BERA NEWS

UPDATES

Colette Shellian was awarded a Canada Graduate Doctoral Scholarship (CGS-D) from NSERC. Congratulations Colette!

BERA team members Julia Linke, Michael Cody, and Greg McDermid participated in a community workshop with Chipewyan Prairie First Nation members in Janvier, contributing to caribou-habitat restoration discussions in the Bohn range. Could this be part of a BERA 3?

As always, BERA team members were heavily involved in the spring conference circuit; too many to list. Maryam Bayatvarkeshi likely went the farthest: presenting her PhD work at the European Geophysical Union meeting in Vienna, Austria

Field Work 2025

BERA teams are once again spread across the boreal. Many thanks to our partners for facilitating and supporting our work!
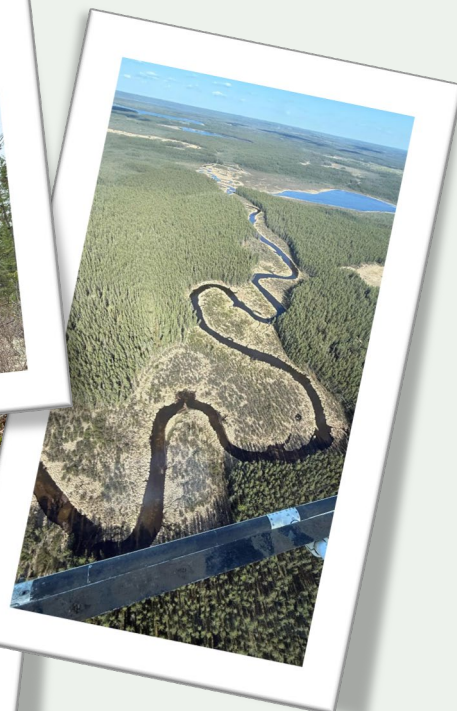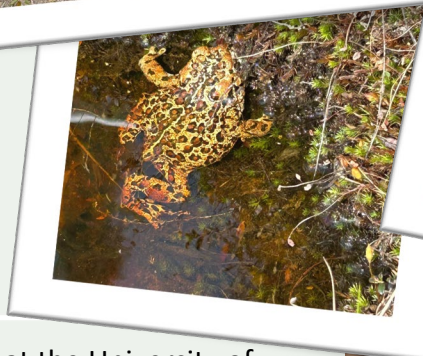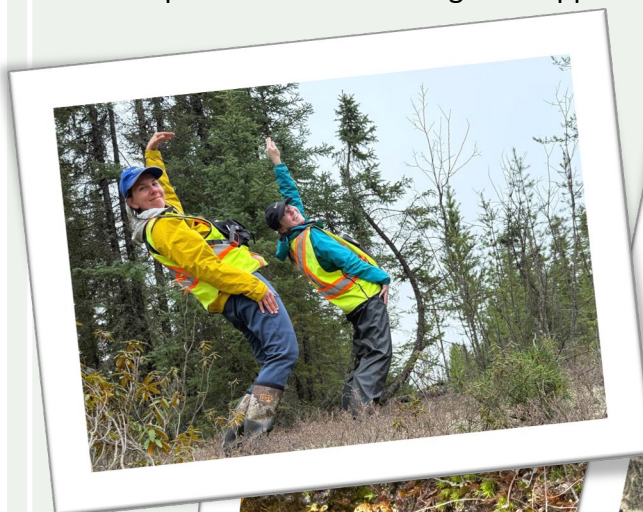
RESEARCHER PROFILE

Nazia Tabassum is a PhD student at the University of Waterloo and a member of BERA's Ecohydrology Team. Nazia's research focuses on carbon dynamics in boreal peatlands, examining how seismic lines and restoration treatments, such as inverted mounding, influence methane and carbon dioxide fluxes. Outside of research, Nazia enjoys teaching, science communication, photography, and exploring nature.

Mapping Tracks and Trails Using Remote Sensing

Tracks and trails provide valuable information about how wildlife and humans use and move across landscapes. Mapping these features improves our understanding of movement patterns and how they are influenced by natural and human-caused landscape features.

We used **remote sensing and deep learning** to map tracks and trails across northern Alberta's boreal forest.

LIDAR

59 KM² STUDY AREA

Track and trail density varied across ecosites and around human-caused disturbances.
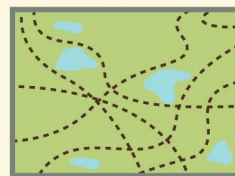
UPLANDS
high canopy cover and firmer soils
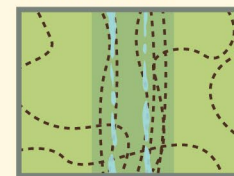
⬇ LOWER TRACK AND TRAIL DETECTION

LOWLANDS
low canopy cover and compressible soil

⬆ HIGHER TRACK AND TRAIL DETECTION

SEISMIC LINES
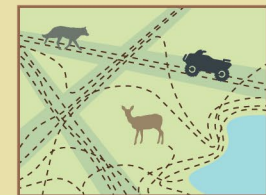**4.4X** higher concentration of tracks and trails than off seismic lines

Seismic lines covered only 7% of the study area but contained 27% of all detected trails and tracks.

Implications

LiDAR and deep learning provide exciting new tools to map tracks and trails across large landscapes.

Linear features alter human and wildlife movement. When wildlife and humans use linear features as movement corridors, disturbed areas struggle to recover. Mapping tracks and trails around disturbed areas can support future research and management decisions to mitigate these effects.

BOREAL ECOSYSTEM RECOVERY & ASSESSMENT

The latest paper from the Remote Sensing team shows how trails and tracks from wildlife and off-highway vehicles can be mapped over large areas in the boreal forest using LiDAR from drones or piloted aircraft.

- McDermid, G.J., I. Terenteva, and X.Y. Chan. 2025. Mapping Trails and Tracks in the Boreal Forest Using LiDAR and Convolutional Neural Networks. Remote Sensing 17 (9), 1539. https://www.mdpi.com/2072-4292/17/9/1539