

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

**GRANT NUMBER:** AKW-10 Wildlife Restoration FY2016

**PROJECT NUMBER:** 1.68

**PROJECT TITLE:** Factors affecting moose forage quality and subsequent reproductive success.

**PROJECT DURATION:** 1 July 2009 to 30 June 2016

**REPORT DUE DATE:** 1 September 2016.

**PRINCIPAL INVESTIGATOR:** William B. Collins

**COOPERATORS:** Don Spalinger, University of Alaska Anchorage

**WORK LOCATION:** Matanuska Research Farm, Togiak Valley, Colville River, Nelchina Basin, Game Management Units 15, 17.

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**I. PROGRESS ON PROJECT OBJECTIVES DURING LAST SEGMENT**

OBJECTIVE 1: Nitrogen as a potentially limiting nutrient to moose. We are summarizing data collected for this objective.

OBJECTIVE 2: Effects of climate and utilization on browse quality. We established a set of controlled experiments which will enable us to begin assessing the effects of soil temperature, soil fertility, soil moisture, and solar radiation on the productivity and quality of two important willow forages—an upland species, *Salix pulchra*, and a riparian species, *Salix alaxensis*. We cloned 128 plants of each species and subjected them to all 4 treatments for this period.

We are analyzing nitrogen and tannin samples collected from these treatments in summer.

OBJECTIVE 3: Hormonal link between diet quality and reproductive performance of moose. Completed.

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

JOB/ACTIVITY 1: Moose forage nitrogen and protein binding

**Accomplishments:**

We completed all laboratory analyses of forage samples from each of our study areas, and we are summarizing results.

JOB/ACTIVITY 2: Diets by fecal alkane analysis

**Accomplishments:**

A second manuscript regarding analysis of moose diets by the fecal alkane technique has been revised and resubmitted.

JOB/ACTIVITY 3: Climate/utilization effects—potted willows

**Accomplishments:**

Samples were analyzed for nitrogen and tannin content to estimate digestible nitrogen.

JOB/ACTIVITY 4: Hormonal link

**Accomplishments:**

Manuscript revised and resubmitted.

JOB/ACTIVITY 5: Forage availability by remote sensing

**Accomplishments:**

Complete.

**III. PUBLICATIONS**

Walton, K. M., D. E. Spalinger, W. B. Collins, and J. J. Willacker. 2013. High spatial resolution mapping for assessment of wildlife habitat. *Wildlife Society Bulletin* 37(4):906-915.

**IV. RECOMMENDATIONS FOR THIS PROJECT**

Extend this project one year to complete data summary and manuscripts.

**Prepared by:** William B. Collins

**Date:** 29 August 2016