



### ISSUE PAPER: Primary Prey Management

In British Columbia biologists and stakeholders are focusing on the causes for declining woodland caribou herds. It is estimated that there are only 19,000 caribou in the province today, congregated in 54 herds, residing in three types of habitat. All six of the boreal herds and 23 of the southern mountain herds are decreasing. Of the herds in BC, 14 have fewer than 25 animals.<sup>1</sup>

The main threat to most caribou populations is a high rate of predation by wolves, bears and cougars that is out of balance from the natural cycle. This can happen when natural events (forest fires) and human activity (such as logging, mining) convert large areas of mature forests to young forest landscapes. These young, open forests provide ideal foods for deer, elk and moose. These ungulate species are the primary prey of wolves and cougar. As these primary prey species move into caribou habitat, they are followed by wolves, which then hunt the caribou as a secondary prey.<sup>2</sup>

Primary prey theory suggests that impacts to secondary prey, in this case caribou, can be mitigated by limiting populations of the primary prey species of deer, elk and moose. The theory contends that wolves will lose interest in an area when the populations of primary prey drop, and then either die off or migrate to a new area, thus sparing the remaining population of caribou

The Guide Outfitters Association of British Columbia (GOABC) believes that primary prey theory is a poor way to manage wildlife, especially a SARA-listed species. We feel that it is a simplistic and dangerous approach to managing caribou. Multiple prey systems represent one of the most complex relationships in nature, whereas primary prey theory is a passive approach to recovery that does not actually address the immediacy of the predator problem.

Our opposition is a product of thousands of hours spent afield. Guide outfitters have a strong understanding of wildlife and habitat developed by operating within confined guide territories over many years.

The role of wolves in the dynamics of BC's multi-predator, multi-prey systems remains the most significant knowledge gap [in the management of the grey wolf in BC]. These predator-prey systems are characterized by complex dynamics between and among predator and prey species, with resultant time lags, stochastic events, and changing local conditions, which makes generalizations difficult.<sup>3</sup>

Caribou naturally protect themselves from predation by living in low densities (<0.1 km<sup>2</sup>) at higher elevations with food sources suitable for caribou, but unappealing to most other species. Their diets consist of grasses, sedges, dwarf birch, willow, flowering plants, and, most importantly, lichens such as witch's hair or old man's beard that thrive in mature forests. As a result, caribou are highly dependent on old growth forest and alpine areas for critical food sources. The loss of mature forests and alpine regions from logging, other human activity or forest fires reduces the caribou's main food source, which may affect their health, pregnancy rates and calf survival.<sup>4</sup> Many old growth areas have transformed into seral habitats, which has caused moose to colonize historical caribou areas.

<sup>1</sup> Provincial Caribou Recovery Program, <https://engage.gov.bc.ca/caribou/caribou-recovery-program/> Accessed May 2018

<sup>2</sup> Ibid.

<sup>3</sup> Management Plan for the grey wolf in BC, [http://www.env.gov.bc.ca/fw/wildlife/management-issues/docs/grey\\_wolf\\_management\\_plan.pdf](http://www.env.gov.bc.ca/fw/wildlife/management-issues/docs/grey_wolf_management_plan.pdf) accessed May 2018

<sup>4</sup> Provincial Caribou Recovery Program, <https://engage.gov.bc.ca/caribou/caribou-recovery-program/> Accessed May 2018

Many studies have been performed to examine the relationships that exist between species in multiple prey systems. Caribou has been a species of special interest to many researchers because of its historical significance, drastic decline, and complex ecological situation. There is significant debate over the nature of relationships in multiple prey systems and the steps forward. Unfortunately, many studies “rely on predator control and monitoring programs that have not been executed over large enough areas or for adequate lengths of time.”<sup>5</sup>

In 2002 BC’s Ministry of Water, Land and Air Protection released a report entitled *A Strategy for the Recovery of Mountain Caribou in British Columbia* outlining a plan to support the revitalization of caribou populations in southeastern BC. The report refers to alternate prey theory but admits that the benefits of this approach remain largely speculative.

GOABC agrees that predator populations will grow in proportion to primary prey populations and that mortality of secondary prey will be incidental. In the case of caribou, they are somewhat protected by their low densities but, in the event of an encounter, caribou do not use escape terrain well and are easier for wolves to kill than moose. Studies have consistently predicted that caribou populations will decline when wolf density exceeds approximately eight animals per 1,000 km<sup>2</sup>.

The issuance of additional hunting permits will not result in an instantaneous decrease in wolf populations. If alternate prey management was successful in reducing moose populations, there would still be a lag time between the decline of moose and the decline of the wolf population. During this period, a high population of wolves would result in an increase in the rate of incidental mortality of caribou.<sup>6</sup> Since caribou reproduce at a low rate, depensatory predation is particularly damaging for caribou populations held at very low densities. Populations could fall below the critical density threshold when moose populations have been reduced and predator populations are still high.

Currently there is no government-led predator control in BC. In the past, BC’s government-led initiatives to manage wolf populations including poisons, aerial gunning, trapping and hunting. Studies have shown that wolves can return to pre-control levels within three years of ceasing predator control, even with a continued 25 percent public harvest.<sup>7</sup> Although we do not have definitive numbers of the current wolf population in BC, it was conservatively estimated to be around 8,000 when the wolf control was ceased in 2000. Reports from biologists, hunters, and guide outfitters affirm that wolf populations have exploded over the past decade.

Primary prey theory is a product of social and political pressure concerning wolves, which have an iconic value to many British Columbians. It is being purported as a palatable means to control the impact wolves are having on caribou, but there should be little doubt that driving prey populations to very low densities will be equally unpopular with the general public.

It is our opinion that any efforts to increase moose harvest will be done in vain if effective predator control is not taken. Caribou populations are at a critical point and need strong, decisive action to recover. If the desired wolf density is eight wolves per 1,000 km<sup>2</sup>, government will need to take the appropriate action to ensure this target is not exceeded.

Please call Scott Ellis, Executive Director of GOABC, at 604-541-6332 if you have any questions.

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<sup>5</sup> Robert Bruce Lessard, “Conservation of woodland caribou (*Raniger tarandus caribou*) in west-central Alberta: a simulation analysis of multi-species predator-prey systems.” (PhD diss., University of Alberta, 2005).

<sup>6</sup> *Ibid.*, 98.

<sup>7</sup> *Ibid.*, 98.