

What is Caribou Functional Habitat?

Using New Technology and Remote Sensing to Conserve Species at Risk

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Background

Caribou are declining across Canada. The federal recovery strategies require at least 65% undisturbed habitat within each caribou range. Current models of disturbance do not take into account re-vegetation stage, and it is unclear when previously disturbed habitat may be considered functional habitat for caribou.

We aim to address this knowledge gap using remote sensing, field surveys and mortality site visits.

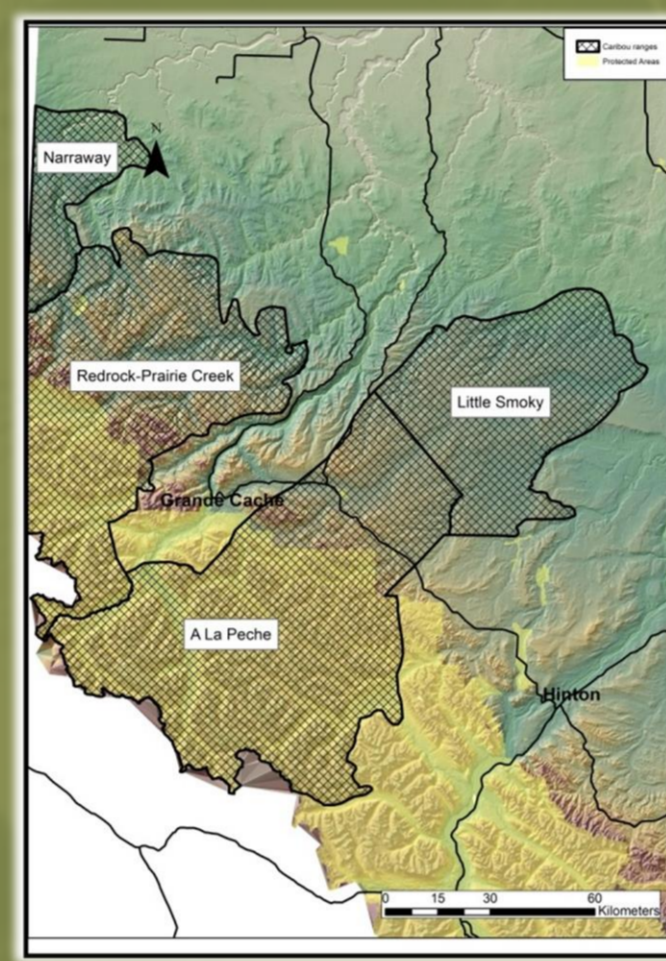
What is disturbed habitat?

- Cutblocks
- Seismic lines
- Roads
- Pipelines
- Fire



All except fire are buffered by 500m

Study Area



2. Where and why do caribou die?

In Alberta, wolves have been implicated as the primary predator of caribou. However additional predators and factors may play a key role in West-Central Alberta.

We are assessing this using prompt site visits to GPS collared caribou mortalities (< 1 week) to accurately determine cause of death (predation event, disease, environment etc.).



Caribou mortalities: From left to right probable cougar, wolf, grizzly bear and gravity

3. What are the indirect effects of habitat disturbance on caribou?

Habitat disturbance may further affect caribou including:

- Range shifts and changes in calving sites
- Increased stress and/or reduced pregnancy rates
- Health (increased pathogen load and/or disease)

Methods:

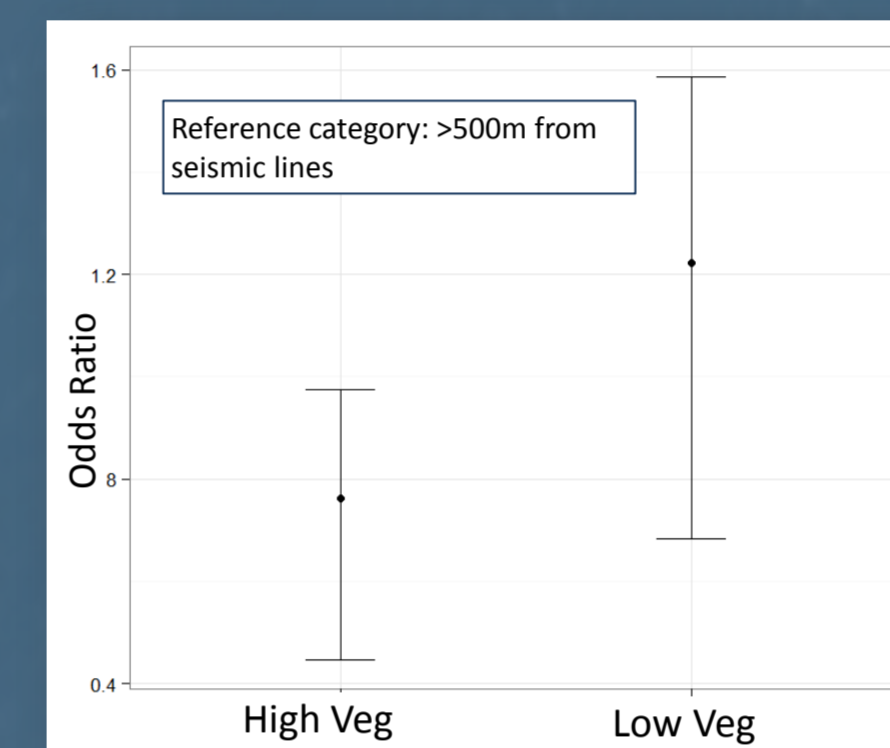
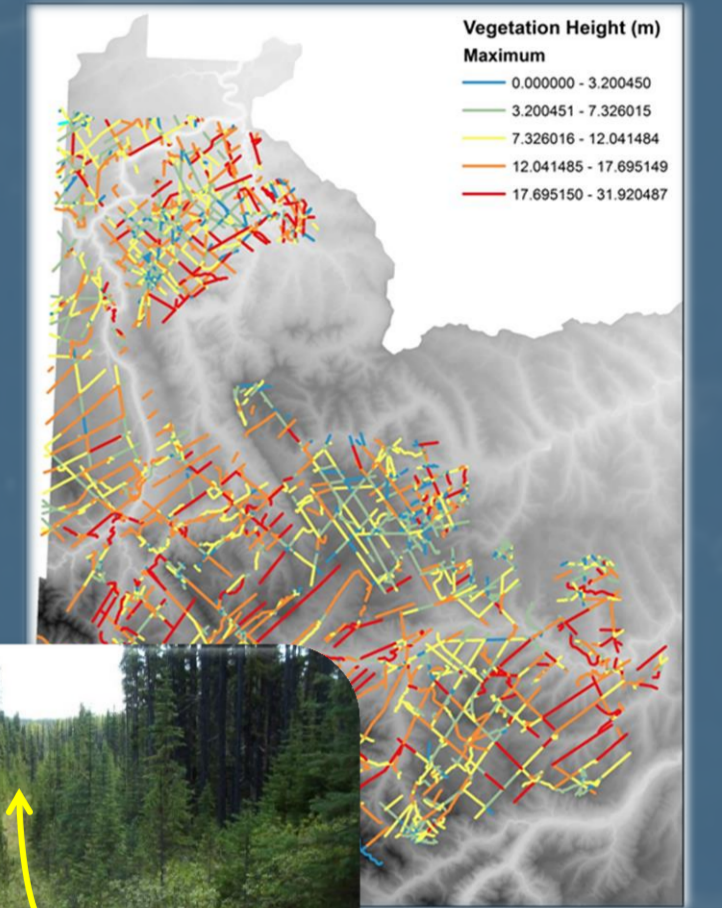
- Fecal surveys for hormones and pathogens
- Caribou movement and calving site fidelity vs. annual changes in anthropogenic footprint



1. Re-vegetation of disturbed areas

How does vegetation height of seismic lines affect caribou and their predators?

- LiDAR used to determine vegetation height along seismic lines across four caribou ranges
- Automated least cost approach
- GPS collar data from caribou (AESRD, Weyerhaeuser), grizzly bears (FRIGBP) and wolves (U of Montana, Calgary and U of Alberta)



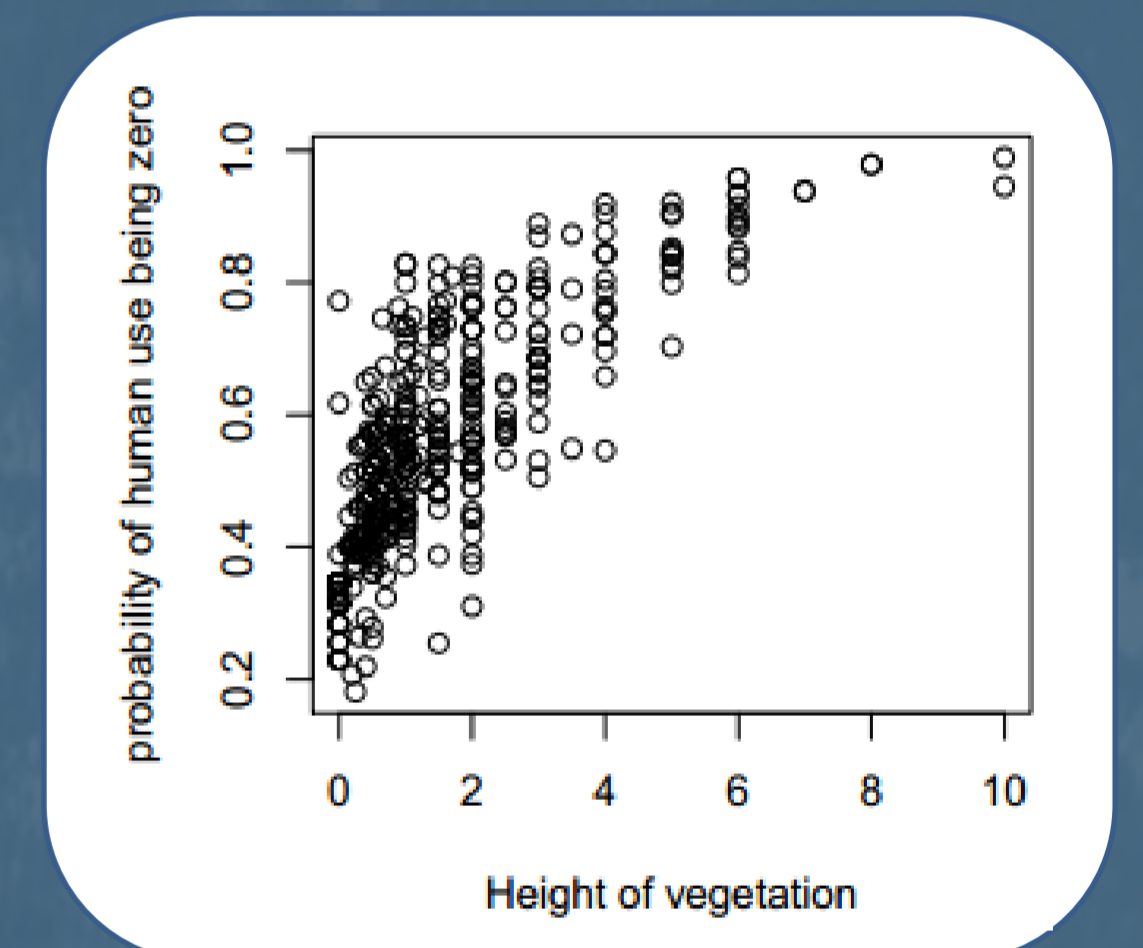
Analysis underway

- Does re-vegetation stage influence habitat use?
- Does the 500m buffer apply at all stages of re-vegetation?

Preliminary results(caribou, above) suggests that vegetation height along seismic lines may not affect caribou behaviour. Wolf and grizzly bear data may tell a different story....

How does vegetation height affect human use of areas?

- Field data on vegetation height, type and human use of seismic lines
- Analysis to determine what factors (vegetation height, tree fall, slope, soil wetness) affect human use of seismic lines



Remote monitoring

25 trail cameras and 30 infrared trail counters are monitoring human and animal activity along seismic lines over the winter.



Applications

- Identify priority areas for habitat restoration across caribou ranges
- Restrict human activities (recreational/industrial) in certain areas/at certain times to increase functional habitat for caribou
- Management of caribou habitat to reduce mortality risk