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: 7.02

PROJECT TITLE: Fisher colonization, habitat use, and competition with marten in Southeast Alaska

PERIOD OF PERFORMANCE: July 1, 2017 to June 30, 2018

REPORT DUE DATE: September 1, 2018

PRINCIPAL INVESTIGATOR: Anthony Crupi, Sophie Gilbert

COOPERATORS: Dr. Lisette Waits, University of Idaho

I. PROGRESS ON PROJECT OBJECTIVES DURING PERIOD OF PERFORMANCE

OBJECTIVE 1: Collect genetic samples using baited hair-snare stations

ACCOMPLISHMENTS: Before deploying our stations, preliminary simulations were conducted using custom scripts within the SECR package in program R to design our station layout. This was done to ensure adequate spatial sampling and detection rates across our study area to allow for robust density analyses. The study area was approximately 200 km^2, relatively long and narrow and extended 40 km northwest and roughly 5 km wide. Based on our simulations, we devised a clustered station layout on the landscape with two stations per cluster placed 350m apart with 3,500m between each cluster.

In total, 50 paired camera and hair snag stations were deployed across the study area from 15 January through 20 April, 2018, for a total of 25 station clusters. We set hair snags in appropriate fisher microhabitat, such as under logs or near the base of trees, and positioned a remote camera (Bushnell® Trophy Cam HD Aggressor 24MP No-Glow, Bushnell Outdoor Products, Overland Park, KS) facing each hair snag at approximately 3m away on a neighboring tree. Each hair snag consisted of three wire brushes attached to the inside of a triangular corrugated plastic tube with beaver bait suspended in the back. The long distance lures Gusto™ and Mega Musk™ were hung from lure boxes in view of the camera. Cameras, hair snags, and lures were checked every two weeks; wire brushes were changed when hair was present and bait and lure were replenished at each station check. Each wire brush containing hair was placed into an individual coin

envelope, labeled with station name, date, wire brush position within the snag (left, right, or bottom), and collector name, and stored in plastic bags with silica desiccant. Once out of the field, hair was removed from wire brushes using sterilized tweezers and once again placed into individual, labeled coin envelopes within plastic bags containing silica desiccant and shipped to the Laboratory for Ecological, Evolutionary and Conservation Genetics at the University of Idaho for analysis. Significant work was completed during this reporting period to identify appropriate primers for genetic analysis of hair samples, important to distinguish species identification of fishers, marten, short-tailed weasels, and wolverines.

OBJECTIVE 2: Develop and validate map of habitat quality for fishers

ACCOMPLISHMENTS: At each station, canopy cover was measured using a spherical crown densiometer (Forestry Suppliers, Inc., Jackson, MS). The DBH and species of the four largest trees within a 10m radius of the station were recorded to categorize tree size class and dominant vegetation of each site. All snags and coarse woody debris within a 10m radius of each site were also counted. At each station visit, snow depth and density were measured using a measuring tape and snow density gauge. Elevation, aspect, slope, and vegetation height variables were obtained at each station from Alaska IfSAR datasets (DGGS 2013) and habitat classes were defined based on the Alaska Natural Heritage Program land cover assessments (Boggs et al. 2016). This combination of habitat measures will be used to describe fisher habitat and be used as model covariates.

OBJECTIVE 3: Capture and GPS collar fishers

ACCOMPLISHMENTS: Given the low density of fishers encountered in the study area and the extensive effort it took to maintain the wide array of paired camera trap and hair snag stations, we were unable to achieve this objective. We do not have plans in the current fiscal year to attempt this objective.

OBJECTIVE 4: Data analysis, synthesis, and preparation of publications

ACCOMPLISHMENTS: Approximately 84,800 remote camera photos were collected from 15 January through 20 April, 2018. Fishers were detected a total of 26 times at 9 different cameras. Martens were detected 204 times at 24 different cameras. We collected 209 hair samples from 45 of the stations. Genetic analyses of the hair samples are currently being conducted to determine species ID, individual ID, and sex.

II. SUMMARY OF WORK COMPLETED ON PROJECT TO DATE.

We were successful in making progress on three of our major objectives during this first year of the project. Objective 1 was completed by collecting hair of both fisher and marten to estimate occupancy and density. Field data and remote sensed data were collected to accomplish Objective 2. We no longer intend to pursue Objective 3. We will work the next 2 years to complete Objective 4.

II. SIGNIFICANT DEVELOPMENT REPORTS AND/OR AMENDMENTS.

During the summer of 2017, we conducted a pilot camera trapping session along the Taku River. After hair and camera detection stations were deployed for 2 months we encountered only 2 fishers. Given the cost and difficulties with remote access working in the Taku River during winter, we shifted the study area to the Tongass National Forest in Juneau, Alaska. This proved to be very beneficial to the project, as Southeast Alaska did not receive significant snowfall last winter until late-February and snowmachine access along the Taku River would have been severely limited.

IV. PUBLICATIONS

Fisher are Carving out a New Niche Near Juneau – ADF&G Launches New Study on this Elusive Carnivore
http://www.adfg.alaska.gov/index.cfm?adfg=wildlifenews.view_article&articles_id=856

Fisher are Carving out a New Niche Near Juneau
ADF&G Launches New Study on this Elusive Carnivor

By Abby Lowell

Fisher are cat-sized weasels, two or three times larger than their close cousins, marten. USFWS photo.

Fisher are a new species in northern Southeast Alaska. And, they are here to stay.

That's why biologists with the Alaska Department of Fish and Game launched a new study that began Jan. 15, 2018, to learn roughly how many fisher are now calling the Juneau area home. That study has already proved successful.

The project is still in its early phase, but Caitlin Kupferman, a master's student from the University of Idaho who is heading up the project, has already captured at least one fisher on camera at one of her sites. The series of photos proves that these members of the weasel family are, indeed, in the Juneau area.

Historically, fisher — a cousin to the marten with a larger, stockier body — have been transients to the Juneau area. Like coyotes, they come and go, but have never seemed to have an established population. Reports of fisher in the area began surfacing in the 1990s and since then have persisted.

Anthony Crupi, a wildlife biologist with the ADF&G's Division of Wildlife Conservation, said, "We believe fisher could have an established population at this point because we are seeing both males and females. But, we don't have any idea about their population dynamics."

Fisher are one of the elusive carnivores that roam the forests of Northern America and, like the wolverine, they are hard to study since they are rarely seen. The males and

V. RECOMMENDATIONS FOR THIS PROJECT

We will continue working towards project objectives for two more years.

Prepared by: Anthony Crupi and Caitlin Kupferman

Date: 9/1/2018