

The Role of Predation in Woodland Caribou Declines in West Central Alberta

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Our primary goal is to address the relative contributions of forestry and oil and gas production to the decline of caribou populations. This knowledge can then be used to develop appropriate conservation strategies across the range of caribou in west-central Alberta and east-central British Columbia.

Two competing hypotheses, 'Forestry Hypothesis' and 'Oil and Gas Hypothesis', are thought to drive caribou decline. The 'Forestry Hypothesis' states that improved habitat (due to timber practices) for primary prey of wolves (moose, deer) increases wolf numbers and consequently increases predation on caribou (Weclaw and Hudson 2004, Lessard 2005, Sorenson et al. 2008). Whereas, the 'Oil and Gas Hypothesis' states that efficient travel by predators on linear features (roads, seismic lines, trails), especially during the winter, leads to increased caribou encounters and kills (James and Stuart, Smith 2000, Dyer et al. 2002, Neufeld 2006).

Our projects clearly indicated wolf predation pressure

on caribou during the summer (see Section 6.0) when the 'Oil and Gas Hypothesis' should be weaker because many caribou migrate to less impacted areas in the mountains. We are quantifying summer predation to reassess the contribution of 'Oil and Gas' related features to caribou mortality through predation. In our study area, summer ranges of migratory caribou are largely in undeveloped areas in the mountains where human effects are negligible, thus emphasizing the importance of understanding whether this high summer predation is 'natural' or human induced through forestry or oil and gas. Summer predation by wolves on caribou, on both developed and undeveloped summer ranges, could potentially play a key role in the decline of caribou (see Section 5.0). During winter, wolves are nomadic, whereas during summer they are tied to a den, therefore, the kill rate estimation methods developed for winter cannot work during summer.

We have developed and are continuing to develop mechanistic movement models (see Section 3.0) to answer the summer predation question. We are using these mathematical models to understand the contribution of human factors (e.g., linear features attributable to oil and gas development vs. forestry) to predation of caribou.

Policy Issue

Biodiversity: Species conservation, mountain caribou

Knowledge Gap

wildlife and predator use of anthropogenic features

Herds studied: Alberta: *Mountain herds*–
A la Peche, Narraway, RedrockPrairie Creek, Redwillow.
Boreal herds: Little Smoky

Reports

- 2013 final report
- 2012 Interim Report
- 2011 Interim Report

Presentations

- 2011 Ecological Forum presentation