

**Alaska Department of Fish and Game
Wildlife Restoration Grant**

GRANT NUMBER: AKW-R-7-2019

PROJECT NUMBER: P2.0

PROJECT TITLE: Dall's sheep disease screening GMUs 13A and 14A

PERIOD OF PERFORMANCE: December 1, 2018-June 30, 2023

PERFORMANCE YEAR: October 1, 2019 – September 30, 2020, year 2 of a 5-year grant

REPORT DUE DATE: Submit to Coordinator May 12, 2021

PRINCIPAL INVESTIGATOR: Tom Lohuis

COOPERATORS: Heidi Hatcher, ADFG Glenallen; Chris Brockman, ADFG Palmer; Kyle Smith ADFG Anchorage; Dr. Douglas Whiteside, University of Calgary; Dr. Helen Schwantje and Dr. Caeley Thacker, British Columbia Ministry of Forests, Lands, Natural Resources and Development

Authorities: 2 CFR 200.328
2 CFR 200.301
50 CFR 80.90

I. PROGRESS ON PROJECT OBJECTIVES DURING PERFORMANCE YEAR

OBJECTIVE 1: Recapture and sample 40 Dall's sheep (n=20 adult rams, 20 adult ewes) originally captured in Spring of 2019 in the Talkeetna Mountains, GMUs 13A and 14A.

ACCOMPLISHMENTS: Sheep were originally captured and fitted with GPS-iridium radio collars between February 26-March 1 2019, and again on April 5 2019. A total of 45 sheep were captured, with 40 collars deployed.

In 2020, we conducted our first scheduled capture session February 27-29 and handled 22 sheep. 16 of those individuals had been captured and collared in 2019, the remaining 6 were new to the project and collared to replace mortalities.

OBJECTIVE 2: At each capture, collect blood sera and nasal swabs to document disease presence, animal health, and pregnancy status, collect and archive nasal swab and blood sera samples, and assess animal body condition via palpation score and ultrasound measurement of subcutaneous fat depth.

ACCOMPLISHMENTS: All animals that were handled were screened for health and disease. Sheep were screened for Mycoplasma Ovipneumoniae (M ovi) via both PCR to test for the presence of the Mycoplasma bacteria and ELISA to test for antibodies against the bacteria, and also screened via ELISA for Bovine Respiratory Syncytial virus (BRSV), Bovine Viral Diarrhea (BVD), Brucella ovis, Infectious Bovine Rhinotracheitis (IBR), Parainfluenza-3 (PI-3), Toxoplasmosis and Johne’s disease.

OBJECTIVE 3: Each year, we will conduct summer minimum count surveys to estimate lamb numbers which will be compared to pregnancy rates, lamb numbers in surrounding populations, and historic lamb numbers in the study area as documented by annual minimum count surveys

ACCOMPLISHMENTS: Summer minimum count surveys were flown in five count areas in July 2020. Results are detailed in table 1 below. Additionally, collared animals were monitored 1x/week via satellite collar download to check for mortalities.

Ewes were also checked via aerial telemetry approximately monthly weather permitting to determine lamb status.

OBJECTIVE 4: After collars remotely release from the animal, and are recovered in 2023, we will calculate survival rates, and assess dispersal, home range, and habitat selection of sheep in GMUs 13A and 14A.

ACCOMPLISHMENTS: No action was taken on this objective, as the project is still in progress. Once collars release from the animal we will analyze and summarize the data.

II. SUMMARY OF WORK COMPLETED ON PROJECT TO DATE.

Disease screening results

0 of 22 Dall’s sheep tested positive via PCR for M ovi. Similarly, none of the handled animals had antibodies against the M ovi bacteria, which would have indicated that they had been exposed to the pathogen. None of the sheep we tested carried antibodies against BRSV, BVD, Brucella ovis, IBR, or Johne’s disease. 4/22 had antibodies against PI-3, and 16/22 had antibodies against toxoplasmosis, indicating exposure to those pathogens.

Table 1. Summer 2020 minimum count survey results

| Area | Rams: 100 ewe-likes | Lambs:100 ewe-likes | Total Sheep |
|----------------|-----------------------------|---------------------|-------------|
| Kings River | 81 | 13 | 167 |
| Boulder Creek | 43 | 17 | 112 |
| Hicks Creek | 6 | 79 | 122 |
| Caribou Creek | 66 | 13 | 242 |
| Sheep Mountain | 180 (36 rams, 20 ewe likes) | 10 | 58 |
| Total | 48 | 17 | 701 |

Animal Survival

Eleven ewes and two rams died during the reporting period. Three ewes were killed by avalanches; one each in December 2019, March 2020, and April 2020. A coyote killed a collared ewe in December 2019, and two ewes were killed by unknown predators in February and again in April of 2020. These two animals were likely killed by wolverines but as the carcass was mostly consumed and was not available for analysis they are attributed to an unknown predator. Two ewes died in February of 2020; a definitive cause could not be assigned. One additional ewe was found dead in February 2020. Although we were unable to assign a definitive cause she was clearly not killed by a predator. A brown bear killed an ewe in April 2020; the collar and carcass were recovered from the cache site. A final ewe fell to her death in April 2020.

One ram was killed in an avalanche in March 2020, and another was shot by a hunter in August of 2020. This animal was not full curl and not eight years of age. The horns, meat, and cape were confiscated from the hunter and a citation was issued by Alaska Wildlife Troopers.

III. SIGNIFICANT DEVELOPMENT REPORTS AND/OR AMENDMENTS.

The COVID-19 pandemic resulted in changes to fieldwork and caused delays in obtaining laboratory results. We had a second capture session scheduled in early April 2020; this was cancelled over concerns about working in close proximity to colleagues in small aircraft and as a result we obtained less than our desired sample size. We ultimately received all pending lab results and they are included in this report. In Spring 2021, poor weather and extreme avalanche conditions also limited our ability to capture and sample sheep and sample sizes were again limited. We will assess these results and how they will impact the project going forward.

IV. PUBLICATIONS

Coauthor and collaborator Dr. Caeley Thacker (BC ministry of Forest, Lands, and Natural Resource Development) presented her MS thesis research on this project at the 2020 (virtual) meeting of the Northern Wild Sheep and Goat Council in November 2020.

V. RECOMMENDATIONS FOR THIS PROJECT

Determine if reduced sample sizes due to COVID cancellations and weather delays will require us to reevaluate our progress and project timeline.

Prepared by: Tom Lohuis

Date: 5/18/2021