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-33-8

PROJECT NUMBER: 3.50

PROJECT TITLE: Analysis and summary of data from the Fortymile caribou range

PROJECT DURATION: 1 July 2008–30 June 2012

REPORT PERIOD: 1 July 2009–30 June 2010

REPORT DUE TO HQ: 1 September 2010

PRINCIPAL INVESTIGATOR: Rodney D. Boertje

WORK LOCATION: Game Management Unit 20A

COOPERATORS: Jim Herriges (Bureau of Land Management), John Burch (National Park Service), and Layne Adams (U.S. Geological Survey)

I. PROBLEM OR NEED THAT PROMPTED THIS RESEARCH

The need exists for the principal investigator to compile, analyze, and summarize data pertinent to 3 prior 5-year projects on Fortymile caribou (*Rangifer tarandus*), wolves (*Canis lupus*), moose (*Alces alces*), and Dall sheep (*Ovis dalli*). The 3 prior 5-year projects were entitled 1) *Factors Limiting the Fortymile Caribou Herd, 1992–1997*; 2) *Reducing Mortality of the Fortymile Caribou Herd, 1997–2003*; and 3) *Monitoring Fortymile Ungulates and Wolves Following Wolf Sterilization and Translocation, 2003–2008*. We published the first 5 years of studies on the Fortymile herd (Boertje and Gardner 2000), but beginning in 1996 the principal investigator began work on 3 projects on Unit 20A moose (1996–2011) simultaneous to projects on the Fortymile caribou herd. Major components of the moose studies have recently been published (Boertje et al. 2007, 2009, 2010). Therefore, the opportunity exists for the principal investigator to summarize data from the Fortymile projects.

II. REVIEW OF PRIOR RESEARCH AND STUDIES IN PROGRESS ON THE PROBLEM OR NEED

The only other study where wolves were sterilized to enhance a caribou herd and associated ungulates was in the Yukon Territory (Hayes et al. 2003).

III. APPROACHES USED AND FINDINGS RELATED TO THE OBJECTIVES AND TO PROBLEM OR NEED

To date, all locations of radiocollared caribou were plotted by season for the 17-year history, 1992–2008. Data were entered into ArcGIS 9.3.1 to calculate seasonal range sizes and to illustrate the ranges. Increase in summer range size was most noteworthy.

Summer density declined over the 17-year history as herd size doubled from about 22,000 to 45,000. In all other seasons, density increased over time.

IV. MANAGEMENT IMPLICATIONS

Summer expansion of the herd has important implications and can explain the strong decline in herd nutritional factors observed during 2009 and 2010. Absent data on range use, we would have no explanation for the low nutritional status. During both 2009 and 2010, birth rates and autumn calf bodyweights were among the lowest observed during a 20-year history. Early summer expansion of the herd into lowland spruce-moss forests suggests the herd was seeking additional summer habitat in proximity to the relatively small isolated upland habitat that has been used since the early 1970s. Prior to the 1970s, the Fortymile herd regularly used the White Mountains during summer, and we expect that, if herd size continues to increase, the herd will regain use of the White Mountains as summer range. Improved nutrition may result from this movement, because the White Mountains has a large contiguous expanse of summer range not used by large numbers of caribou for 4 decades. Managers have a clear choice. They can either continue harvesting at low rates with the goal of enhancing herd summer movements across the Steese Highway to the White Mountains, or increase harvest rates with the goal of keeping the herd restricted to summer range between the Steese and Taylor highways.

V. SUMMARY OF WORK COMPLETED ON JOBS FOR LAST SEGMENT PERIOD ONLY

JOB/ACTIVITY 1: Literature review
Accomplishments: We continued weekly literature reviews using web-based search engines through ARLIS.

JOB/ACTIVITY 2: Write reports and publications
Accomplishments: Work continued on a 17-year history of the Fortymile herd's seasonal ranges. We have a first draft completed.

VI. PUBLICATIONS

An Alaska Department of Fish and Game technical bulletin is planned for this winter that will illustrate the seasonal ranges of the herd during 1992–2008 and provide the relevant implications of long-term changes in seasonal herd distribution and density.

Literature Cited:

BOERTJE, R. D., AND C. L. GARDNER. 2000. The Fortymile caribou herd: Novel proposed management and relevant biology. Rangifer, Special Issue 12:17–37.

BOERTJE, R. D., M. A. KEECH, AND T. F. PARAGI. 2010. Science and values influencing predator control for Alaska moose management. Journal of Wildlife Management 74:917–928.

BOERTJE, R. D., M. A. KEECH, D. D. YOUNG, K. A. KELLIE, AND C. T. SEATON. 2009. Managing for elevated yield of moose in Interior Alaska. Journal of Wildlife Management. 73:314–327.

BOERTJE, R. D., K. A. KELLIE, C. T. SEATON, M. A. KEECH, D. D. YOUNG, B. W. DALE, L. G. ADAMS, AND A. R. ADERMAN. 2007. Ranking Alaska moose nutrition: Signals to begin liberal antlerless harvests. Journal of Wildlife Management 71:1494–1506.

HAYES, R. D., R. FARNELL, R. M. P. WARD, J. CAREY, M. DEHN, G. W. KUZYK, A. M. BAER, C. L. GARDNER, AND M. O'DONOGHUE. 2003. Experimental reduction of wolves in the Yukon: Ungulate responses and management implications. Wildlife Monographs 152.

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

The principal investigator radiotracked caribou during the 2009 photocensus of the Fortymile caribou herd. He also spent several weeks enumerating 46,510 caribou in these photos.

VIII. RECOMMENDATIONS FOR THIS PROJECT

Finish summarizing history of the herd distribution and begin summarizing the effect of sterilizing and translocating wolves on wolves, caribou, moose, and Dall sheep.

Prepared by: Rodney D. Boertje

Date: 10 August 2010