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Reducing Mortality on the Fortymile Caribou Herd

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Research Performance Report
Federal Aid in Wildlife Restoration
1 July 2000–30 June 2001
Grant W-27-4, Study 3.43

This is a progress report on continuing research. Information may be refined at a later date.

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**FEDERAL AID
ANNUAL RESEARCH PERFORMANCE REPORT**

PROJECT TITLE: Reducing Mortality on the Fortymile Caribou Herd

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GRANT AND SEGMENT NR.: W-27-4

PROJECT NR.: 3.43

SEGMENT PERIOD: 1 July 2000–30 June 2001

STATE: Alaska

WORK LOCATION: Eastcentral Alaska; portions of Units 12, 20B, 20D, 20E and 25C

I. PROGRESS ON PROJECT OBJECTIVES

OBJECTIVE 1: Review literature on wolf and bear translocations, canid fertility control, responses of caribou and moose to reduced predation, ecology and interactions of these predators and prey, nonlethal techniques for reducing predation, and effects of harvest on wolves, bears, and caribou.

We continue to review available scientific literature.

OBJECTIVE 2A: Monitor distribution and numbers of wolves in treated and several adjacent untreated packs during the course of this study using radiotelemetry.

For the up to 15 packs proposed for treatment (sterilization and translocation), we will describe changes in wolf pack size and distribution before and during treatment. Wolf fertility control and translocations were scheduled for 4 consecutive winters (1997–1998, 1998–1999, 1999–2000, and 2000–2001) and involved sterilizing adult pairs and translocating the remaining wolves. We will test the hypothesis that sterilized pairs and bordering unsterilized packs will maintain use of their respective territories, as previously observed in smaller study samples in Minnesota and the Yukon. Our hypothesis is that sterilization does not affect the probability of dispersal.

Sterilized wolves largely remained in their territories as predicted, but territory size declined on average after pack size was reduced. We effectively reduced pack size by translocating all wolves other than the dominant pair. The surgical sterilization techniques

we used successfully halted reproduction. We completed the treatment of 15 packs on schedule during winter 1999–2000 and maintained 15 packs as pairs through winter 2000–2001. Treatment ceased as of June 2001. Some sterilized pairs accepted a strange wolf into their pack and we translocated these wolves as prescribed in the plan. Untreated adjacent packs regularly reproduced during this study and generally retained original territories.

OBJECTIVE 2B: Monitor survival rates and homing abilities of translocated wolves.

Our specific objective was to determine if young, translocated wolves regularly succumb near release sites, return to or attempt to return to capture sites, or disperse widely from release sites. No wolves <9 months old were moved, and all wolves were moved at least 100 miles (160 km) because of homing tendencies.

We found no evidence that wolves starved at or near release sites. Wolves <12 months old did not return to the treatment area and appeared to have little or no homing abilities, but several adult wolves did return to the treatment area when moved <150 miles. More commonly, translocated wolves initially moved in the general direction of their original territories but prior to reaching them moved in a random direction apparently to locate an acceptable territory. These wolves traveled alone or with 1 or more translocated or new wolves. In a few, relatively uncommon instances, several pack members that were translocated together remained together as a pack and dominated a territory at or near the release site. Data on survival rates will be presented in the final report using Kaplan-Meier methodology. Most translocated wolves were simply eartagged rather than radiocollared and we continue to receive ear tags from harvested, translocated wolves throughout much of the state.

OBJECTIVE 2C: Estimate wolf harvest rates in the respective annual ranges of the Fortymile caribou herd.

Wolf harvest rates have varied in recent years, but wolf harvest alone has not controlled the wolf population at a reduced level. Indeed, autumn wolf densities have not declined outside of the treatment area within the annual ranges of the herd. The remoteness of the area and the declining fur market are factors contributing to the generally low wolf harvests. Harvesting wolves in the treatment area is especially problematic because of the extreme remoteness of the area.

OBJECTIVE 3: As wolf numbers in the treatment area are reduced, continue modeling Fortymile caribou herd production and causes and rate of mortality to evaluate annually the effects of wolf-caused mortality on herd trend.

Data will be compared with data from pretreatment years. Caribou response to treatment will likely depend largely on changes in wolf and bear predation, weather, and caribou distribution and productivity. Thus, response to the proposed treatment could vary considerably between years and a precise response is not predictable.

Treatment of 15 wolf packs was proposed to reduce summer wolf predation on young caribou calves. The final report will deal with this question because caribou use of the treatment area varied spatially and temporally each year making seasonal analysis

problematic. Annual population modeling indicates no clear reduction in the annual wolf predation rate on the caribou herd after treating 15 wolf packs, presumably because the herd ranges well outside the treated area during most of the year.

OBJECTIVE 4: We had 2 objectives in this section relating to potential grizzly bear translocations. However, grizzlies were not translocated because the conditions for translocations were not met. Grizzlies did not kill >15% of the radiocollared calves in May 1998 and May 2000.

OBJECTIVE 5: Document whether a significant increase in moose density occurs in the treatment area between October 1996 and October 2002.

No short-term increases in moose were predicted and through 2000 no significant population changes were observed in the treatment area following the reductions in wolf numbers. We previously documented that grizzlies, not wolves, were the predominant predator on moose calves in this area. We will monitor yearling moose survival within the treatment area to verify any changes in survival in this age class in comparison to other wolf control programs.

OBJECTIVE 6: Document whether significant increases in sheep numbers occur in the treatment area between 1997 and 2002.

No short-term increases in sheep were observed in the treatment area through July 2001 following the reductions in wolf numbers. Wolf predation is evidently not the dominant factor influencing sheep numbers in this area.

OBJECTIVE 7: Follow guidelines presented in Part V of the Management Plan to continue to increase public awareness of Fortymile wildlife issues.

We continue to write and publish progress reports annually and to incorporate results in related plans, including the recently published "Habitat Management Needs Assessment Plan for the Fortymile Caribou Herd, 2000" and the "Harvest Plan for the Fortymile Caribou Herd, 2001–2006." The "Habitat Management Needs Assessment Plan" involved all the major landowners of the herd's range and provided detailed maps of seasonal ranges. The "Harvest Plan" was written by the 5 advisory committees within the herd's range and was adopted by the Board of Game in 2000. Ten issues of "The Comeback Trail" newsletter were published, the most recent one in July 2001. "The Comeback Trail" both solicits input and presents information and is distributed to about 4500 interested readers at least annually. Results of studies were presented at Fortymile Team meetings; local advisory committee meetings in Fairbanks, Central, Delta, Eagle, and Tok; Board of Game meetings; classrooms; and elsewhere as requested. Numerous presentations were made to advisory committees and village councils in preparation for translocating wolves to remote areas. In addition we participated in several briefings with the military and miners and developed a website of current caribou locations to expedite mitigation of overflights during May, June, and July 1999, 2000, and 2001. Local art contests and guessing contests (involving annual census counts) were also sponsored in Tok in recent years.

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

JOB 2A: Monitor distribution and numbers of wolves in treated and several adjacent untreated packs during the course of this study using radiotelemetry.

We radiotracked about 20 packs monthly and conducted extensive wolf surveys for 3–4 days each in November, February, and March. Several wolves were sterilized and several were translocated. Fifteen packs were treated.

JOB 2B: Monitor survival rates and homing abilities of translocated wolves.

Our specific objective was to determine if young, translocated wolves regularly succumb near release sites, return to or attempt to return to capture sites, or disperse widely from release sites. No wolves <9 months old were moved, and all wolves were moved at least 100 miles (160 km) because of homing tendencies.

We continued to radiotrack a few translocated wolves monthly and to catalog returns of eartagged wolves. Most translocated wolves were simply eartagged rather than radiocollared because of insufficient funds for radio collars and telemetry flights. Most wolves dispersed from release sites and none were known to die at release sites. Wolves 9–12 months old appeared to have little or no homing tendencies.

JOB 2C: Estimate wolf harvest rates in the respective annual ranges of the Fortymile caribou herd.

We continued to intensively survey wolf numbers within the current annual range of the Fortymile Herd in November, February, and April and to monitor wolf harvest using pertinent data from mandatory wolf sealing certificates. Wolf harvest was moderate in the Fortymile Herd range in winter 2000–2001. Wolf numbers have not been reduced within the annual ranges of the herd, despite a 70–75% reduction in the numbers of wolves in 15 treated packs within the herd's summer range.

JOB 3: As wolf numbers in the treatment area are reduced, continue modeling Fortymile caribou herd production and causes and rate of mortality to evaluate annually the effects of wolf-caused mortality on herd trend.

We radiocollared 63 newborn calves in May 2001 and 15 calves 26 September 2000. We radiotracked collared adults at least monthly and calves daily in May, about 3 times per week in June and weekly in July, August, and September. Collars emitting a "mortality signal" were investigated as soon as possible to determine cause of death. We used a helicopter for transportation to these 51 sites, and derived mortality rates using Kaplan-Meier techniques. We radiotracked 57 adult cows in May 2001 to estimate a birth rate. On 1 October 2000 we counted the proportion of calves, cows and bulls among 6512 caribou; these caribou were distributed in proportion spatially to the 103 independent radio collars. We photographed aggregations of caribou on 27 June 2000 and estimated 34,640 caribou from this census. We modeled these data to compile the seventh annual summary of the effects of births and deaths among years; data were detailed to contrast the effects of

wolves, grizzly bears, and other causes of death. The herd suffered high mortality in the year 2000–2001 after a spring of low mortality. Deep snow and peak lynx numbers contributed to the high mortality. Wolf predation was the single most important cause of mortality as in all previous years, but most of this predation occurred from untreated wolves.

JOB 4: Grizzly bears were not translocated, because grizzlies did not kill >15% of the radiocollared calves in May 1998 and May 2000.

JOB 5: Document whether a significant increase in moose density occurs in the treatment area between October 1996 and October 2002.

Moose surveys were conducted in the southern portion of the treatment area and nearby untreated areas to test the effect of reducing wolf numbers on moose. No clear increase in moose numbers or calf survival was noted in the wolf treatment area.

JOB 6: Document whether significant increases in sheep numbers occur in the treatment area between 1997 and 2002.

Sheep surveys were conducted throughout the treatment area. No clear increase in sheep numbers or lamb survival was noted in the wolf treatment area.

JOB 7: Follow guidelines presented in Part V of the Management Plan to continue to increase public awareness of Fortymile wildlife issues.

We wrote the annual research progress report in December 2000 and published the 1999 report as well as the “Habitat Management Needs Assessment Plan for the Fortymile Caribou Herd, 2000” and the “Harvest Plan for the Fortymile Caribou Herd, 2001–2006.” An issue of “The Comeback Trail” newsletter was also published in August 2000. Results of these studies were presented at Fortymile Team meetings; meetings on harvest strategies; local advisory committee meetings in Fairbanks, Central, Delta, Eagle, and Tok; Board of Game meetings; classrooms; and elsewhere as requested. In addition we participated in several briefings with the military and miners and continued to post current caribou locations on a website to expedite mitigation of overflights during May, June, and July 2000. Local art contests and guessing contests (involving annual census counts) were also sponsored in Tok in summer 2000.

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

We flew about 20 additional telemetry flights to monitor caribou distribution and movements during June, July, August, and September using funds from Tok caribou survey and inventory sources. Specifically, these flights provided precensus and harvest monitoring data, as well as mortality data. The caribou census and October composition count, moose surveys, and sheep surveys were also funded using Tok survey and inventory funds.

IV. RECOMMENDATIONS FOR THIS PROJECT

We recommend this project be fully funded through the current 5-year proposal terminating in June 2002. Another calf mortality study will likely be appropriate in May 2002 because we expect most of the 15 wolf packs will remain as sterilized pairs through winter 2001–2002. If most sterilized wolves are replaced by fertile wolves by April 2002, we will not recommend a calf mortality study in May 2002. Another 5-year study plan will be written during winter 2001–2002 and several years of posttreatment studies will be recommended. Recommendations will include studies of birth and mortality rates but not causes of calf mortality until wolves recover to pretreatment levels. Once wolves attain pretreatment levels, probably in 3 to 5 years, we expect to propose a series of calf mortality studies to determine if early wolf predation increases compared with treatment years.

V. PUBLICATIONS

BOERTJE RD AND CL GARDNER. 2000. **The Fortymile Caribou Herd: Novel proposed management and relevant biology, 1992–1997.** *Rangifer Special Issue* 12:17–38.

“**The Comeback Trail** “ newsletter, 1994–2001.

CL Gardner and L Zaczkowski et al. Issues 1–10. Alaska Department of Fish and Game, Tok, Alaska.

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BOERTJE RD AND CL GARDNER. March 1999, December 1999, and December 2000. Alaska Department of Fish and Game. Federal Aid on Wildlife Restoration. Research Progress Reports. Grants W-27-1 through W-27-3. Study 3.43. Juneau, Alaska.

Habitat Management Needs Assessment for the Fortymile Caribou Herd, 2000

The Fortymile Caribou Herd Planning Team, Tok.

Harvest Plan for the Fortymile Caribou Herd, 2001–2006

Authored by advisory committees in Tok, Fairbanks, Delta Junction, Eagle, and Central. Available from Alaska Department of Fish and Game, Tok, Alaska.

VI. FEDERAL AID TOTAL PROJECT COSTS FOR THIS SEGMENT PERIOD

Total Federal Aid project costs during this period were \$216,768, including \$46,605 for permanent full-time salaries and \$170,163 for operating costs.

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