

**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: 14.28

PROJECT TITLE: Deciphering wolf diets in Southeast Alaska using stable isotope analyses and prey remains in scats

PERIOD OF PERFORMANCE: 1 July 2015–30 September 2019

PERFORMANCE YEAR: July 1, 2017 - June 30, 2018; year 4 of a 4-year grant

REPORT DUE DATE: 1 September 2018

PRINCIPAL INVESTIGATOR: Gretchen Roffler

COOPERATORS: Dr. Taal Levi and Aimee Massey (Oregon State University)

Authorities: 2 CFR 200.328
2 CFR 200.301
50 CFR 80.90

I. PROGRESS ON PROJECT OBJECTIVES DURING PERFORMANCE YEAR

OBJECTIVE 1: Collect scat samples.

ACCOMPLISHMENTS: During the reporting period we collected 441 scats from GMUs 1A, 1C, 2, 3, and 4 (Pleasant Island). Samples were stored frozen until shipment to Oregon State University for analysis.

OBJECTIVE 2: Diet analysis of scats.

ACCOMPLISHMENTS: We received results from the wolf scat analyses on 30 June 2018. Of the 411 samples analyzed, 368 provided successful DNA amplification results (89.5%). Eighteen of the scat samples presumed to originate from wolves were identified molecularly as originating from black bear (*Ursus americanus*), 1 scat from brown bear (*Ursus arctos*) and 1 scat from coyote (*Canis latrans*). Because coyote and wolf scats may be difficult to distinguish in the field, and the 12s vertebrate mitochondrial gene used to identify prey species in wolf scats does not distinguish between the originating

canid species, we performed an additional assay to identify scats from coyotes vs. wolves. This additional testing step was developed during FY 2018, therefore samples previously analyzed during FY 2017 and FY 2016 were reanalyzed to verify canid species in addition to the samples sent during the reporting period. We determined 5 of the samples previously presumed to be wolf scats were coyote scats (4 from Gustavus and 1 from Juneau).

OBJECTIVE 3: Collect samples for stable isotope analysis.

ACCOMPLISHMENTS: We shipped 335 wolf samples for stable isotope analyses to the Alaska Stable Isotope Facility. These samples consisted of 251 hair samples (GMU 1A: n = 10, GMU 1B: n = 27, GMU 1C: n = 24, GMU 1D: n = 14, GMU 2: n = 38, GMU 3: n = 101, GMU 4: n = 2, Yukon: n = 35), 64 muscle tissue samples (GMU 1A: n = 1, GMU 1B: n = 10, GMU 1C: n = 11, GMU 1D: n = 5, GMU 2: n = 7, GMU 3: n = 28, GMU 4: n = 2), and 20 vibrissae samples (GMU 1A: n = 4, GMU 1B: n = 4, GMU 1C: n = 1, GMU 2: n = 6, GMU 3: n = 3, outside Region I: n = 2). We received $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ results from these samples on 23 December 2017 and 11 January 2018.

We continued to coordinate with area biologists, trappers, sealers, and other ADF&G staff to obtain wolf muscle tissue and hair samples from across Region I for stable isotope analyses. These samples will be prepared for shipment to the Alaska Stable Isotope Facility during FY 2019.

OBJECTIVE 4: Data synthesis and preparation of publications.

ACCOMPLISHMENTS: No work was completed on this objective during the reporting period. We have begun collating the scat diet and stable isotope data and formatting for analyses. We intend to analyze all of the data collectively during FY 2019.

II. SUMMARY OF WORK COMPLETED ON PROJECT TO DATE.

We summarized the results of the 649 wolf scats collected during 2012–2017. The number of prey species per scat ranged from 1 to 9, and the average number of prey species present in each scat was 1.45 (SD = 0.918). Overall, 47 prey species occurred in the wolf scats collected throughout Region I. We calculated frequency of occurrence of prey per feces and per prey item for each prey species. There was a great deal of variation in the number of prey consumed by wolf and the most common prey species by geographical area. On Douglas, Prince of Wales Island, Mitkof, Kupreanof, and GMU1A deer were the most common prey species. Moose were the most common prey on Kuiu Island. On the Juneau mainland goats were the most common prey species, and sea otters were the most common prey of wolves on Pleasant Island and the Gustavus forelands.

III. SIGNIFICANT DEVELOPMENT REPORTS AND/OR AMENDMENTS.

This project has proven successful thus far, and was extended through FY 2019. The project was originally scheduled to end in FY 2018.

IV. PUBLICATIONS

A media piece (radio and website) was released on 27 April 2018 describing some results from this project:

<https://www.ktoo.org/2018/04/27/wolves-are-eating-sea-otters-near-gustavus-what-does-that-mean-for-the-deer/>

V. RECOMMENDATIONS FOR THIS PROJECT

This project has provided valuable results for understanding variation in wolf diets. Methods developed in this project should be applied to other ongoing research projects, (i.e., 14.31 Seasonal Predation Patterns of Wolves), and incorporated into other future projects to better understand predation of canid species on ungulates in Southeast Alaska.

Prepared by: Gretchen Roffler

Date: August 21, 2018