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## Why Mountain Caribou Are in Trouble and How Research May Help

By Elizabeth Anderson

Woodland caribou are a threatened species both provincially and federally, meaning they are likely to become endangered if nothing is done to stop the factors causing their vulnerability. Historically, the southern limit of caribou distribution in the foothills and mountains of Alberta extended south of Edson to Nordegg and the Siffleur Wilderness area; however, over the past 100 years, populations have declined and distributions receded northward.

Within Alberta, two types of woodland caribou can be distinguished based on behaviour and habitat use: boreal caribou (non-migratory, peatland-dwelling) and mountain caribou (migrate between summer ranges in alpine/ subalpine habitat and winter ranges in mature/old-growth coniferous foothills habitat). The West Central Alberta Caribou Standing Committee (WCACSC) has designated four mountain caribou ranges in the province (Narraway, Redrock/Prairie Creek, A La Peche, and South Jasper).

Monitoring of the populations is conducted by Alberta Fish and Wildlife, Jasper National Park, and WCACSC to assess adult survival, calf production, and calf survival. The surveys generally indicate the various populations are stable to declining. For example, surveys of the South Jasper population in the late 1980's found about 150 animals while the average during the 1990's was 110 animals and a recent survey found less than 100 individuals.

Research is ongoing into factors contributing to declines in caribou populations. Predation is the most important natural cause of death. Mountain caribou may try to avoid predators by maintaining small herds (3 – 20 animals) at low densities and utilizing different habitats from other potential prey such as moose, elk, or deer. For example, female caribou calve at higher elevations than other ungulates. However, on their wintering grounds in the foothills, timber harvesting creates attractive early successional stages upon which other ungulates browse. As these ungulate populations increase so do wolf populations, which may result in higher predation pressure on wintering mountain caribou.

Alberta Fish and Wildlife has also examined the behaviour of caribou on their wintering grounds in relation to progressive timber harvesting during the past two decades and found reductions in herd distribution, daily movement rates and individual winter range sizes. This may compress caribou into non-harvested areas, counter to their predator avoidance strategy of existing at low densities. Several studies are currently examining caribou habitat selection (Tara Szkorupa) and the effects of habitat alteration on population dynamics (Kirby Smith, Bob Lessard).

Roads, seismic lines, and pipelines may also contribute to population declines by allow wolves and humans to move more easily throughout caribou ranges. This penetration can result in increased encounter rates and higher mortality of adults and calves due to predation, poaching, or vehicle collisions.

Gerry Kuzyk, a graduate student with WCACSC and the University of Alberta, is examining location of wolf kills relative to roads, seismic lines, and cutblocks, while Paula Oberg recently completed her graduate work examining the effect of linear features on mountain caribou. She found caribou in the Redrock/Prairie Creek range avoided roads and streams but not seismic lines. WCACSC is also participating in a project to recover the human footprint in caribou ranges by revegetating idle roads, pipelines, and seismic lines. Within Jasper National Park, a pilot project is assessing caribou response to human use of critical winter range in the Maligne Valley.





Finally, populations may decline if availability and access to the main winter food source for woodland caribou, terrestrial lichens, is limited. Mature and old-growth forest stands typically contain the highest amounts of lichens but also are the stands targeted for harvest. If the rotation age is too short or forestry practices too destructive to allow adequate lichen regeneration, winter caribou habitat may be lost.

Weyerhaeuser, Alberta Newsprint Co., and Weldwood are involved in research examining the effects timber harvesting practices (i.e. thinning) on terrestrial lichen regeneration within some forest stands on the A La Peche winter range. Weldwood is pursuing other studies including lichen enhancement of second-growth stands and effects of scarification and prescribed burning on lichen re-growth. They are also continuing a thesis project completed through Foothills Model Forest and U of A that examines lichen regeneration as a function of season of harvest, type of scarification, and location of delimiting. As lichen regeneration is slow, these studies are long-term.

As the process is often frustratingly slow, a research program needs to be well-coordinated to produce useful and timely results. This is no more evident than with the ongoing research into mountain caribou declines in west-central Alberta. Industry and government are making valid attempts to evaluate and mitigate the effects of development on caribou.

For example, research findings to date have led to the implementation of industrial guidelines and mitigation strategies for activity occurring on caribou ranges. These include coordination of access development and management, use of low impact and hand-cut seismic lines, reduction in the forestry companies' annual allowable cut, timing restrictions, and 'caribou cowboy' program (someone actively chasing animals off the highway between Hinton and Grande Cache).

However, it remains to be seen whether current and future recommendations resulting from this research will preserve mountain caribou populations in Alberta.

For more information on woodland caribou in Alberta, visit [www.rr.ualberta.ca/research/caribou/index.html](http://www.rr.ualberta.ca/research/caribou/index.html) and [www.gov.ab.ca/env/fw/status/resports/index.html](http://www.gov.ab.ca/env/fw/status/resports/index.html)

