BERA NEWS

Winter 2025

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!

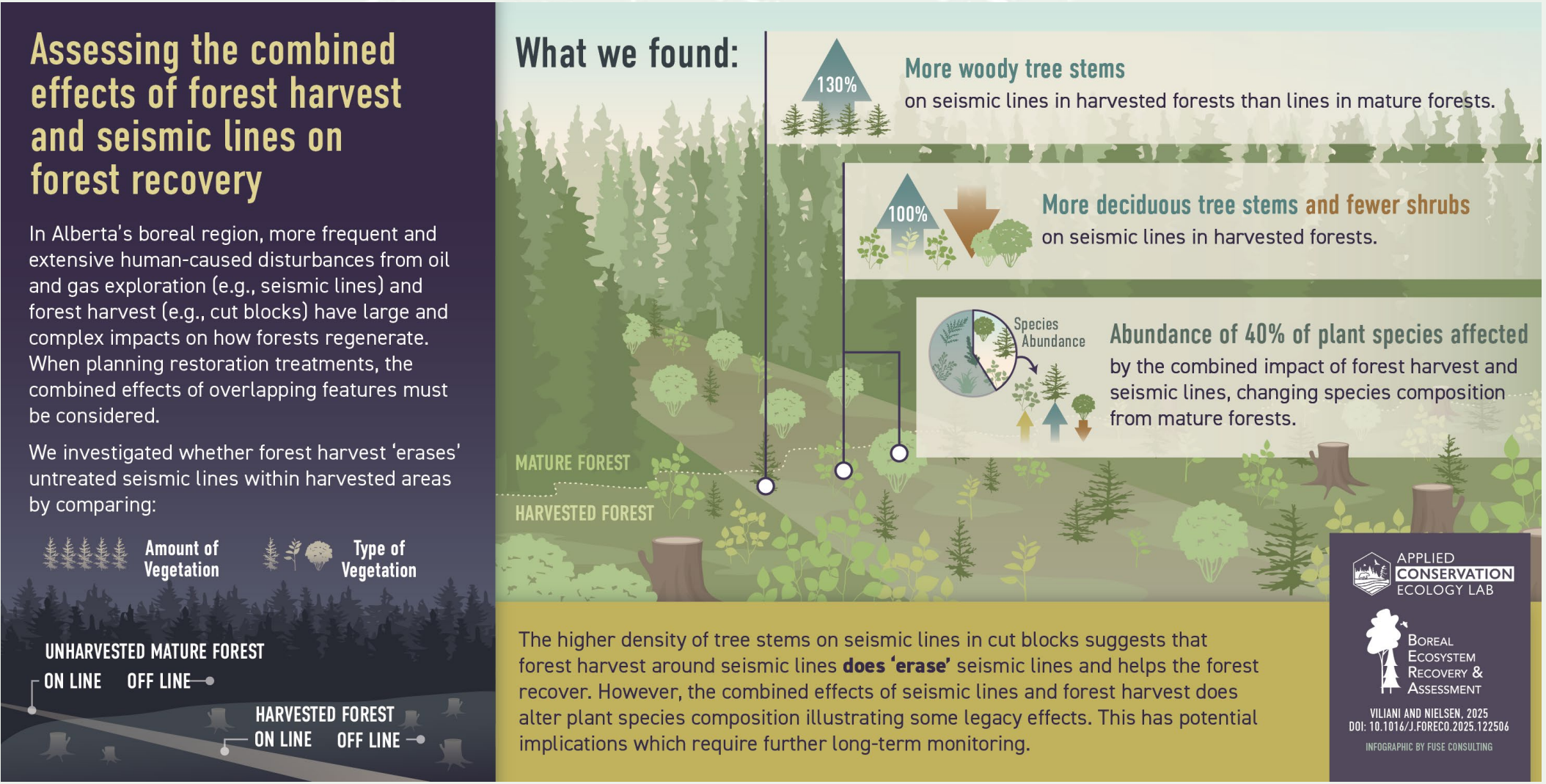
Colleen Sutheimer and Colette Shellian both took home field work awards stemming from their efforts in the 2024 field campaign. Colette won the DG Smith Award for Excellence in Field Research. Colleen was recognized for exhibiting exemplary safety leadership. Wow!

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!

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.



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

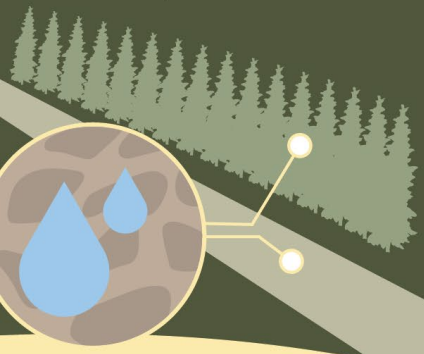
Seismic lines influence local hydrological conditions

BOREAL ECOSYSTEM RECOVERY & ASSESSMENT

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.

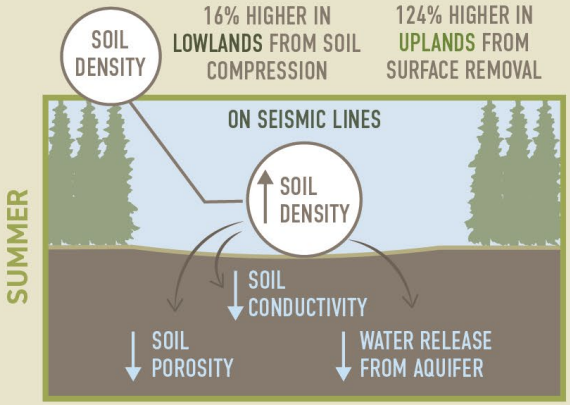


In 2021 and 2022, we compared soil and moisture properties on seismic lines with the adjacent forests in upland and lowland areas over the summer and winter.

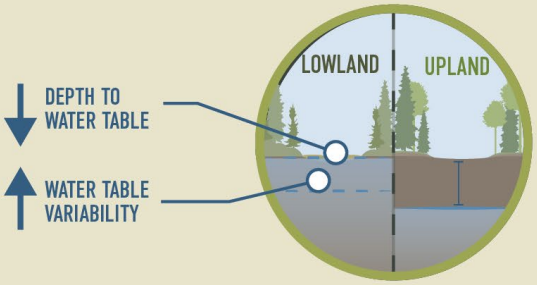
Implications

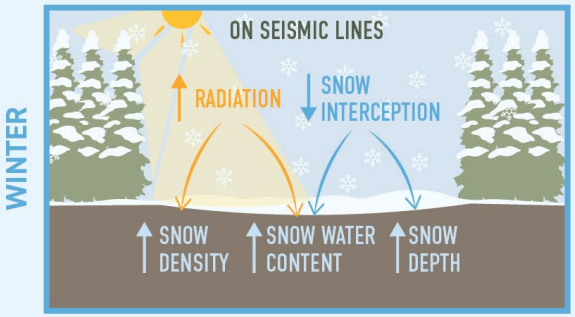
Together, these factors influence how well vegetation grows back on seismic lines after they are created. Resource managers can use this information to better understand site limiting factors and vegetation recovery time, which can support long-term threatened caribou habitat recovery.

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

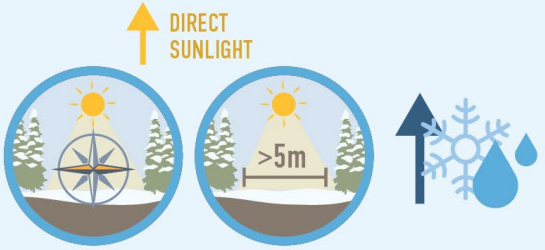


Lowlands were more affected than uplands





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