

**FEDERAL AID ANNUAL RESEARCH
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: W-33

SEGMENT NUMBER: 10

PROJECT NUMBER: 3.49

PROJECT TITLE: Development of methods to assess effects of oil field infrastructure on caribou movements, growth, and survival

PROJECT DURATION: 1 July 2006–30 June 2013

REPORTING PERIOD: 1 July 2011 – 30 June 2012

REPORT DUE DATE: 1 September 2012

PRINCIPAL INVESTIGATOR: Stephen M. Arthur

COOPERATORS: M. Cebrian, U.S. Bureau of Land Management; J. Horne, E. O. Garton, and K. Nicholson, University of Idaho

WORK LOCATION: Units 26B, 24A, and 25A; northeast Alaska

I. PROGRESS ON PROJECT OBJECTIVES DURING LAST SEGMENT

OBJECTIVE 1: Estimate annual pregnancy and birth rates for caribou cows.

No work was planned or completed during this period.

OBJECTIVE 2: Estimate survival of female calves to yearling age class and determine causes of mortality.

No work was planned or completed during this period.

OBJECTIVE 3: Estimate rates of weight gain by calves during summer (June–September) and winter (September–March).

No work was planned or completed during this period.

OBJECTIVE 4: Determine characteristics of physiography and vegetation at calving sites and assess changes in these that may occur over time.

No work was planned or completed during this period.

OBJECTIVE 5: Develop methods to model movements of caribou cow-calf pairs during summer to estimate exposure to human disturbance and use of habitats.

Initial models were developed and tested using data from GPS collars. Models will be finalized during July–December 2012.

OBJECTIVE 6: Monitor movements of caribou to determine areas used for wintering, and fidelity of cows to specific calving areas.

No work planned or completed during this period.

OBJECTIVE 7: Estimate size of the herd using a complete aerial photocensus.

No work was planned or completed during this period.

OBJECTIVE 8: Analyze and publish results.

Annual progress reports were completed.

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

JOB/ACTIVITY 5A: Develop models of caribou movements.

GIS data needed for analysis of caribou movements were obtained and a geodatabase was created. Initial model development was completed by J. Horne, Univ. of Idaho and preliminary analyses were used to assess model fit and to select appropriate covariates. Caribou migration paths were modeled using the Brownian Bridge movement model and a draft manuscript was prepared.

JOB/ACTIVITY 8A: Prepare final report, travel to meetings and conferences.

Annual progress reports were prepared. K. Nicholson presented results of the migration analysis at the June 2012 annual meeting of the American Society of Mammalogists in Reno, Nevada.

IV. PUBLICATIONS

None.

PREPARED BY: Stephen M. Arthur

DATE: 13 August 2012