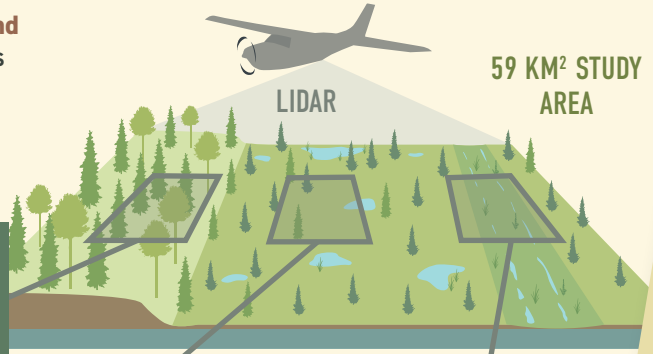
Mapping Tracks and Trails Using Remote Sensing

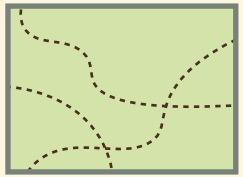
Tracks and trails provide valuable information about how wildlife and humans use and move across landscapes. Mapping these features improves our understanding of movement patterns and how they are influenced by natural and human-caused landscape features.

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



Track and trail density varied across ecosites and around human-caused disturbances.

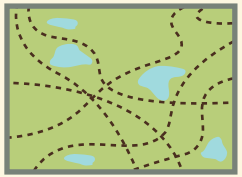
UPLANDS



high canopy cover and firmer soils

↓ LOWER TRACK AND TRAIL DETECTION

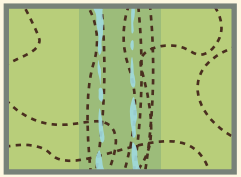
LOWLANDS



low canopy cover and compressible soil

↑ HIGHER TRACK AND TRAIL DETECTION

SEISMIC LINES

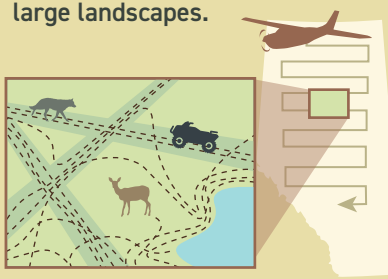


4.4X higher concentration of tracks and trails than off seismic lines

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

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