

2020

Annual Report

RICC | Regional Industry
Caribou Collaboration



A Message from the Chair

2020 was one of the most challenging years in recent memory. The world faced an unprecedented crisis, with the rapid global spread of coronavirus (COVID-19) and resultant tragic impacts to people, livelihoods, and economies at all levels. Significant, and often novel, measures have been required to reduce the spread of COVID-19, and through it all Regional Industry Caribou Collaboration (RICC) member companies, partners and affiliates remained dedicated to the health and safety of our staff, and the communities in which we operate. As the world adapted to the challenges inflicted by this pandemic, RICC was also faced with re-examining our work plan in order to adhere with the guidance of public health authorities.

For RICC, this meant eliminating travel, deferring field research and on-the-ground habitat restoration, and reducing in-person meetings and conferences. We successfully refocused our efforts in 2020 on data analysis and sharing learnings using virtual platforms that may now endure as a means of connecting like-minded people and organizations involved in caribou recovery across the world.

RICC member companies are proud of the way we pulled together to continue making important contributions to caribou recovery in Alberta, even in the face of substantial operational and economic constraints in 2020, many of which we expect to continue through 2021 and beyond. On behalf of RICC member companies, partners and affiliates, we join the world in recognizing the hard work, compassion and sacrifices of health care and other front-line workers in their fight for us against COVID-19.

As we enter 2021, we are optimistic that RICC member companies will find efficient ways to continue the important initiatives that we feel will help the Alberta government meet its mandate for caribou recovery.

Amit Saxena , M.Sc., P.Biol., R.P.Bio

Chair, Regional Industry Caribou Collaboration
Canadian Natural Resources Limited



The Regional Industry Caribou Collaboration (RICC) is a group of energy and forestry companies working collaboratively across tenure and lease boundaries focused in the northeastern Alberta caribou ranges. These ranges overlap substantially with RICC members' oil sands and forest management operations in the area.

Regional Industry Caribou Collaboration (RICC)

Caribou recovery is a shared government, public and private sector responsibility, with planning led by government ^[1]. Lease and tenure-specific mitigations undertaken by companies are important to minimize local impacts on individual animals, however population-level benefits stem from range-level actions that require collaboration beyond individual company boundaries.

MISSION

Enable the restoration of caribou habitat and recovery of caribou populations through collaborative, range-based efforts

GOAL

Participate in collaborative research and active, science-based adaptive management activities within the defined RICC area

OBJECTIVES

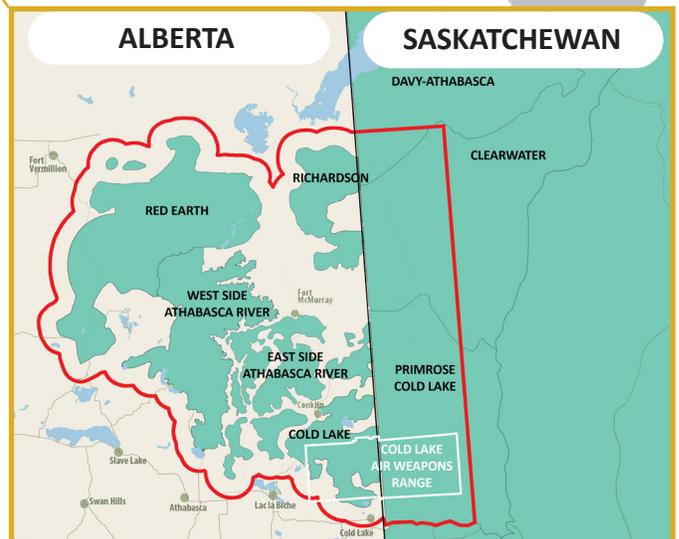
- Coordinate industry restoration of disturbance in priority areas
- Support and lead scientific research on caribou ecology and caribou-predator-landscape relationships
- Support and lead investigative trials on restoration methods, effectiveness, and wildlife responses

1. Government of Alberta. 2011. *A Woodland Caribou Policy for Alberta*. Alberta Environment and Parks. Edmonton, AB.



RICC Study Area

The RICC study area encompasses the Cold Lake, East Side Athabasca River (ESAR), West Side Athabasca River (WSAR), Red Earth and Richardson boreal caribou ranges, and portions of adjacent boreal caribou ranges in Saskatchewan. RICC's primary focus is on supporting recovery within the Alberta caribou ranges, as this is where RICC industry partners have operations. The Saskatchewan boreal caribou ranges provide less disturbed reference areas for comparison. The study area also includes a 20-kilometer buffer around the caribou ranges, incorporating adjacent landscapes where habitat alteration effects may influence caribou within the ranges.



State of Boreal Woodland Caribou in Alberta

Boreal woodland caribou populations are declining over most of their Canadian range, and they are listed as Threatened under Canada's Species at Risk Act (SARA). Many complex and interconnected factors are contributing to the decline of boreal caribou, such as land use, forest fires, and warming climate, which are resulting in increased predation on caribou.

To increase chances of achieving self-sustaining populations, the federal Recovery Strategy recommends a maximum disturbance level of 35% in each caribou range, with disturbance defined as human footprint plus a 500-meter buffer, and forest fires less than 40 years old. At present, all caribou ranges in the oil sands region are beyond this recommended 35% disturbance threshold. The Government of Alberta has committed to decreasing the amount of disturbance to this level or better, as described in Section 11 agreement between the Government of Canada and Government of Alberta ^[2].



■ Geographic distribution of woodland caribou, boreal population in Canada

□ Regional Industry Caribou Collaboration study area



2. Environment and Climate Change Canada and Alberta Environment and Parks. 2020. Agreement for the Conservation and Recovery of the Woodland Caribou in Alberta.

Habitat Restoration

Linear features, including legacy seismic lines, have been implicated in caribou declines mostly through their facilitation of predator movement and increasing predator access to -- and overlap with -- caribou. The Government of Alberta has estimated there are 150,000 kms of legacy seismic lines within caribou ranges that need treatment to improve landscape suitability for caribou. Restoration of these seismic lines to reduce predation pressure is a key management tool to support caribou recovery in Alberta. Member companies recognize our role in habitat restoration, and have assessed or treated over 1,800 km of legacy seismic lines since the inception of RICC. In 2020 alone, RICC member companies treated 46 km of seismic lines, despite significant logistical limitations and economic adversity.



■ Restoration treatment townships

Using silvicultural tools like mounding, coarse woody material placement, and planting over 1 million seedlings, RICC companies have initiated habitat recovery across an area of over 800 km² in Cold Lake, 515 km² in ESAR and 5 km² in WSAR caribou ranges ^[3]. RICC also has an implementation-ready plan to address 268 km in ESAR.

Since RICC began, > 1,800 km of seismic lines have received treatments or were assessed as naturally regenerating

431 km
assessed, found to be naturally regenerating

1,406 km
actively treated and/or planted

3. Based on the definition of disturbance as defined in the federal Recovery Strategy (2012).

Supporting Science To Understand Caribou Declines And Caribou-Predator-Landscape Relationships

New research: Wolves Contract Their Home Ranges in Areas of High Habitat Alteration

Previous research from RICC's program showed that wolves travel faster and farther on linear features such as seismic lines and roads, increasing their hunting efficiency, suggesting that restoration of these features may be able to reduce wolf hunting efficiency – but a question remains: how do linear features influence wolf behaviour and space-use at a larger scale? With the support of RICC, Melanie Dickie (CMU) combined wolf telemetry data from RICC and three other study areas from British Columbia, Alberta, and Saskatchewan that span a range of linear feature densities. By doing so, we learned that wolf home ranges are smaller in areas with higher linear feature densities, suggesting that in areas with more linear features, not only are wolves able to move faster and farther, but that they can also defend smaller home ranges. Smaller home ranges mean that more home ranges can fit into a space. All else being equal, this links linear features to increased wolf densities.

But there is an interesting twist – preliminary results also suggest that the effect of linear features is disproportionately strong in low-productivity habitats where prey resources are limited. These results suggest that linear features provide more benefit to wolves in areas where prey are more scarce. This may mean that restoring linear features in low-productivity habitat may be more beneficial to caribou by increasing wolf home range size – which is predicted to reduce wolf density and ultimately reduce wolf encounters with caribou. RICC members are excited to see how this research continues to unfold.

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Ecosystem Monitoring Camera Program

RICC continued monitoring existing camera arrays in Cold Lake, ESAR, WSAR and Saskatchewan boreal plains caribou ranges and deployed new wildlife cameras in Richardson.

Partners: Caribou Monitoring Unit (CMU), Government of Alberta, Cold Lake First Nation, University of Alberta.

Preliminary findings from the Ecosystem Monitoring Camera Program include:

Influence of caribou management actions on prey and predator densities over time

Predator reductions, which are conducted by the Government of Alberta, and habitat restoration are two of the main management activities being used to recover caribou and their habitat in Alberta. Understanding how the mammalian community responds to caribou recovery actions, and how these various conservation levers combine to influence populations at the range-scale, is necessary. Preliminary results from the camera program found that the density of moose and deer did not increase over time in the wolf reduction only area relative to the reference area. Conversely, black bear densities increased over time within the wolf reduction only range more so than in other ranges. These results suggest that removing the apex predator may result in an increase in less dominant predators, but not in moose and deer densities - at least in the short-term. Additional years of monitoring will provide clarity in these responses.



Relative influence of human habitat alteration on deer densities

Increased deer presence and abundance within caribou range is linked to increased predation on caribou populations by supporting high predator densities. Therefore, understanding the factors that influence deer abundance and distribution has important implications for management. Human habitat alteration has been implicated in deer expansion by improving habitat suitability for deer. Additionally, over-winter survivorship of deer has increased due to less severe winters, which thus facilitate deer population increases. The interaction between these two factors increases the abundance and distribution of deer populations in boreal forests. Because human habitat alteration decreases as we move northward but climate also becomes harsher, these two factors are confounded, making their relative effects on deer populations difficult to disentangle. Saskatchewan and Alberta landscapes provide a unique opportunity to compare deer densities in similar climates, but with varying levels of human habitat alteration. Preliminary results from the camera program found that deer densities declined rapidly moving northward in both the low and high habitat alteration ranges. This suggests that human habitat alteration alone does not increase deer populations. However, there is likely an interaction between human habitat alteration and climate that this project will continue to explore.



Relative influence of fire on deer densities

In 2020 the Ecosystem Monitoring Camera program was expanded to include the Richardson caribou range. Fire is hypothesized to create young seral habitat, which supports high deer and moose densities and therefore more predators. While densities will be confounded by latitude (because Richardson is farther north than other ranges being monitored), monitoring Richardson will help to disentangle the effect of fire from human habitat alteration. Preliminary results are not yet available.



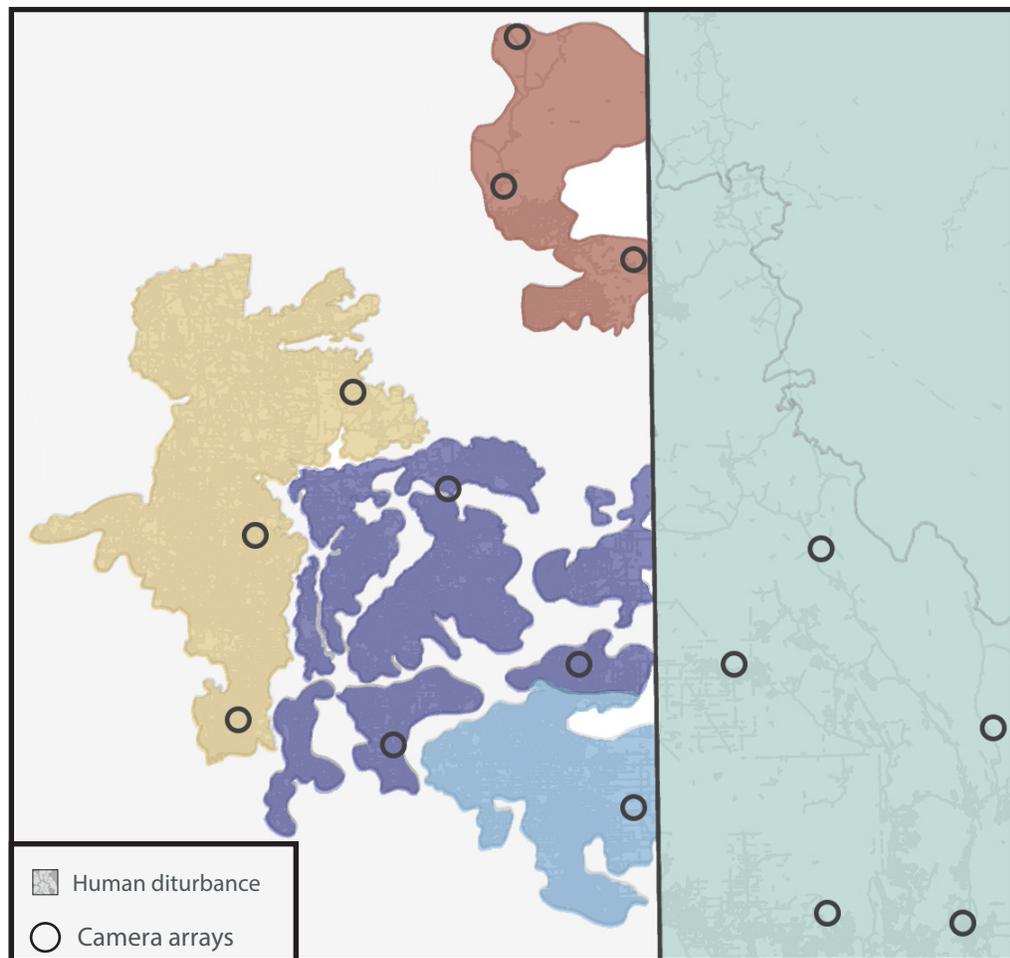
Exploring the drivers behind white-tailed deer density in Canada’s northern boreal forests will help to understand the mechanisms behind increased predation on woodland caribou. Acknowledging that multiple management actions are needed to recover some caribou populations in the short term, we expect this work to help inform which management actions may combine to best support caribou recovery.



Photos captured by remote cameras

Program Objectives

1. Monitor deer at their northern range limit and evaluate the relative influence fire disturbance on mammalian densities
2. Evaluate mammal population response to caribou management actions being implemented in different caribou ranges over time:
 - Predator reductions only (ESAR)
 - Predator reductions and large-scale habitat restoration (Cold Lake)
 - Neither predator reduction nor large-scale habitat restoration (WSAR)
 - Reference areas with low levels of human land-use (Saskatchewan caribou ranges)
3. Evaluate the relative influences of human habitat alteration and climate on white-tailed deer populations



High Alteration

Low Alteration

Caribou Ecology and Recovery Webinar Series

COVID-19 resulted in the cancellation of numerous conferences in 2020, including the Alberta Chapter of the Wildlife Society and the North American Caribou Workshop. To facilitate sharing information and maintaining communication between academics, government and industry, RICC sponsored the Caribou Ecology and Recovery Webinar Series, hosted by the Caribou Monitoring Unit and the National Boreal Caribou Knowledge Consortium.

Within the webinar series, Melanie Dickie, supported by RICC, presented preliminary research from Cenovus Energy Inc.'s Linear Deactivation (LiDea) mammal monitoring program. The series has successfully engaged the community, with local and international participants frequently attending webinars. Because of its success in 2020, the webinar series is continuing into the spring of 2021 with over 300 participants registered for the series.

Presentations and Publications:

- Dickie, M., McNay, R.S., Sutherland, Shermann, G., and M. Cody. 2020. Recovery actions for woodland caribou: Predicting and testing the efficacy of habitat restoration. Presented to the Caribou Ecology and Recovery Webinar Series.
- Laurent, M., Dickie, M., Becker, M., Serrouya, R., Boutin, S., 2020. Evaluating the mechanisms of landscape change on white-tailed deer populations. *J. Wildl. Manage.* 85: 340-353.
<https://doi.org/10.1002/jwmg.21979>

Partner with us

Current RICC members include Canadian Natural, Alberta-Pacific Forest Industries Inc., Athabasca Oil Corporation, Cenovus Energy Inc., CNOOC, Imperial, MEG Energy and Suncor, but is open to any interested industry parties. We work with academia, the Government of Alberta, the Alberta Biodiversity Monitoring Institute (ABMI) Caribou Monitoring Unit and other organizations to meet our objectives. RICC officially became a Canada's Oil Sands Industry Alliance (COSIA) Joint Industry Project in 2014.

Learn more about our collaboration and how to become a member at:

www.cosia.ca/initiatives/land/regional-industry-caribou-collaboration



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