

**Alaska Department of Fish and Game
Division of Wildlife Conservation
September 2008**

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

Stephen M. Arthur

**Research Annual Performance Report
1 July 2007–30 June 2008
Federal Aid in Wildlife Restoration
W-33-6
Study 3.49**

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FEDERAL AID ANNUAL RESEARCH PERFORMANCE REPORT

ALASKA DEPARTMENT OF FISH AND GAME
DIVISION OF WILDLIFE CONSERVATION
PO Box 115526
Juneau, AK 99811-5526

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

PRINCIPAL INVESTIGATOR: Stephen M. Arthur

COOPERATORS: U.S. Bureau of Land Management, U.S. Fish and Wildlife Service, National Park Service

FEDERAL AID GRANT PROGRAM: Wildlife Restoration

GRANT AND SEGMENT NO. W-33-6

PROJECT NO. 3.49

WORK LOCATION: Central Arctic coast

STATE: Alaska

PERIOD: 1 July 2007 – 30 June 2008

I. PROGRESS ON PROJECT OBJECTIVES SINCE PROJECT INCEPTION

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

Fifty-nine caribou cows (≥ 3 years old) were located during 1–7 June 2007. Of these, 39 were pregnant and 16 were accompanied by calves. Parturition rate was 93%. Fifty-seven cows were located on 21–22 June, of which 46 (81%) were accompanied by calves. These rates were unchanged when only cows ≥ 4 years old were included ($n = 55$ and 53 cows for early and late June, respectively).

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

Of 34 calves that had been radiocollared during early June 2006, 32 were alive in July and were monitored through early June 2007 to estimate survival rates. These included 15 from the eastern calving area and 17 from the western calving area (calving areas were either east or west of the Sagavanirktok River). In summer 2006, no calves from the eastern area died, whereas survival for western calves was 88% (2 deaths during Jul–Aug). Annual survival rates for the eastern and western calving areas were 0.70 and 0.43, respectively.

OBJECTIVE 3: Estimate rates of weight gain by calves during summer (Jun–Sep) and winter (Sep–Mar).

Thirty radiocollared calves were captured by net-gunning in September 2006 and 18 were captured in March 2007.

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

Data collection concluded in June 2006.

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

Twenty-eight caribou cows equipped with GPS collars were monitored between June 2006-March 2007. Twenty-four of these were captured by net-gun during March 2007 and their collars removed. The remaining 4 collars were recovered on 3 July 2007 after the programmed release mechanisms caused the collars to fall off the caribou. Data were downloaded from the collars and will be analyzed to assess movement patterns.

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

Wintering distribution was assessed by radiotracking cows and calves during March 2007. Fifty-eight cows and 26 calves were located. The greatest concentrations of collared caribou were in Gates of the Arctic National Park, south of the crest of the Brooks Range, or along the northwestern boundary of the Arctic National Wildlife Refuge, in the northern foothills of the Brooks Range. Some additional caribou were in the Middle Fork Chandalar River and the Wind River.

OBJECTIVE 7: Conduct a photographic census of the CAH.

A photocensus was not conducted during 2006 or 2007 due to failure of the herd to aggregate.

OBJECTIVE 8: Analyze and publish results.

An interim progress report was prepared and distributed to cooperators and other interested individuals. In addition, presentations were made at the annual meeting of *The Wildlife Society* in September 2006 and at the North Slope Science Initiative caribou workshop in February 2007.

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

JOB/ACTIVITY 4A: Determine habitat characteristics of calving sites.

Location data collected during previous years were entered into a geographic information system and compared to a digital land cover map.

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

Data from GPS collars were proofed and archived. No progress was made on model development due to lack of funding for graduate student.

JOB/ACTIVITY 7A: Conduct a photographic census of the CAH.

A photocensus was not conducted due to failure of the herd to aggregate.

JOB/ACTIVITY 8A: Prepare annual report, travel to meetings.

An annual progress report was prepared and distributed to cooperators and other interested individuals.

**III. ADDITIONAL FEDERAL AID-FUNDED WORK NOT DESCRIBED ABOVE
THAT WAS ACCOMPLISHED ON THIS PROJECT DURING THIS SEGMENT
PERIOD**

None.

IV. PUBLICATIONS

None.

V. RECOMMENDATIONS FOR THIS PROJECT

None.

VI. APPENDIX

None.

PREPARED BY:

Stephen M. Arthur
Wildlife Biologist III

APPROVED BY:

Clayton R. Hawkes
Federal Assistance Coordinator
Division of Wildlife Conservation

SUBMITTED BY:

Scott M. Brainerd
Research Coordinator

Douglas N. Larsen, Director
Division of Wildlife Conservation

Laura A. McCarthy
Publications Technician II

APPROVAL DATE: _____