

PEATLAND TREE REGENERATION

and the influence of wildfires

Seismic line restoration is vital to woodland caribou recovery and overall biodiversity. However, seismic lines are difficult and costly to restore, especially in peatlands. Wildfire can have both positive and negative effects on restoration (it can kill planted seedlings, but also release the seeds of fire-adapted species like black spruce), but how it affects tree regeneration on seismic lines is not well understood.

We compared tree growth on burned and un-burned seismic lines at 143 treed peatland sites and found that although fires can be damaging, they favour natural regeneration. Other factors including microtopography, water depth, and species could also affect recovery patterns.



WATER DEPTH



MICROTOPOGRAPHY



SPECIES

Overall, the density of regenerating trees was greater on burnt sites compared to unburnt sites, both on seismic lines and in the forest.

Tree regeneration (per ha) varied from:



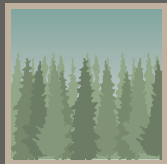
↑
28500
in burnt
lines



↑
18210
in burnt
forest

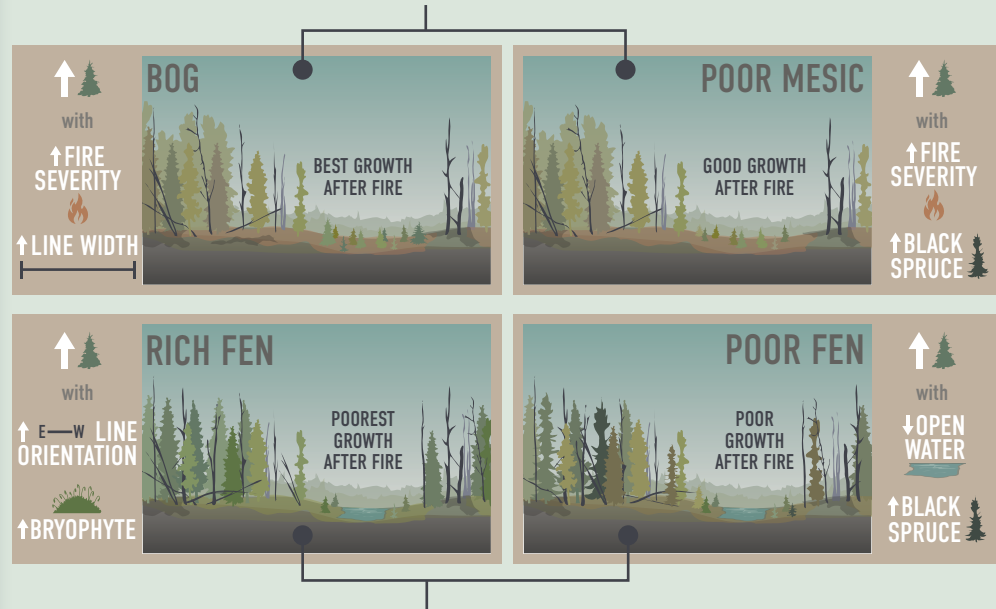


↑
11440
in unburnt
lines



↑
9520
in unburnt
forest

Wildfire increased tree regeneration density in bogs and poor mesic sites



Seismic lines flatten and compress peatlands, resulting in a high-water table and loss of microtopography that doesn't allow trees to grow. In fens, increasing depression depth and wetness limits tree recruitment even after wildfire.

Understanding the impact of wildfire on natural regeneration can help restoration planners better allocate resources. Seismic lines in fens are least likely to benefit from wildfire, which could make them a greater priority for active restoration.

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