

# 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:** 9

**PROJECT NUMBER:** 16.10

**PROJECT TITLE:** Distribution, movements, and survival of muskoxen in northeastern Alaska

**PROJECT DURATION:** 1 July 2007–30 June 2013

**REPORT DUE DATE:** 1 September 2011

**PRINCIPAL INVESTIGATOR:** Stephen M. Arthur, ADF&G

**COOPERATORS:** Patricia Reynolds, Arctic National Wildlife Refuge; Perry Barboza, University of Alaska Fairbanks

**WORK LOCATION:** eastern North Slope, Unit 26B

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### I. SUMMARY OF WORK COMPLETED THIS SEGMENT ON JOBS IDENTIFIED IN ANNUAL WORK PLAN

*OBJECTIVE 1:* Estimate annual birth rates for muskox cows in northeastern Alaska.

Four adult female muskoxen were captured and radiocollared during July 2010 and 2 more were captured during March 2011. Including animals previously collared, a total of 21 adult female muskoxen were monitored during the period. During April 2011, all known groups were located, counted, and classified by age and sex. At this time, there were at least 84 adult (>3 years old) cows in the population. Two of these died during the calving period (April–June 2011). The remaining cows produced a minimum of 53 calves as of the beginning of June (65% parturition rate).

*OBJECTIVE 2:* Estimate annual calf recruitment through October.

All known groups of muskoxen were located by aerial radiotracking several times per week during the calving season (April–June), then twice monthly during June–October. In spring 2010, a minimum of 50 calves were born, of which at least 32 (64%) survived until October. During spring 2011, a minimum of 53 calves were born, of which 27 (51%) survived through June. Monitoring of these groups will continue through October 2011.

*OBJECTIVE 3:* Determine rates and causes of mortality of muskox during July–October and April–June.

Muskox groups were observed by aerial radiotracking at 2-week intervals during July–early October 2010 and several times per week during April–June 2011. One adult bull muskox was killed by a bear during September 2010. Monitoring flights during March–June 2011 detected

deaths of 18 adults ( $\geq 1$  year old) and 11 calves. An additional 13 calves born in 2011 disappeared and were presumed dead by the end of June 2011, and 2 calves were abandoned by their mothers and were brought to Fairbanks to be raised in captivity. Causes of death of adults included winter kill (1 bull), bear predation (5 cows, 6 bulls, 3 unknown sex), and illegal kill by humans (3 cows, 1 bull in a single episode). Deaths of calves were caused by perinatal conditions (nonpredation, i.e., disease or birth defect;  $n = 2$ ), known or suspected bear predation ( $n = 22$ ), and abandonment (associated with a predation event;  $n = 2$ ).

*OBJECTIVE 4: Assess prevalence of major diseases and parasites in muskoxen in each population.*

Carcasses of dead muskoxen were examined and tissue samples were obtained for pathology tests.

*OBJECTIVE 5: Assess nutritional status of muskoxen in each area (contract with UAF to complete sample analysis).*

Muskox fecal and urine samples were obtained from 5 sites during April 2011. These samples will be analyzed for nutritional content by agreement with the University of Alaska Fairbanks.

*OBJECTIVE 7: Analyze and publish results.*

Annual progress reports were prepared.

#### **IV. RECOMMENDATIONS FOR THIS PROJECT**

Monitoring of known muskox groups will continue through October 2011. A final report will be prepared during FY12.

**PREPARED BY:** Stephen M. Arthur

**DATE:** 23 August 2011