

FEDERAL AID ANNUAL 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 Wildlife Restoration Grant

Grant Number: AKW-7 **Segment Number:** 1

Project Number: 3.0

Project Title: Statewide Intensive Management for Deer Populations Identified as Important for Providing High Levels of Harvest for Human Consumptive Use and Predators Influencing Deer Population Status.

Project Duration: April 1, 2015 – March 31, 2020

Report Period: April 2, 2015 – March 31, 2016

Report Due Date: June 29, 2016

PRINCIPAL INVESTIGATOR: Richard Lowell (RI) & Tony Carnahan (RII)

COOPERATORS: None

WORK LOCATION: GMU 3 (RI), GMU 6 (RII)

I. PROGRESS ON PROJECT OBJECTIVES DURING LAST SEGMENT

Objective 1: Conduct more frequent and more robust surveys to estimate the population size and fall composition (bucks, does and fawns) of deer to evaluate if IM treatments are successful.

Region I

- In late 2015, we received the laboratory results for the fecal pellet DNA surveys conducted on Mitkof Island in spring 2014. The DNA based mark-recapture data were analyzed and a preliminary population density estimate was developed for deer on Mitkof Island.
- During late-July and early August 2015 we completed the 3rd consecutive season of aerial alpine deer surveys. Alpine deer surveys were conducted on Lindenberg Peninsula (IM Treatment Area), western Kupreanof (IM Comparison Area), South Admiralty Island, and Kuiu Island.

Region II

Ten trail cameras were purchased with the intent of monitoring doe:buck ratios and placed at several locations on Green Island in March 2016 and were rechecked in June 2016 and again in August 2016 to assess deer encounter rates and total number of cameras needed to assess composition accurately.

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Green and Hawkins Islands were identified as potential study areas for genetic mark-recapture using pellet (fecal) DNA. Instead of using microsatellites to identify sex and individual deer, single nucleotide polymorphisms (SNPs) will be assessed as possible markers. The use of SNPs would be more cost effective (\$35/sample for SNPs vs. \$85/sample for microsatellites) and SNPs could be used to identify fitness-related markers in ungulate populations. These markers include major histocompatibility complex (MHC) (linked to immune response), growth hormone gene (antler growth), prion protein gene (relative susceptibility to chronic wasting disease) (Kasarda et al. 2014), and foraging efficiency (Trujillo et al. 2013). No genetic mark-recapture surveys using deer pellets were conducted during this period but are planned for spring 2017 or 2018 depending on GPS collar deployment success.

Objective 2: Estimate fawn production, survival and causes of mortality using radio-collars and or camera-collars to determine if a) fawn mortality can be reduced to meet IM population and/or harvest objectives or b) to evaluate the effects of the IM treatment.

Region II

Lotek video camera GPS collars were purchased in February 2016 with the intention of placing collars on preparturient does. Capture attempts were unsuccessful in the spring of 2016 so no video camera collars were deployed. Deployment will be attempted again in spring 2017.

In March 2016, the principal investigator (T. Carnahan) traveled to California to work with the California Department of Fish and Wildlife to learn how to use a portable ultrasound device to assess reproductive status (both pregnancy and twinning) and body condition in mule deer does. No Federal or state funds were used for travel. We intend to capture and ultrasound 15 does per island per year for reproductive status starting March 2017.

Objective 3: Estimate adult deer survival rates using radio-collars to evaluate the effects of the IM treatment.

Region II

In November and December 2015, 60 GPS GlobalStar collars were purchased for monitoring deer survival rates, home range size, and resource selection. Deer captures were planned to coincide with habitat analysis on Green Island February 23 – March 4, 2016. Captures were to be ground-based with the anticipation that snow cover would yard deer up on the beaches to facilitate capture. Rough seas prohibited deployment to Green Island until March 1, leaving only four days to capture deer. The lack of snow further complicated captures, as there were no deer on beaches and very little sign of deer within a quarter-mile of beachfront. Since this was the first time visiting Green Island and deer were not readily available for capture, we concentrated our effort on habitat analysis of Green Island. No deer were captured during this period. More captures are planned for June, July, August, and October 2016.

Objective 4: Monitor deer nutritional status to evaluate the influence of nutrition on deer population status and evaluate IM population objectives.

Region II

Deer nutritional status will be monitored using ultrasound measurement of rump fat thickness (MAXFAT) and body condition scores (BCS) as outlined by Cook et al. (2010). No deer were evaluated during this period.

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Objective 5: Monitor forage abundance and utilization to evaluate browse abundance and quality and determine habitat capability to develop reasonable IM population objectives.

Region II

Habitat carrying capacity for deer will be determined using the Forage Resource Evaluation System for Habitat – deer (FRESH –deer) program developed by Hanley et al. (2012). To evaluate habitat, an MS graduate student was brought on at Alaska Pacific University under the advisement of Dr. Roman Dial. This graduate student’s project will focus on determining biomass availability of critical deer forage using the combination of remotely sensed data and ground control plots. The MS graduate student started classes in September 2015. Two trips were conducted to evaluate habitat classification on Hawkins Island (September 2015) and Green Island (March 2016). Formal field work will begin in May 2016.

Objective 6: Investigate and monitor wolf, black bear and brown bear abundance relative to defined IM objectives.

Region I

- From mid-October 2015 to late February 2016, we used a helicopter to deploy and maintained remote camera traps for wolves at 8 individual locations within the IM treatment and comparison areas on Kupreanof Island. Camera traps were not baited, but were instead positioned along prominent game trails in an effort to obtain information on the distribution of wolf packs, and minimum pack size for wolves inhabiting portions of the Kupreanof Island IM area.
- From late-February through mid-April 2016, we designed and tested 6 different devices for obtaining hair and viable DNA samples from free ranging wolves. The purpose of this project was to test, and if possible improve, a variety of techniques for collecting hair samples for future use in developing a DNA mark-recapture population estimate for wolves in parts of Unit 3. We used a helicopter to established 15 individual hair-snagging and camera trap stations where we evaluated the effectiveness of 6 different hair snagging devices at sites baited with scent lures and/or meat and bones from carcasses. The IM operational plan for Unit 3 references objectives for only deer and wolf abundance.
- The current operational plan and predator control technique is specific to wolves, and does not target black bears or brown bears for population reduction. Therefore, no attempt was made to evaluate black bear or brown bear abundance within the Unit 3 IM area.

Region II

No natural predators for deer occur on Green Island, which will be used as a control for predation on Hawkins Island. No predator abundance surveys have been conducted in Prince William Sound; however, a black bear exploitation rate using genetic mark-recapture is planned to start in 2017.

Objective 7: Report findings in appropriate scientific and popular publications.

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This has yet to be accomplished. We are currently in the process of conducting IM related research activities and gathering information that will ultimately be summarized and reported on in internal and external scientific publications.

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

Region I

- During the hide sealing process, we opportunistically collected hair and tissue samples from hunter and trapper harvested wolves for both DNA extraction and wolf diet analysis. Whenever possible, we also collected wolf leg bones for aging, obtained condylobasal skull measurements, and weighed harvested wolves for subspecies analysis.
- We also obtained the skinned carcasses from 16 Unit 3 wolves harvested by trappers in Rocky Pass, including specimens from both Kupreanof and Kuiu islands, for diet analysis (examination of stomach contents).
- While engaged in other IM related activities we opportunistically collect wolf scats for diet analysis.
- In conjunction with the deployment of remote camera traps for wolves, we also deployed camera monitored snow stakes at select locations within the IM treatment area in order to monitor trends in winter snow depth.

Prepared by: Nathan Soboleff

Date: September 22, 2016