



NWT Cumulative Impact Monitoring Program (NWT CIMP)

A source of environmental monitoring and research in the NWT. The program coordinates, conducts and funds the collection, analysis and reporting of information related to environmental conditions in the NWT.

NWT Environmental Research Bulletin (NERB)

A series of brief plain language summaries of various environmental research findings in the Northwest Territories. If you're conducting environmental research in the NWT, consider sharing your information with northern residents in a bulletin. These research summaries are also of use to northern resource decision-makers.

Elders' stories of Jean Marie River: Impacts of permafrost thaw and forest fires on boreal caribou habitat

The Jean Marie River First Nation (JMRFN) is concerned about the long-term cumulative impacts of permafrost thaw and forest fires on boreal caribou habitat. To help address this community concern, changes in caribou habitat in JMRFN traditional territory were documented using traditional knowledge and scientific knowledge. Areas where the quality of boreal caribou habitat has been impacted by permafrost thaw and forest fire were identified and the change rated. It was determined that the cumulative impact of these two factors resulted in a decline in the quality of caribou habitat.

Why is this research important?

The community of Jean Marie River is concerned with environmental changes occurring in our traditional territory. What affects the land affects our way of life and our culture. The decline in the quality of caribou habitat is a concern because hunting caribou is an important traditional food and source of spiritual renewal.

What did we do?

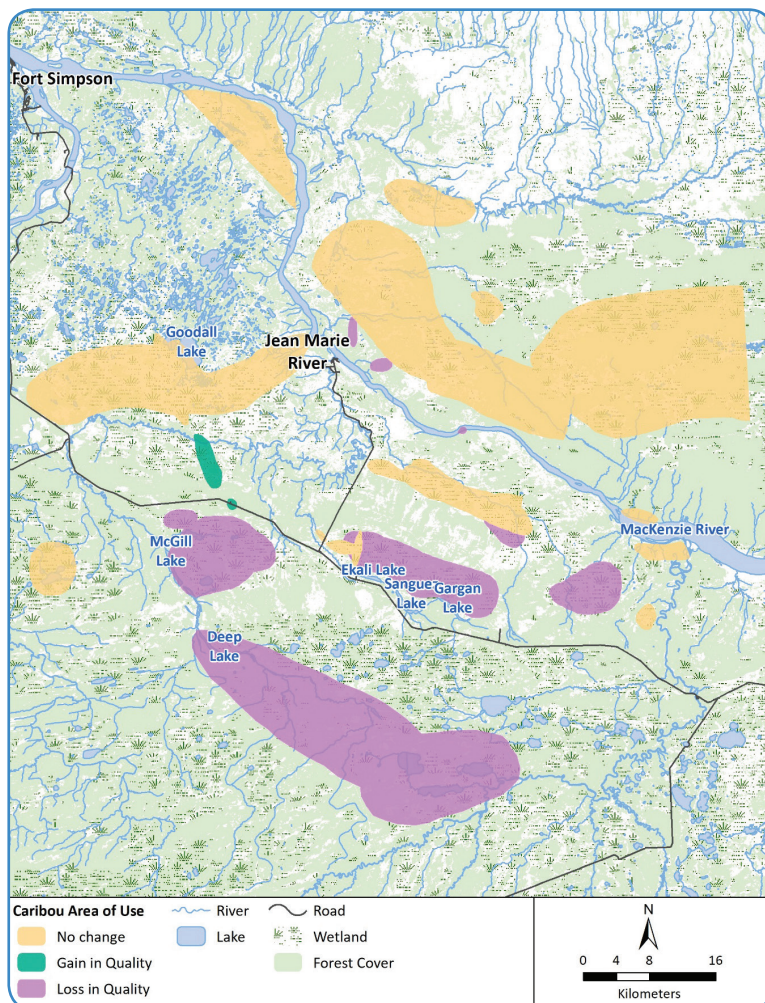
We used a holistic approach, integrating traditional and scientific knowledge, with the emphasis on traditional knowledge. We collected traditional knowledge during one-on-one interviews with Elders and scientific knowledge from existing datasets. We analysed the content of the interviews and conducted a spatial analysis that allowed us to identify areas where the boreal caribou habitat has changed.



Margaret Ireland (JMRFN – far right) and Cyrielle Laurent (Yukon Research Centre – far left) conducting a traditional knowledge interview with Billy Norwegian (JMRFN).
(Credit: Yukon Research Centre)

What did we find?

- Project results showed that the quality of boreal caribou habitat has decreased in 35% of the areas, remained stable in 64% of the areas, and increased in 1% in the areas.
- Evaluation of the impact of forest fire and permafrost thaw showed that the latter has a particularly high impact on boreal caribou habitat, with 88% of boreal caribou areas affected.
- Forest fire has a significant impact, with 29% of boreal caribou areas affected.
- Interview participants qualified that the current state of the boreal caribou habitat in the Jean Marie River area as being of 'medium' quality, and is continuing to decline in quality.



Caribou habitat change in quality from analysis of interview data.

What does this mean?

Results show boreal caribou habitat conditions are being affected by forest fires and permafrost thaw. This may affect traditional harvest. It is likely that many other communities face similar challenges. Strategies such as food security are needed at the community level in order to address these challenges.

What's next?

We hope to continue to integrate traditional knowledge with additional scientific knowledge to evaluate and monitor the loss and rate of changes to boreal caribou habitat as well as locate sustainable boreal caribou habitat around our community.

Sharing our research

Jean Marie River First Nation (JMRFN) has been working on climate change since 2012. In collaboration with researchers, we have developed a permafrost map, studied mercury content in permafrost, and conducted this project on caribou habitat. We want to share our research broadly, so please contact us at jmrfn.com

Contacts

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Recommended Reading:

Laurent, C., Perrin, A., Ireland, M., Bull, H. TBD. Elders' stories of Jean Marie River: Impacts of permafrost thaw and forest fires on boreal caribou habitat. Northern Climate Exchange, Yukon Research Centre, Yukon College.