

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

GRANT NUMBER: AKW-23

PROJECT NUMBER: P3.52

PROJECT TITLE: Climatic and nutritional regulators of caribou productivity in western Alaska

PROJECT DURATION: 1 July 2016 to 30 June 2020

REPORT DUE DATE: 1 Sep 2018

PRINCIPAL INVESTIGATOR: William B. Collins

COOPERATORS: Don Spalinger, University of Alaska Anchorage; Andy Aderman, Togiak National Wildlife Refuge

WORK LOCATION: Western Alaska, Game Management Units 9, 10, 17, and 19

I. PROGRESS ON PROJECT OBJECTIVES DURING LAST SEGMENT

OBJECTIVE 1: Nutritional factors affecting caribou productivity.

We determined winter diet compositions for southern and northern Alaska Peninsula caribou. We completed quality analyses of winter caribou forages for the southern and northern Alaska Peninsula to further develop our understanding of caribou movements, habitat selection, and herd productivity.

OBJECTIVE 2: Climatic factors affecting caribou productivity.

No additional work has been done on this objective, for reasons encountered in the 2017 reporting period. Since then, we have not found a King Salmon-based pilot capable and willing to perform the tasks initially done by a pilot who move out of state shortly after this work was initiated. Our effort to further analyze forage availability as affected by rain-on-snow events has likewise been hampered by loss of the only satellite over Alaska that was sensing these data.

OBJECTIVE 3: Effects of rain-on-snow events on nutrient intake by caribou on Unimak Island and the Alaska Peninsula.

No additional work was done on this objective, because no new satellite data of the type provided by QuickSCAT has become available since that satellite stopped operating in 2009. Going into this project, I understood that another

satellite platform would take the place of QuickSCAT, but since then I have not found any new satellite data or alternative methods which can support this objective.

II. SUMMARY OF WORK COMPLETED ON JOBS IDENTIFIED IN ANNUAL PLAN THIS PERIOD

Job/Activity 1: Identify Principal Caribou Range Types by Season

Accomplishments: No additional work was done on this job. We previously up-scaled aerial photo classifications to World View satellite images representative of Alaska Peninsula vegetation (range types), but further mapping has not been done due to limited availability of cloud-free imagery within seasons of interest. Now that aerial photo classifications have been completed, further mapping will be relatively simple and straight forward when more satellite imagery becomes available.

Job/Activity 2: Forage Selection and Food Habits of Caribou Based on Analysis of Alkanes and Long-chain Alcohols in Feces

Accomplishments: We analyzed diet composition of winter fecal samples. We continued to test the genetic bar-coding technique against the alkane/alcohol, micro histological, and bite count techniques. We have not succeeded with the genetic technique, because we have been unable to adequately concentrate some plant tissues. However, the alkane/alcohol method has produced good results.

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

IV. PUBLICATIONS (*List project-related publications prepared or published during this reporting period.*)

V. RECOMMENDATIONS FOR THIS PROJECT (*optional*)

I intend to complete this project by 30 June 2019.

Prepared by: William B. Collins

FPR AKW-23 P3.52 Climatic and nutritional regulators of caribou productivity in western Alaska

Date: September 1, 2018