Seismic lines influence local hydrological conditions

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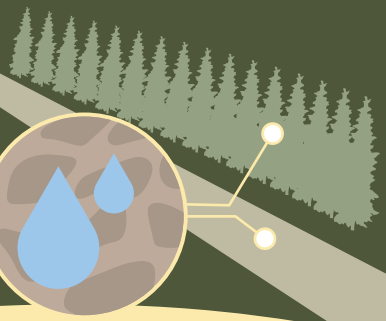
Seismic lines fragment vast areas of northern Alberta for oil and gas exploration. Ensuring that vegetation grows back on these lines is a key priority as these disturbances contribute to threatened woodland caribou declines. Yet, once seismic lines are cut, trees often struggle to grow back, likely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

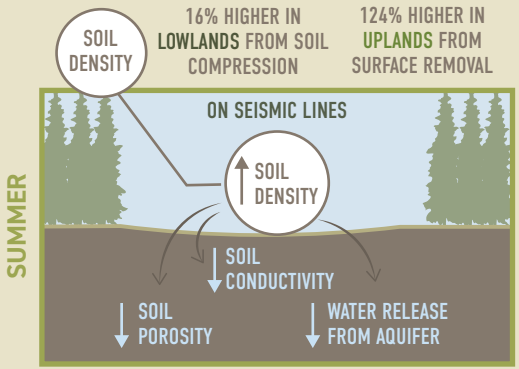


In 2021 and 2022, we compared soil and moisture properties on seismic lines with the adjacent forests in upland and lowland areas over the summer and winter.

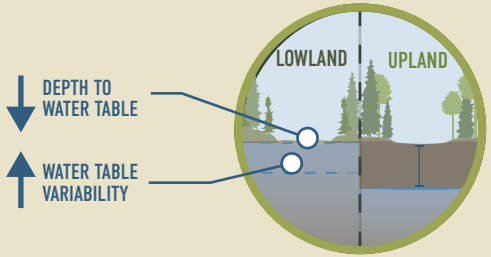
Implications

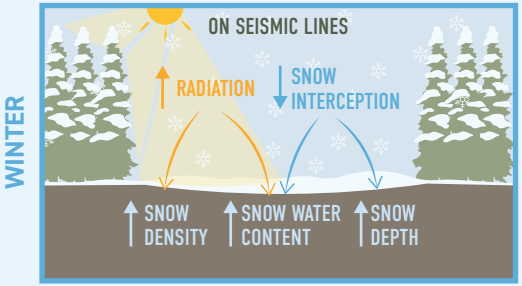
Together, these factors influence how well vegetation grows back on seismic lines after they are created. Resource managers can use this information to better understand site limiting factors and vegetation recovery time, which can support long-term threatened caribou habitat recovery.

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