Woodland caribou management in Manitoba, Canada

Vince F.J. Crichton

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Abstract. Woodland caribou **Rangifer tarandus caribou** in Manitoba are limited in number (2000 est.) and occur in the central portion. Concern is warranted for the welfare of this species because access for development is increasing in caribou range once considered remote and inaccessible. This ungulate, because of low numbers and nomadic existence is not a high profile species and thus it is difficult to generate funds for management. Policies, hunting and predation are discussed. a study has been inaugurated in Manitoba to examine the impact of logging on woodland caribou.

[Department of Natural Resources, Box 24, 1495 St. James Street, Winnipeg, Manitoba Canada R3H 0W9]

Introduction

Woodland caribou *Rangifer tarandus caribou* the least understood of Manitoba's ungulates, inhabit the boreal forests of Manitoba. Historically, they ranged south from 58 degrees latitude along the eastern edge of the province into Minnesota.

Development activities over the years have resulted in the demise of this species in southeastern Manitoba. This disappearance is probably also associated with the nematode *Parelaphostrongylus tenuis*, a pathogenic parasite of woodland caribou, which invaded the province with white-tailed deer *Odocoileus virginianus* about the turn of the 20th century.

The population of woodland caribou in Manitoba is estimated to be about 2,000 animals. These occur in small, discrete herds aptly named and ranging from about a dozen animals up to 100-200. Population estimates are based on aerial surveys and occasional observation of various herds by Department staff during the snow period. Two large caribou herds in the Cape Churchill and Cape Tatnam areas adjacent to Hudson Bay are probably not true woodland caribou, but rather a hybridization between woodland and barren-ground caribou *Rangifer tarandus groenlandicus* and are excluded from this paper.

Management activities involving woodland caribou until the mid 70's were restricted to aerial surveys in the more accessible game hunting areas, manipulation of hunting seasons, and restrictions on the number of licenses available. In the early 70's, radio telemetry studies were initiated on discrete herds to generate data for management purposes. The herds studied were those whose range, or a portion thereof, was being examined for timber extraction. Recreational and subsistence use of woodland caribou is insignificant compared to moose *Alces alces* and white-tailed deer.

Management authority rests with the Department of Natural Resources and has evolved into 2 active dimensions, namely, that involved directly with the resource and that associated with the use of it. a paucity of information about individual herds has placed the Department in an untenable position regarding giving advice on development activities occurring within the annual range of these herds. This paper will present some of the problems and approaches Manitoba is taking towards caribou management.

Policy

The Department of Natural Resources is obligated to protect the caribou resource for all Manitobans and to implement a management plan that ensures future generations will have equal opportunity to use the resource. As development occurs inaccessible areas, pressures are increasing on the Department to implement protective

measures. This may place different interest groups in adversarial positions.

To resolve the issue, i.e., satisfying industry and protecting the wildlife resource, government must have clearly enunciated policy dealing with all relevant particulars and strategies. In Manitoba, such policies exist which are essential for developing management plans. Principal among these are those for perpetuating and allocating the wildlife resources of the province.

Present status/mortality factors

The woodland caribou population in Manitoba is believed to be stable at about 2,000 animals. A major impediment to obtaining reliable population estimates is lack of sufficient funding to adequately survey the various herds. Because of their nomadic existence and low numbers they are not a high profile ungulate and thus it is difficult to generate funds for management activities.

The mortality factors affecting woodland caribou in Manitoba are licensed and subsistence hunting, predation, and natural causes.

Hunting

Most woodland caribou are harvested primarily by moose hunters and opportunistic caribou hunters. All licences allocated in the readily accessible game hunting areas are issued via a draw, while in the more remote areas license numbers are not restricted and seasons are more liberal. In the former areas, season dates are set for periods when caribou are in habitats that make them less vulnerable. Annually, about 100 licenses (limit-1 caribou) are sold, resulting in a harvest of about 20-25 animals.

Hunting by subsistence hunters is such that they do not actively hunt woodland caribou, but harvest them when encountered in the course of their activities. Their annual harvest is estimated to be no more than 50 animals. Subsistence hunting in Manitoba is controversial in that no restrictions apply to Treaty Indians hunting for food. Paragraph 13 of the Natural Resources Transfer Agreement which was signed in 1930, and subsequent court rulings have given Treaty Indians the right to hunt on occupied crown land or lands to which they have right of access, including provincial parks and wildlife management areas. They are able to exercise their rights at any time provided it is done safely. No restrictions as to number of animals that can be taken or age and sex are applicable.

Trends in recreational hunting of woodland caribou have been relatively stable. However, as access increases, caribou once found are particularly vulnerable. Therefore, herds in these areas and harvest of them must be carefully monitored to ensure their continued viability. More reliable population estimates may in fact illustrate that hunting seasons as presently conducted are conservative and that more liberal hunting opportunity is possible.

Discussion

It is certain that more development will occur and with this more effort must be expended to determine population numbers and annual ranges of those herds which will be affected. Population surveys are difficult due to the confinement of these animals in the boreal forest. The only opportune time for surveys is during winter and on sunny days following fresh snow when animals can be readily counted by following fresh tracks.

Radio telemetry studies in eastern and northwestern Manitoba illustrate that some herds winter in discrete and traditional areas. For example, the Sasaginniak herd in eastern Manitoba winters in the lowland string bogs adjacent to Lake Winnepeg and move east following 'long used' migration paths to summer habitat in the more typical boreal forested areas of the Cana-

dian Shield. In the wintering area, mature bulls (over 3 years age) do not wander widely but remain sedentary within a small (approximately 23 km^2) well established winter range. Vegetation in the area is predominantly mature jack-pine and copious quantities of terrestrial lichens covering rock outcroppings with black spruce in the lowland sites. Arboreal lichens are also abundant in the area. Cows, calves and younger bulls winter about 19 km north of the mature bulls in string bogs dotted with a myriad of rock outcroppings covered with mature jack-pine, terrestrial lichens and black spruce in the lowland areas. There is concern that the bulls may be displaced from traditional wintering areas because they contain commercially valuable timber. The wintering areas used by the remainder of the herds has some commercial timber on the periphery of the prime use area, but forestry activities are not a major concern at present based on the stands identified for harvesting.

Predation by timber wolves *Canis lupus* does not appear to be a major problem with caribou on winter range. Discussion with present and past department staff reveals less than 6 known kills of woodland caribou by wolves in traditional wintering areas. In selecting these niches it is postulated that this is a predator avoidance strategy. As caribou leave the wintering areas and move back to summer range they do transgress 'wolf range' where they become more vulnerable. Known incidents of caribou being killed on summer range by wolves far exceeds that of winter. On summer range, black bears *Ursus americanus* are also a predator to be considered.

During summer, woodland caribou become more sedentary and frequently use water areas with a myriad of islands as calving sites. These islands are also used by bulls and non-breeding cows. Studies in eastern Manitoba (Crichton, unpubl.) illustrate a strong tendency for individuals to use the same islands annually as calving sites. Islands found in string bogs are also used and it is suggested that use of islands is a predator avoidance mechanism (Bergerud, 1974). Wolves and bears do frequent these island ecosystems, but caribou are presented with easy escape routes into water whether it be muskegs or lakes.

Predator management is a controversial issue. However, it should remain as a technique to be employed when required in caribou management provided cogent arguments can be developed to support such activities. To lose this ability is to lose a major management tool.

An examination of woodland caribou range in Manitoba does not lead to the conclusion that habitat is a limiting factor. In most cases, there appears to be sufficient range for many more animals than found at present. If the range for these nomads is to be secure, then delineation of annual ranges must be identified, particularly in areas where development is being considered. Therefore, it is essential that biologists familiarize themselves with long term development plans of hydroelectric and logging companies and government proposals for new access roads.

Development activities in areas frequented by caribou such as tourist establishments, logging, winter roads, and all weather roads have to date causes little disturbance to caribou directly. In many instances the animals appear to be living in harmony with the disturbances. The indirect effects such as increased hunting activity are of a major concern and ways must be found to lessen this impact. A useful technique employed in some areas of Manitoba is the creation of refuges along roads (300 m on each side) in which all forms of hunting are excluded. This is a useful technique to employ when new access roads penetrate caribou range.

The identification of significant wood fiber in areas frequented by caribou is of concern from 3 points of view: 1) destruction of habitat, 2) increased vulnerability

due to increased access, and 3) increased predation resulting from easier access.

Large clear cuts will undoubtedly preclude caribou use. Hristienko (1985) summarized the literature relevant to the impact of logging on caribou. Subsequently, a study was initiated in 1986 in eastern Manitoba to determine the impact of logging on woodland caribou.

Bergerud (1978) suggested that the annual mortality of adult caribou is about 4-6% with few natural predators and with normal density of predation will average 7-13%. Without examining calf mortality, and using Bergerud's figures, it is speculated that Manitoba's woodland caribou may be in a 'predator pit'. Licensed hunting is a major factor at present. However, it is recognized that with so few animals licensed hunting may have to be curtailed and a major effort made to have Treaty Indians curtail their harvest if this is deemed to be a major factor contributing to low numbers.

The reproductive rate in woodland caribou is low. However, it is noteworthy that 1 radioed animal did calve a 2 years of age, suggesting that some conceive in their 2nd year.

In those critical areas east of Lake Winnepeg where Abitibi-Price have identified significant wood fiber in key caribou range, direction has been given to cut black spruce in the lowland areas and avoid the jackpine ridges with roads and equipment. To date, cooperation has been excellent.

An important factor to be considered in caribou management is fire. Conflicting views exist regarding the impact of fire on caribou. In areas of the Canadian Shield east of Lake Winnepeg where soils are shallow, fires can destroy caribou habitat for many years. Where deeper soils exist, fire probably benefits caribou in that during the process of maturation, semi-open forest types result enhancing lichen production. Where fire destroys merchantable timber outside of caribou range, pressure builds to harvest the timber in caribou range.

We are optimistic for the future of woodland caribou in Manitoba. This is due to 2 primary factors. First, an excellent relationship exists between forestry and wildlife interests. Efforts are underway to ascertain critical areas and ways to avoid them or how to carry out forestry activities that will have minimal impact on the resource. Secondly, biologists in Manitoba have recognized the value of having an informed public cognizant of the needs of woodland caribou. The public can do and say what we as civil servants cannot. This informed public will ensure that woodland caribou remain a part of Manitoba's ecosystem for the future.

Literature cited

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