-1998 Alaska Range grizzly bear demographic and survival data to calculate survival. The dataset is being assessed for suitability to pursue further analyses.

JOB/ACTIVITY 3C: Determine feasibility of a harvest viability analysis where appropriate data are available to model growth rates and survival under various scenarios

At the request of Region V Research Coordinator Lincoln Parrett, Region III Wildlife Biologist Danny Caudill and Region III Biometrician John Merickel worked together to roughly estimate trend in age of harvest for GMU 22. The analysis was preliminary and they planned to work with everyone to develop a plan to move forward with this at a larger scale. They created a single model that evaluates all harvest data for Regions III and V. The primary focus was the effects of year, season, and sex on age at harvest. This preliminary analysis was provided in the previous FY report. The analysis is ongoing.

JOB/ACTIVITY 3D: Identify gaps in knowledge and data for additional analysis

This activity overlaps with other objectives (e.g., objective 2) and indirectly has been accomplished though it will continue to be pursued. Additionally, this activity was not pursued directly per difficulties associated with determining regional priorities for grizzly bear research.

JOB/ACTIVITY 3E: Evaluate monitoring approaches to understand effects of various harvest methods on grizzly bears

We have determined this Activity is redundant with the goals from several other jobs and as such will be addressed in alternative manners. Therefore, this job as worded will not

contribute to meeting Objective 3 at this time and are removing it from the Project Statement.

OBJECTIVE 4: Report findings and develop a research protocol proposal.

JOB/ACTIVITY 4A: Provide a summary of efforts and outline possible future directions for grizzly bear research

This activity will only be accomplished after the region determines grizzly bear research priorities. Until that occurs, this activity will not be accomplished.

JOB/ACTIVITY 4B: Identify gaps in knowledge relative to management needs and recommend potential research projects within Region III and across Alaska

This activity was not accomplished because the region has yet to identify management needs.

JOB/ACTIVITY 4C: Develop and write a research proposal(s) and operational plan(s) for identified project(s) with possible major field components

No work was accomplished on this objective during the report period. This objective is one that will only be accomplished towards the end of the project.

OBJECTIVE 5: Survival and diet monitoring.

Job/Activity 5a: Grizzly bears that were collared in GMU 20A will be monitored for survival and reproductive information.

In August 2017 flights occurred to search for the 6 bears prior to den entrance. One male was shot during the fall hunting season, leaving 5 bears to track for spring emergence. In April we began searching for bears as they emerged from their dens and attempted to count cubs with each female. We were able to conduct 5 flights between April and June 30. We suspected 2 of the remaining 5 bears had either died or slipped their collars. By June 30, it was very likely that there are only 3 bears left with VHF collars in 20A.

Job/Activity 5b: Hunter harvested bears that are sealed in Region 3 will be sampled for stable isotope analysis to provide foundational information regarding bear diet, particularly in response to bait stations. This information will help direct future grizzly bear research.

We sent 130 samples to the stable isotope lab. Preliminary analysis indicates that anthropogenic food sources can be detected in the diet through our techniques. Also, we can detect a difference between male and female diet composition. We will be formalizing a collaborative relationship with the isotope lab and other isotope experts to assist with further analysis and data processing.

II. SUMMARY OF WORK COMPLETED ON PROJECT TO DATE.

Not applicable.

III. SIGNIFICANT DEVELOPMENT REPORTS AND/OR AMENDMENTS.

Job/Activity 5c: Grizzly bears that were collared in GMU 20A will be used to evaluate detectability from aerial survey techniques as described by Schmidt et al. 2017 to estimate abundance. This information will assess the continued use of distance aerial surveys in the Interior.

An opportunity arose to pursue a collaborative project with National Parks to conduct a survey throughout the Alaska Range for grizzly bear abundance estimation. Therefore, the intent was to conduct preliminary trials to understand detectability of grizzly bears in a heavily forested landscape. We were going to use the collared bears in 20A and additional collared bears in 20C that are being maintained by National Park Service. After significant deliberation, it was decided that the pilot study would be insufficient to be pursued due to the lack of funds and because the area biologists are concerned with the lack of precision regarding this method. Though we added this as a possible Job/Activity to be accomplished in May 2018, it was not conducted and will not be pursued in future years.

IV. PUBLICATIONS

None.

V. RECOMMENDATIONS FOR THIS PROJECT

None.

Prepared by: Kerry L. Nicholson, Furbearer/Carnivore Wildlife Biologist III

Date: 17 August 2018