

SEISMIC REGENERATION ON THE EDGE...

Seismic lines are a key conservation concern in Canada's boreal forests. While usually no wider than a two-lane road, their ecological impacts can extend into the adjacent forest. **Such impacts are called edge effects.**

Seismic lines vary in width and orientation, which may alter the strength of edge effects. Lines exposed to more sun may have a different microclimate that affects how easily trees regenerate.



We examined the influence of width, orientation, and microclimate on tree regeneration on seismic lines and adjacent forests. We sampled interior forests and 24 seismic lines in northeast Alberta that were wide or narrow and oriented east-west or north-south.

Both width and orientation affect the microclimate of seismic lines and adjacent forest:

Temperature and humidity levels varied on lines and time of day compared to forests.



NARROW

WIDE

10m



Light intensity on wide lines was at least 1.5 times higher than narrow lines and up to 3.8 times higher than interior forest.

Edge effects of light intensity extended up to 10m into the forest on wide lines but were restricted to the forest edge on narrow lines.

Tree regeneration was highest where light intensity was highest.

A 10-fold increase in light intensity resulted in 5.8 times more regenerating trees.

Edge effects on the microclimate of seismic lines were most pronounced in wider seismic lines along north (south-facing) forest edges.

These findings provide a better understanding of the factors that promote tree regeneration on seismic lines.

FRANKLIN ET AL. 2021.
DOI:10.1016/J.FORECO.2021.119216



VISIT: BERAPROJECT.ORG