
The Status of Woodland Caribou in Banff National Park, Alberta

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Key Words: Banff National Park, woodland caribou, movement, population, radiotelemetry, *Rangifer tarandus caribou*, Rocky Mountains, Alberta

Extended Abstract: The woodland caribou (*Rangifer tarandus caribou*) is nationally listed by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) as a threatened species (COSEWIC 2002). In Alberta, it is blue-listed (Threatened). The southernmost population of caribou in Alberta occurs in northern Banff National Park and appears to be isolated from the nearest adjacent caribou population in southern Jasper National Park. Recent monitoring indicates that the Banff caribou population has declined, possibly to as few as four animals. The ecology of this species in Banff National Park is poorly understood and the causes of the population decline are not known. In October 2003, a small-scale research program was initiated to learn more about caribou seasonal habitat selection, movement routes, and population status.

Reviews of historical records of caribou in Banff National Park have been compiled by Holroyd and Van Tighem (1983) and Kansas et al. (1991). The earliest report of caribou in the park is from 1902 when guide Jimmy Simpson tracked two animals in the Siffleur Valley. Other records from the first half of the 20th century include observations of caribou in the upper North Saskatchewan, Siffleur, Castleguard, and upper Cascade drainages within Banff National Park, and Elk and Peppers Creeks just east of the park. Between 1975 and 1997, most caribou sightings in the park were made by district park wardens working in the Siffleur River drainage. Beginning in 1998, annual aerial surveys that targeted caribou have been conducted. The largest single count of caribou in the park's history was 23 animals recorded in 1989 (Fig. 1).

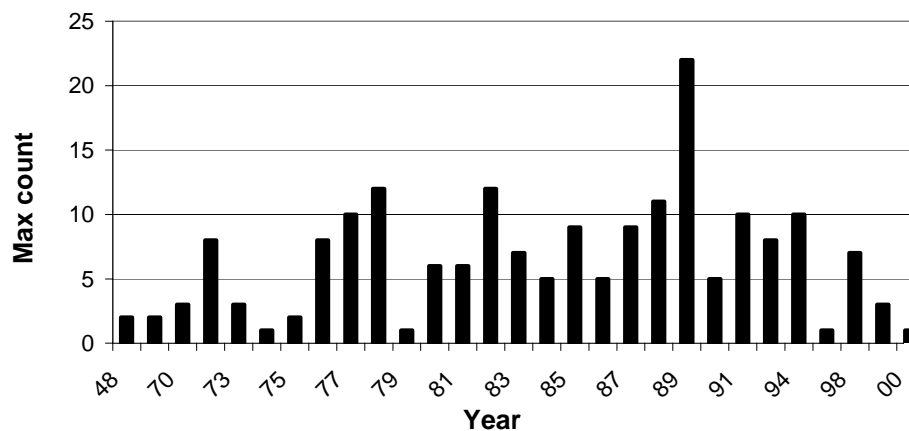


Figure 1. Annual maximum group sizes of caribou observed in Banff National Park, 1948–2001.

The summer range of the Banff caribou prior to 1991 was characterized by Kansas et al. (1991) as consisting mainly of the Siffleur River drainage including the lower Siffleur and its tributaries in the adjacent Siffleur Wilderness Area of Alberta. Within Banff National Park, much of this area is zoned as 'Special Preservation', in large part to protect caribou populations. The area has relatively low human use levels due to difficult access. Since 1997, however, aerial surveys have detected caribou using the upper Pipestone River and Mosquito Creek drainages, up to 15 km south of the Siffleur River drainage (Fig. 2). This area does not have the zoning protection and limited access that the Siffleur drainage does.

The winter range of the Banff caribou was characterized by Kansas et al. (1991) as including the Siffleur drainage and adjacent portions of the Mistaya River drainage along the Icefields Parkway. There are, however, only 25 records of caribou for Banff National Park in winter (November through April) upon which to base winter habitat use. Nearly all winter records since 1983 are from the upper Bow and Mistaya drainages (Fig. 2).

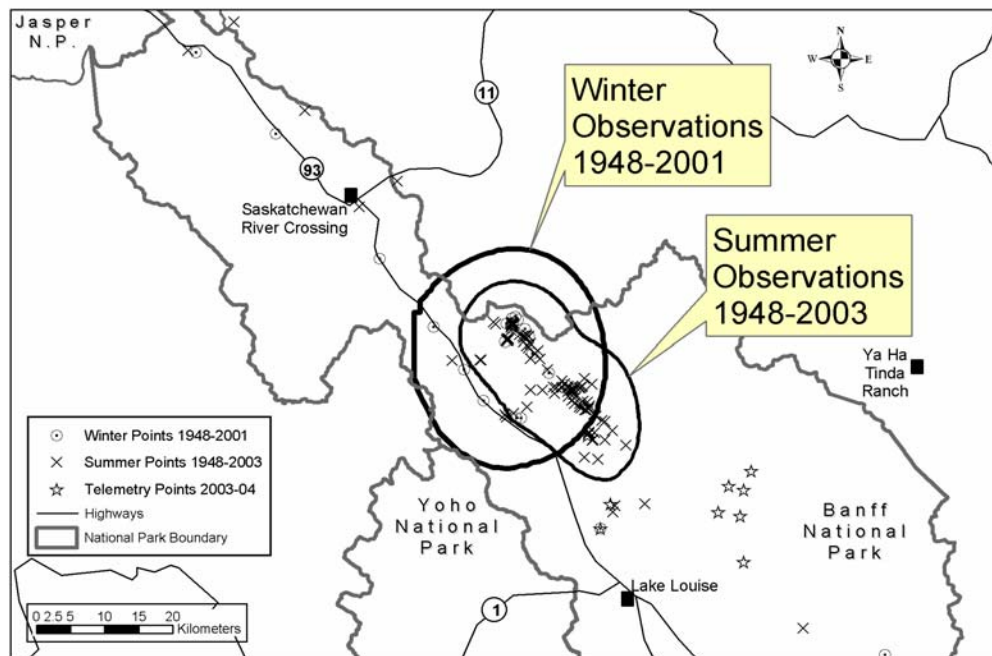


Figure 2. Records of caribou in northern Banff National Park, 1948–2003. Core areas for winter and summer occurrences are approximated by 90% kernel estimators. Recent radiotelemetry locations of a single study animal in the winter of 2003–2004 are also shown (source: Parks Canada, unpublished data).

In October 2003, a cow caribou was captured using a net gun and was fitted with a GPS collar programmed to collect location data four times per day for up to a year. This animal was in a group of four that also included a mature bull, a young bull, and a calf. The collar will be removed in October 2004, and all data will be downloaded at that time. Meanwhile, telemetry flights using the collar's VHF function are flown at 2–4 week intervals to confirm collar function,

investigate possible mortality (inactivity) signals, collect preliminary location data, and determine group composition. Occasional ground-based telemetry is also conducted. Caribou are currently being studied in adjacent Jasper National Park where caribou habitat is similar. Although the sample size in Banff National Park is obviously very small, location data can be pooled with that of Jasper for some analyses.

Radiotelemetry results from October 2003 to early February 2004 have shown the radio-collared cow caribou to be using habitats in which caribou have not been recorded previously (Figs. 2 and 3). These areas are in the Red Deer River drainage, approximately 20 km east of any other caribou observation in Banff National Park in the last 50 years. The radio-collared animal has consistently been seen as part of a group of three animals. The mature bull that was part of the group at the time of capture has not been seen during telemetry flights. An aerial search of known and potential caribou range in Banff National Park will be conducted in late winter in an attempt to locate the mature bull and other caribou that are not part of the collared caribou's group.

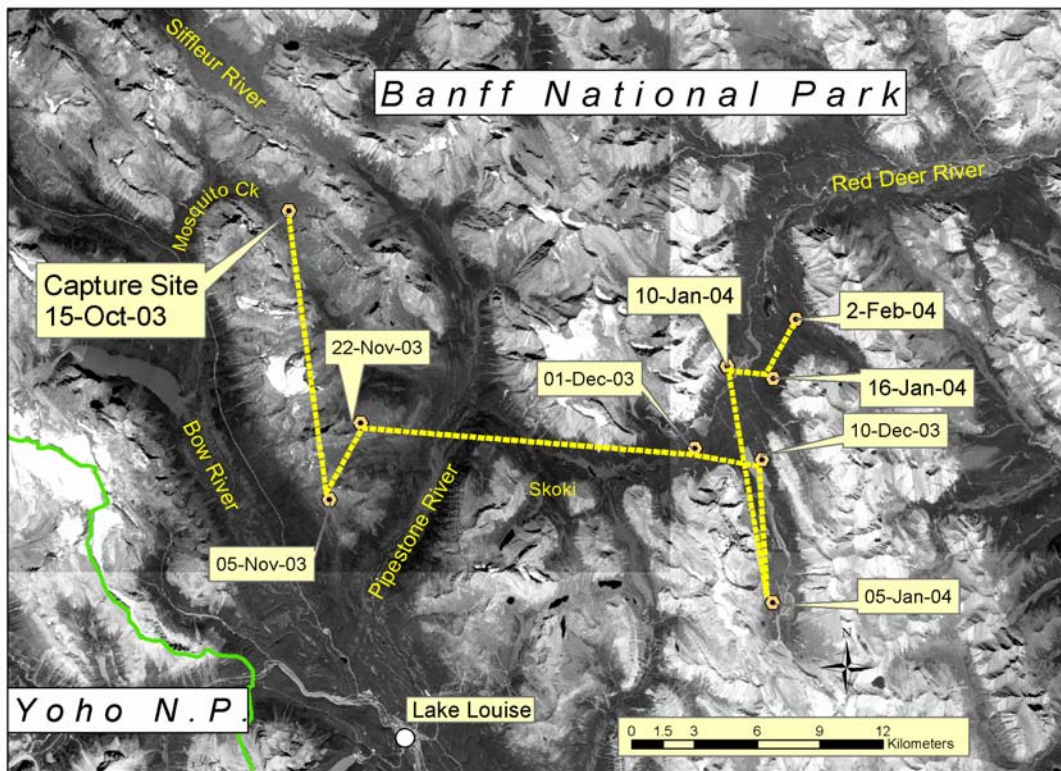


Figure 3. Successive telemetry locations of a cow caribou from the time of capture in October 2003 to early February 2004.

Causes of caribou population decline in the park are not well understood but may include habitat change, predation (including increased predator access on compacted snow trails), abundant alternate prey populations leading to increased numbers of predators, and loss of connectivity to caribou populations to the north. Human access may also be a factor. Areas that

the Banff caribou have been using in recent years have higher levels of human activity than do their historic ranges. Caribou in Banff National Park may not persist without immigration from the north or population augmentation. The current study is expected to provide insights into the location of critical habitat and the possibilities and likelihood of success of recovery measures.

Acknowledgments

I extend thanks to M. Hebblewhite of the University of Alberta, R. Owchar of Parks Canada, and C. Wilson of Bighorn Helicopters, Cranbrook, B.C. for their assistance in the field. Funds for this project were provided (in part) by the Parks Canada Species at Risk Recovery Action and Education Fund, a program supported by the National Strategy for the Protection of Species at Risk.

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