

**Wildlife Restoration OPERATING GRANT
FINAL 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-23

PROJECT NUMBER: 14.29

PROJECT TITLE: Using genomics to identify population structure and inform models of Southeast Alaskan wolves

PERIOD OF PERFORMANCE: 1 July 2017–30 June 2018

REPORT DUE DATE: 1 September 2018

PRINCIPAL INVESTIGATOR: Gretchen Roffler

COOPERATORS: Dr. Michael Schwartz, Katherine Zarn, and Kristine Pilgrim at the National Genomics Center for Wildlife and Fish Conservation, Rocky Mountain Research Station, USFS, Missoula, MT.

Authorities: 2 CFR 200.328
2 CFR 200.301
50 CFR 80.90

I. SUMMARY OF WORK COMPLETED ON PROJECT

OBJECTIVE 1: Collect samples for DNA analysis.

ACCOMPLISHMENTS: We have collected wolf samples for this project since it was initiated in 2015. We have sufficient samples for the planned genomic analyses, but we are continuing to collect and archive high quality wolf samples (muscle tissue and skin) by coordinating with area biologists, trappers, sealers, and other ADF&G staff. These samples will be useful for possible future research activities.

OBJECTIVE 2: Genotype wolf samples.

ACCOMPLISHMENTS: We designed a custom hybridization-based capture to genotype Southeast Alaskan wolves at 92,000 single nucleotide polymorphism (SNP) loci. We selected 40 wolf samples distributed evenly across Region I for the initial sequencing based on sample quality screening results. Genomic library preparation has been initiated and use of specialized high-throughput sequencing equipment (HiSeq) was secured.

OBJECTIVE 3: Data analysis.

ACCOMPLISHMENTS: No data analysis was completed during the reporting period, as genomic data was not available during FY 2018.

OBJECTIVE 4: Data synthesis and preparation of publications.

ACCOMPLISHMENTS: No data synthesis or publication preparation was completed during the reporting period.

II. SUMMARY OF WORK COMPLETED ON PROJECT TO DATE.

We have collected samples from 350 wolves distributed across Southeast Alaska. DNA has been extracted from these samples and screened for quality and quantity to ensure they will be appropriate for genomic sequencing. These samples will be genotyped using the custom hybridization-capture method that was researched and finalized during FY 2018. This method was designed to provide data specifically to address research questions regarding both broad-scale population genetic structure and fine-scale inbreeding in isolated populations. This method was also designed with the intention of avoiding ascertainment bias, which can occur when using a domestic dog reference genome to measure neutral genetic variation in wolves.

III. SIGNIFICANT DEVELOPMENT REPORTS AND/OR AMENDMENTS.

Progress on this project has been delayed due to a reprioritization of Katherine Zarn's work load to focus on providing DNA results to ADF&G for the Wolf Population Estimation project (14.30). This shift in work focus was necessary due to unplanned staffing shortages at the National Genomics Center for Wildlife and Fish Conservation during FY 2018.

IV. PUBLICATIONS

None.

V. RECOMMENDATIONS FOR THIS PROJECT

Due to delays in obtaining genomic data from the National Genomics Center for Wildlife and Fish Conservation, no significant progress has been made in data analysis, synthesis, or preparation of publications. Genomic data should be available by Spring 2019; thus it is recommended that the project be extended one year to allow sufficient time for meeting these objectives.

Prepared by: Gretchen Roffler, Wildlife Biologist III

Date: August 21, 2018