

Yukon Fish and Wildlife Enhancement Trust – Final Report

Proposal Title: Demographic Response of Northern Mountain Caribou to Habitat Disturbance
(*Rangifer tarandus caribou*)

Supervisor: Dr. Fiona Schmiegelow

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What activities did you complete during your project?

During the project, Yukon Government data on caribou and harvest were gathered, compiled, and used. In conjunction with Canada-wide datasets, the levels of fire and road disturbances were quantified on caribou ranges. Harvest levels for moose, caribou, black bears, grizzly bears, and wolves on each of the 13 northern mountain caribou herds with recruitment data were determined. Recruitment rates are the number of calves that are recruited into the next years population.

How did your activities contribute to you goals and objectives?

The activities allowed for analysis of what is influencing northern mountain caribou (NMC) recruitment rates in the Yukon. Boosted regression trees and linear mixed effects models were used to determine which of the 18 variables I had data for were most influential on NMC recruitment.

Note any variances to your goals, objectives or work plan and explain why they occurred?

There were no variances in the goals or objectives of the work though the timeframes did get pushed back due to writing of the thesis and refining results.

Explain how the results of your work contributed to the protection, enhancement or restoration of fish, wildlife or their habitat?

The results of this work highlight that currently northern mountain caribou are affected by predation more-so than disturbance, so now is the opportunity to manage caribou habitat to keep disturbance to a minimum. Harvest of moose populations on caribou population ranges was also found to influence caribou recruitment rates, where higher moose harvest was *correlated* with higher recruitment rates and lower moose harvest rates were *correlated* with lower recruitment rates. Yearly weather patterns that are associated with easier weather for caribou to survive in were associated with higher levels of recruitment as well, and visa versa. Weather patterns were measured by pacific decadal oscillation.

This work highlights that caribou populations are affected by moose populations in the Yukon. This is most likely due to the fact that as more moose are harvested, there are less wolves, which leads to less hunting of caribou calves. Caribou must be treated as part of a system if they are to be managed correctly, where moose-wolves-caribou and their habitats interact to maintain or not maintain healthy caribou populations.

If you were to do the project again what would you do differently?

I would give more presentations on the work to RRCs and First Nations, although there is still opportunities to do so. This project ultimately cumulates in a masters thesis, which, though now successfully defended, is still being word-smithed so results are not taken out of context.

Communications

What did you do to ensure your results were shared with the appropriate groups, people or governments?

The hope is to publish the results, yet, once the masters is finished I will notify those who may be interested in reading it, and offer to present on the final results as requested. A seminar for my project was hosted before my masters defence where interested parties were invited. I also hope to talk about my work afterwards to other interested parties once the masters thesis is completely finalized.

Note how you recognized the Enhancement Trust and/or its mandate?

I included the acknowledgment to the Enhancement Trust in my thesis, and in my seminar presentation. I will also include an acknowledgement to the Enhancement Trust in all future presentations on this work.

Identify any communication materials, strategies or techniques that you used to promote your project and its objectives?

I gave an early presentation of my work to the Southern Lakes Caribou Management Board. I also briefly served on the Southern Lakes Caribou Management Board where I used the skills developed during this project to help advance the board's objectives, and talked about what my project was whenever it came up.

Include photos of the project in action or the finished product?

I could advance a finished copy of the thesis, which should be done within a month after some fine-tuning.

Final Report - Budget Sheet

Expenditure Categories	Budget Item	Projected Cost	Actual Cost	Receipts
1. Capital Expenses (equipment, machinery)	None			
2. Wages, Contract Services				
3. Office & Administrative Expenses (telephone, printing, postage)				
4. Travel Expenses (accommodation, food, transportation)				
5. Materials & Supplies				
6. Facility Expenses				
7. Other				
TOTAL DOLLARS				