

UPDATES

[Tanya Yeomans](#) has successfully defended her incredible transdisciplinary MSc thesis [Troubling the Pixel](#). Great job Tanya!

BERA Co-PI [Maria Strack](#) was just awarded one of Canada's highest academic honours. Not only did she have her [Canada Research Chair in Wetland Climate Solutions renewed](#), but she was also advanced to a Tier 1. Congratulations Maria!

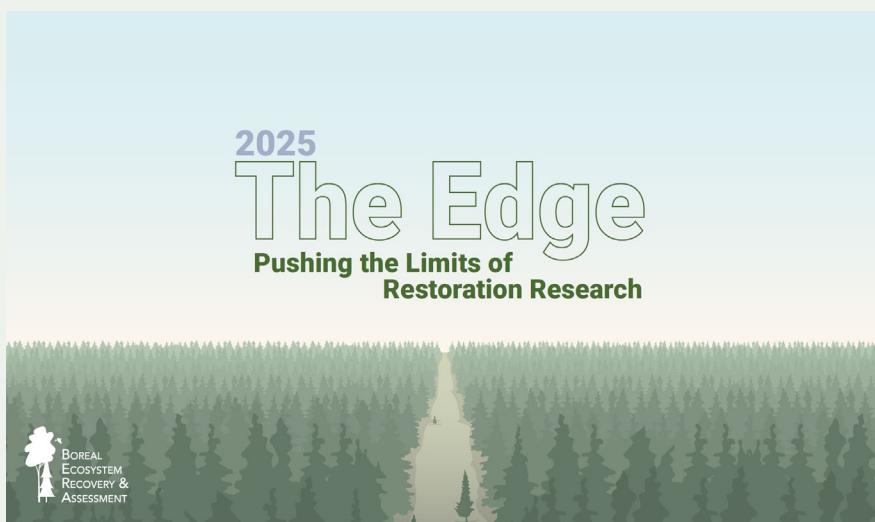
[Colleen Sutheimer](#) and [Colette Shellian](#) both took home field work awards stemming from their efforts in the 2024 field campaign. Colette won the [DG Smith Award for Excellence in Field Research](#). Colleen was recognized for exhibiting [exemplary safety leadership](#). Wow!

RESEARCHER PROFILE

[Xue Yan Chan](#) is a MSc student and member of the Remote Sensing Team at the University of Calgary. Her research uses drone-based data to investigate the effects of repeated seismic surveys on peatland attributes. Xue Yan is also one of the co-founders of [Falcon & Swift Geomatics](#): the geomatics startup that is helping to translate BERA's research results to practice. Xue Yan is always open to connecting with others working at the intersection of drones, remote sensing, and environmental monitoring.



BERA's 2025 Synthesis Report Released



BERA conducts research on every phase of restoration — planning, implementation, and monitoring — to provide practitioners with the key knowledge, tools, and techniques they need to enhance understanding and improve outcomes of restoration activities. Read all about our research highlights from the past year [here](#)!



Assessing the combined effects of forest harvest and seismic lines on forest recovery

In Alberta's boreal region, more frequent and extensive human-caused disturbances from oil and gas exploration (e.g., seismic lines) and forest harvest (e.g., cut blocks) have large and complex impacts on how forests regenerate. When planning restoration treatments, the combined effects of overlapping features must be considered.

We investigated whether forest harvest 'erases' untreated seismic lines within harvested areas by comparing:

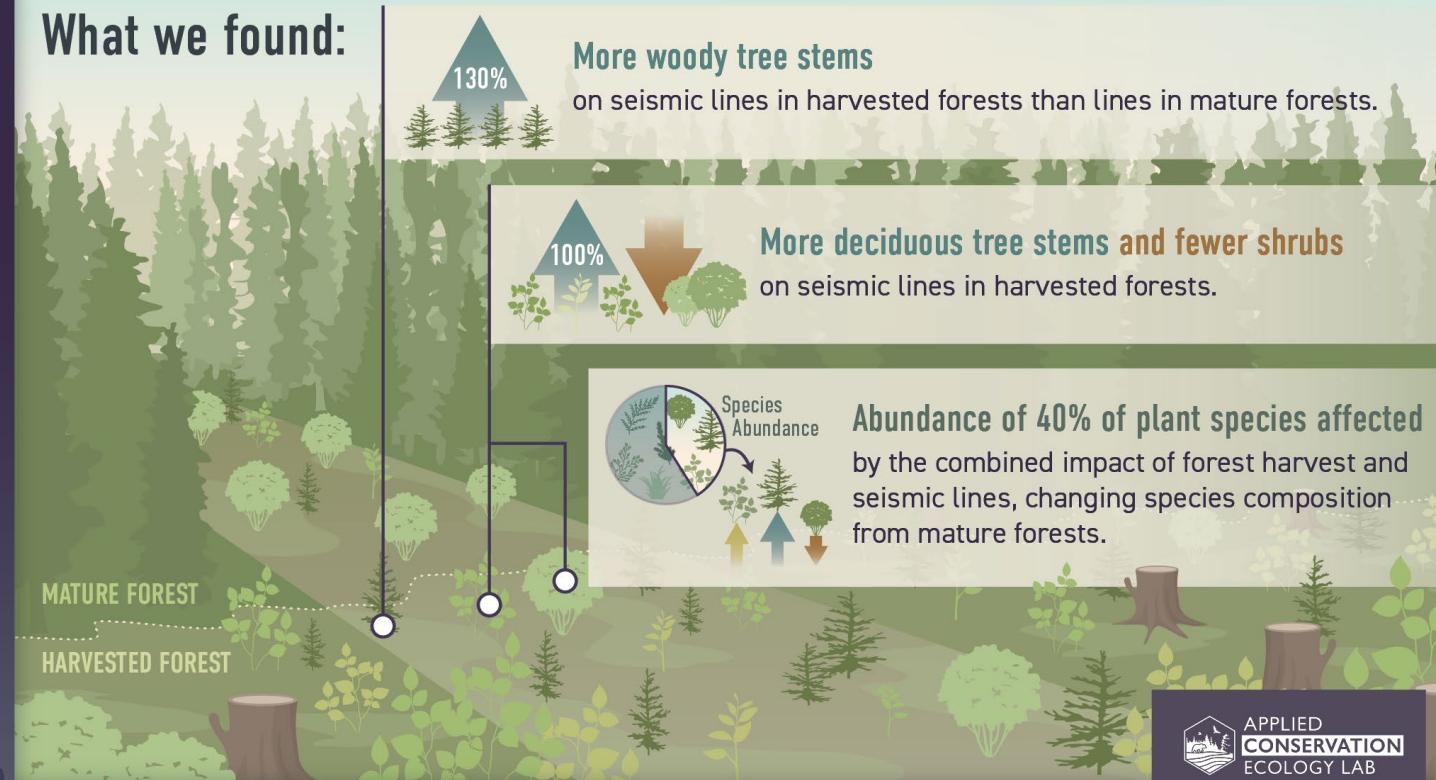


UNHARVESTED MATURE FOREST
ON LINE OFF LINE

HARVESTED FOREST
ON LINE OFF LINE

Legend for vegetation amount and type

What we found:



The higher density of tree stems on seismic lines in cut blocks suggests that forest harvest around seismic lines **does 'erase'** seismic lines and helps the forest recover. However, the combined effects of seismic lines and forest harvest does alter plant species composition illustrating some legacy effects. This has potential implications which require further long-term monitoring.

[Leonardo Viliani's](#) latest paper explores the effect of spatially overlapping disturbance features – seismic lines and forest-harvest areas – on vegetation-recovery patterns.

- Viliani, L. and S.E. Nielsen. 2025. Composite effects of forest harvests and seismic lines influence re-establishment of trees and shrubs in Alberta's mesic upland boreal forest. *Forest Ecology and Management*. Volume 580, 15 March 2025, 122506.
<https://doi.org/10.1016/j.foreco.2025.122506>

APPLIED
CONSERVATION
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BOREAL
ECOSYSTEM
RECOVERY &
ASSESSMENT
VILIANI AND NIELSEN, 2025
DOI: 10.1016/j.foreco.2025.122506
INFOGRAPHIC BY FUSE CONSULTING

Seismic lines influence local hydrological conditions



WEILAND ET AL., 2024
DOI: 10.1002/HYP.70032

INFOGRAPHIC BY FUSE CONSULTING

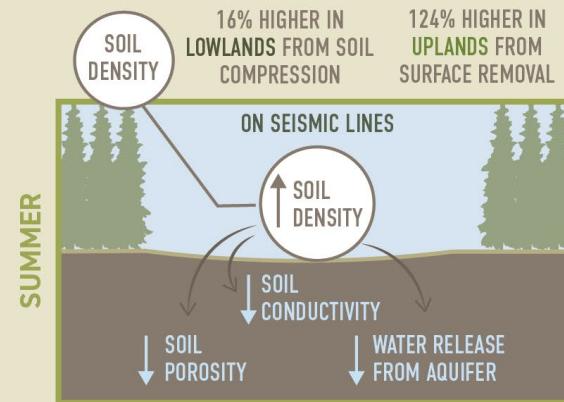
Seismic lines fragment vast areas of northern Alberta for oil and gas exploration. Ensuring that vegetation grows back on these lines is a key priority as these disturbances contribute to threatened woodland caribou declines. Yet, once seismic lines are cut, trees often struggle to grow back, likely due to altered soil and moisture conditions.

In 2021 and 2022, we compared soil and moisture properties on seismic lines with the adjacent forests in upland and lowland areas over the summer and winter.

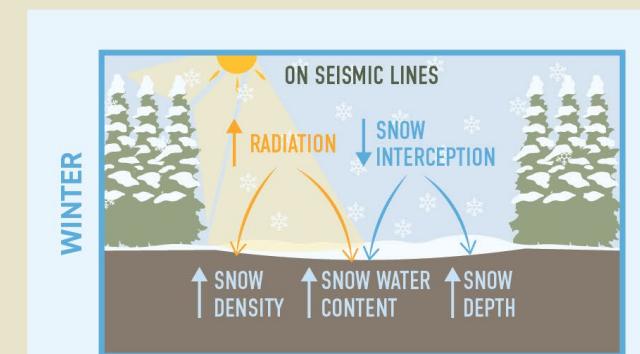
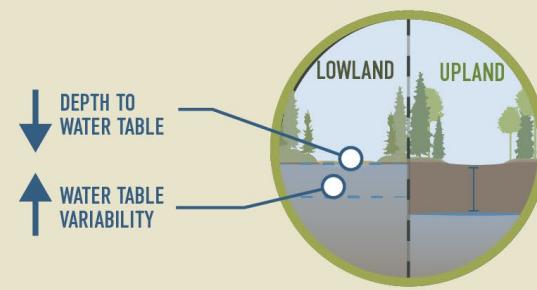
Implications

Together, these factors influence how well vegetation grows back on seismic lines after they are created. Resource managers can use this information to better understand site limiting factors and vegetation recovery time, which can support long-term threatened caribou habitat recovery.

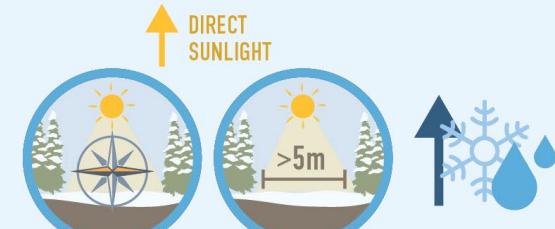
In summer and winter, soil and hydrology on seismic lines differed from the adjacent undisturbed forest.



Lowlands were more affected than uplands



Highest snow water content on East-West facing and wide lines



[Lelia Weiland's](#) paper pushes forward our understanding of the tricky effects seismic lines has on soil hydrophysical properties, hydrological properties, and snow-accumulation patterns.

- Weiland, L., S. Ketcheson, M. Strack, and G.J. McDermid. 2025. The Influence of Seismic Lines on Local Hydrology and Snow Accumulation in the Boreal Region of Northern Alberta. *Forest Ecology and Management. Hydrological Processes* 38 (12), e70032. <https://onlinelibrary.wiley.com/doi/10.1002/hyp.70032>