2025 Volume 10 | Issue 81

Government of
Northwest Territories

Research Bulletin

NWT Cumulative Impact Monitoring Program

Boreal Caribou Habitat Enhancement: Lichen Habitat Restoration on Disturbed Sites

Summary

The Boreal Caribou Habitat Enhancement Project is a study to restore lichen habitat on disturbed sites. This collaboration between the Deninu Kųé First Nation (DKFN) and LGL Limited (LGL) aims to accelerate the restoration of functioning winter range for boreal caribou in the South Slave Region. The Project also developed progressive reclamation methods to allow for end land uses on disturbed lands that align with DKFN stewardship goals. The main objective of the project is to establish a terrestrial lichen transplant and monitoring program at the Pine Point mine, specifically on areas that were impacted by past mining activities.

Transplanting lichen into full enhancement quadrats. Individuals in the photo (from left): Ried Lukaitus (LGL), Preston Lafferty (DKFN). Photo credit: Marc d'Entremont (LGL)

Why is This Important?

Terrestrial lichens can take between 40 and 70 years to recover from disturbance to levels capable of supporting local caribou populations. If successful, seeding impacted areas with lichen fragments could speed the recovery of critical boreal caribou habitat and return areas to productive and functioning lichen habitat in less time.

What Did We Do?

In the summer of 2024, we established 18 lichen transplant sites at the old Pine Point Mine. Each site consisted of two 30 meter (m) transects with eight 1m by 1m quadrats which were treated with full, partial, minimal or no enhancement. Enhancement included scarifying the soil and placing bark mulch in the quadrat. We placed the same quantity of lichen (3 litres) in each quadrat, except for the quadrats with no enhancement, and affixed lichen fragments to reduce losses potentially caused by wind. We primarily transplanted the three most common species of native reindeer lichen: *Cladonia mitis*, *C. rangiferina*, and *C. stellaris.*

What Did We Find?

Terrestrial lichen species were successfully transplanted at 18 sites. In total, 648 litres of lichen were transplanted. All quadrats were wetted down and photo-documented.

- For each 1 m by 1 m quadrat, except for the sites with no transplants, lichen coverage represented only 10% of the total quadrat area.
- *C. mitis* (5.1%) and *C. stellaris* (4.2%) were the two predominant species included on the transplant sites.

What Does This Mean?

Previous mine activities in the area have impacted the capability and use of boreal caribou habitat and lichen communities. Restoration of boreal caribou habitat in disturbed areas can support the reversal of cumulative impacts in the South Slave region, improving range conditions for the species. If successful, lichen transplant methods will allow DKFN to remediate previous cumulative impacts, specifically those from mining, in their traditional territory.

What's Next?

We will continue to measure the speed of habitat recovery by monitoring the persistence and growth of transplanted lichen over a 10-year period, with monitoring planned in years 1, 3, 6, and 10 post-treatment.

For More Information

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Explaining the lichen collection techniques. Individuals in the photo (clockwise from left): Bridgette McKay (DKFN), Roxanne Edjericon (DKFN), Raymond Sayine (DKFN), Preston Lafferty (DKFN), Marc d'Entremont (LGL), Keegan Meyers (LGL), Ried Lukaitus (LGL), Krysia Tuttle (LGL). Photo credit: Bryce McKinnon (LGL)