

Donald R. Johnson

Department of Biological Sciences

University of Idaho

Moscow, Idaho 83843

Mountain Caribou: Threats to Survival in the Kootenay Pass Region, British Columbia

Abstract

The Kootenay Pass region of southeastern British Columbia represents a vital segment of habitat for mountain caribou inhabiting the Selkirk Mountains. Existing and proposed developments there, including a major highway, power transmission lines, a natural gas pipeline and extensive logging, have reduced available habitat, modified caribou movements and intensified man-caused harassment and mortality. Continuing human encroachment jeopardizes the future existence of mountain caribou in the Kootenay Pass region.

Introduction

Mountain caribou, *Rangifer tarandus montanus* (Seton), ranged throughout the Selkirk Mountains of British Columbia, Idaho, and Washington during historic time (Freddy, 1974; Laysen, 1974). There is evidence that the Kootenay Pass region in southeastern British Columbia has represented a vital segment of habitat for these caribou for more than a century. A detachment of the Palliser Expedition led by John W. Sullivan crossed the Selkirk Range in September, 1859, essentially following the present route of B. C. Highway 3 up Stagleap Creek, across Kootenay Pass (1,775 m or 5,820 ft) and down Summit Creek. In his report Sullivan stated:

At the height of land I was in hopes that we had struck an Indian trail, when suddenly our guide informed me that we had been traveling for the last half hour, not upon an Indian, but a cariboeuf road, and that now we were forced to leave it. Cariboeufs frequent this part of the country in large numbers, as the woods are traversed by their beaten tracks (Spry, 1968:482).

A recent investigation (Freddy, 1974) and those in progress (Johnson, Miller, and Money, unpubl.) confirm the continued and intense use of the Kootenay Pass region by the Selkirk band of caribou throughout the year. Kootenay Pass serves as the movement corridor for caribou that enter the United States (Freddy, 1974:83). The existing undisturbed parts of the region are considered absolutely vital for the survival of this band. Hence, a review is in order so that the public, the scientific community, and the resource agencies can be fully informed of the existing and proposed developments at Kootenay Pass which threaten this band.

Highway Development

The completion of B. C. Highway 3 in 1963 initiated development in the region (Fig. 1). The "Kootenay Skyway" is maintained as an all-weather highway. This route is particularly attractive to trans-Canada travelers since it avoids time-consuming and more hazardous northern routes.

The use of salt in winter road maintenance has attracted caribou to the highway where a single collision with a motor vehicle might kill or injure several animals. On 2 December 1974, for example, eight animals visited the highway and six were photo-

graphed on the pavement licking salt (John Russell, pers. comm.). The threat of mass slaughter in a collision, especially on icy winter roads, is self-evident. At least five caribou have been killed in collisions with vehicles thus far (Layser, 1974).

Assessing the influence of the highway on caribou movements is difficult. Klein (1971) has reported the reluctance of wild reindeer to cross a main highway and railroad in Norway. Impedence of movement in the Kootenay Pass region would seem to be greatest during late winter when snow is steeply banked along the roadside. Total snowfall has averaged 15 m during the past ten winters (Table 1). Although caribou

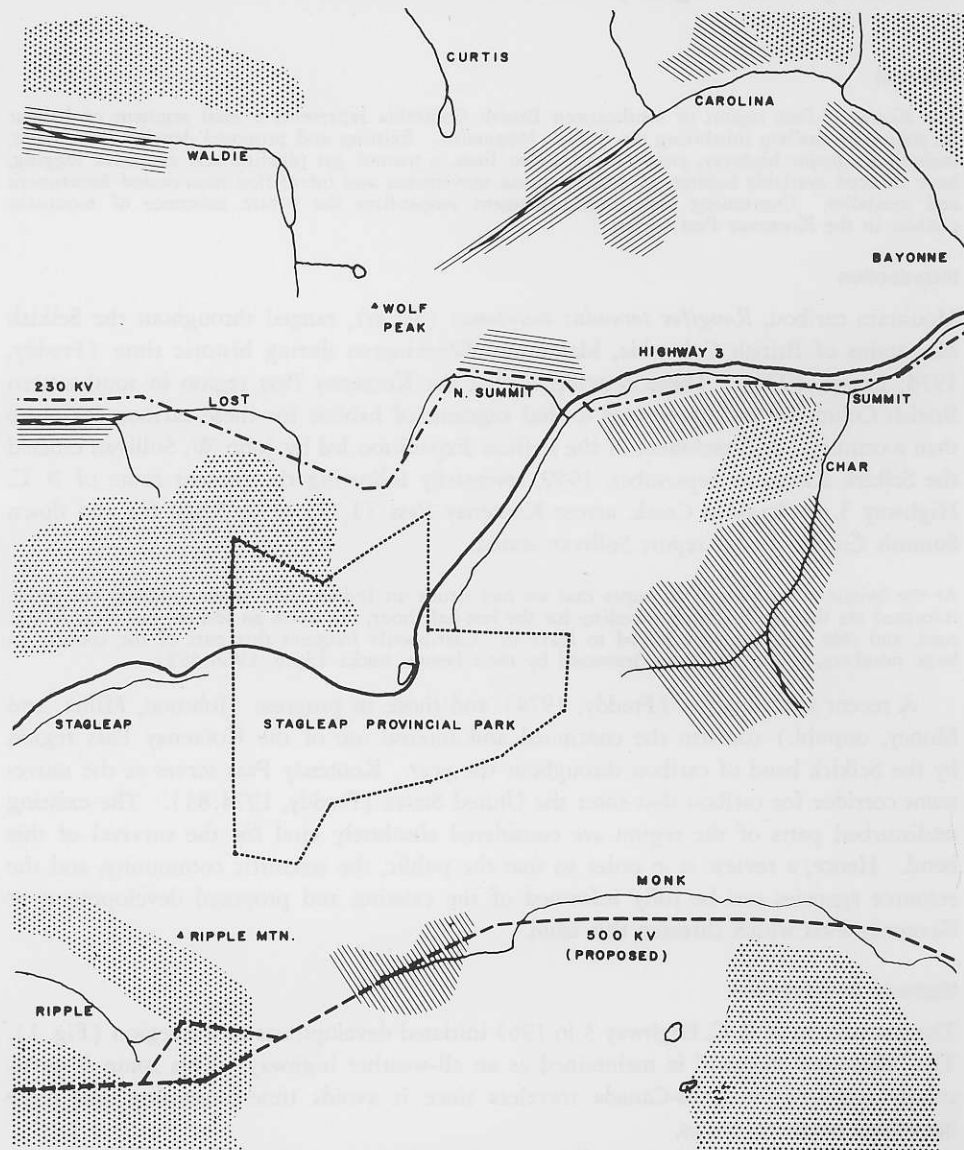


Figure 1. Kootenay Pass Region, British Columbia. Existing B. C. Highway 3-solid line; existing power transmission and natural gas pipeline- dot-dash line; authorized power transmission line, proposed route- dashed line; clearcuts- hatched; burns- stipled. International boundary at bottom of the figure. Scale: 1 in = 1.3 mi.

have crossed the highway in December, March, and April (Freddy, 1974), there is no evidence that the highway has modified caribou movement during the winter months. The highway provides ready access for illegal hunting (Freddy, 1974). This band has not been hunted legally since 1957 (Flinn, 1956:38).

TABLE 1. Total snowfall (m), Kootenay Pass, B. C. (H. Kelsall, pers. comm.)

Winter	Snowfall
1965-66	14.1
1966-67	16.1
1967-68	14.4
1968-69	15.4
1969-70	10.2
1970-71	21.2
1971-72	16.3
1972-73	11.6
1973-74	19.0
1974-75	12.7
Mean	15.1

Utility Development

The establishment of the highway has made the Kootenay Pass region attractive as a utility corridor. A 230 kv power line has been installed through the Lost Creek and North Summit basins (Fig. 1). Old-growth Engelmann spruce, *Picea engelmanni*, and subalpine fir, *Abies lasiocarpa*, were cleared for right-of-way through these basins, reducing the availability of arboreal lichens, the primary winter food of mountain caribou (Edwards and Ritcey, 1960).

The effect of power transmission lines on caribou movement has not been assessed. There is no evidence at the present time to indicate that the power line has affected caribou movements in the Kootenay Pass region. A greater threat probably results from the improved access provided by rights-of-way for off-the-road-vehicles during summer and for snowmobiles during winter.

The route of the 500 kv power line connecting Nicola and Cranbrook through the region is currently under study (Ian Hayward, pers. comm.). Present plans favor a 200-ft right-of-way through the Ripple and Monk Creek basins, utilizing as much of the existing clearcut as is feasible (Fig. 1). In crossing the Ripple-Monk summit the line would be split to reduce the chances that an avalanche or landslide will disrupt power transmission through this rugged region. Some loss of old-growth timber will occur in the upper reaches of Monk Creek depending upon the route chosen and the spacing of towers. A second 500 kv line, which will likely parallel the one currently authorized, is also under consideration.

The microwave relay station on the summit west of Kootenay Pass has had a minimal impact on this band and their habitat although its service road provides access to the upper parts of Lost Creek.

Construction began on a 12-inch natural gas pipeline in 1975 which will parallel the existing power line through much of the North Summit and Lost Creek drainages. A divergence of its right-of-way in the North Summit basin caused some loss of old growth timber.

Fire and Logging

Edwards (1954) has described the detrimental effects of forest fires on a mountain caribou herd in Wells Gray Provincial Park, B. C. Forest fires have devastated a large part of the Kootenay Pass region (Fig. 1). In 1920 a fire burned much of the area south of Ripple Mountain and in the Stagleap and Lost Creek basins. A lightning-caused fire destroyed a large part of the timber in the Waldie Creek basin in 1945 (D. E. Gilbert, pers. comm.). An early forest fire burned over the ridge separating Bayonne and Carolina Creeks (Fig. 1). Unfortunately, several hundred acres of second growth forest on this site were burned in October, 1974, when a fire escaped the Carolina Creek clearcut. In a similar manner, mature timber in the Char Creek basin was destroyed in 1967 when a clearcut burn escaped into green timber.

Much of the old-growth spruce and subalpine fir have been removed from the Monk Creek basin where logging began in 1954 and from the Caroline Creek basin where logging commenced in 1967. Both areas are historically and currently important to caribou. Large amounts of mature timber have also been removed from the Char, Summit, Maryland, and Lost Creek basins (Fig. 1). Much of this timber was 100-150 years old. Recovery will only take place slowly, particularly at higher elevations. The remaining timber appears to be absolutely essential as a source of winter food and cover for this band of caribou. Fortunately, the British Columbia Forest Service has adopted a policy to limit further timber removal in these basins.

Discussion

Development of the Kootenay Pass region has proceeded rapidly during the past three decades to the point where the resident band of caribou may soon be seriously threatened both from habitat loss and from direct man-caused mortality. The band currently numbers 25-30 individuals. The calf crop has not exceeded five animals during each of the past four years. Confirmed mortality has equalled recruitment in two and perhaps in three of these years (Fredy, 1974, and unpublished data). Although these caribou represent a minor part of the total caribou population of British Columbia, elements of the herd cross the International Border and thus become a part of the last remnant of caribou in the contiguous United States. For that reason alone their survival assumes a special significance.

Acknowledgments

The USDA/Forest Service, the British Columbia Fish and Wildlife Branch, the National Geographic Society, the Washington Game Department, the Idaho Fish and Game Department, and a number of outdoor organizations supported field work associated with this study. The cooperation of the B. C. Forest Service and the Department of Highways is especially appreciated. This study was conducted in part during a sabbatical leave from the University of Idaho which is gratefully acknowledged.

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Received September 16, 1975.

Accepted for publication November 11, 1975.