

Vegetation Team: Fire Erases Seismic Lines in Jack Pine Forests

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Project Summary

Although much is known about jack pine tree recruitment following wildfire, little is known about patterns of tree recovery on seismic lines and how this varies with fire severity, line width (forest gap size), and line orientation. We examined jack pine forests 5-years post-fire for natural tree recovery across a gradient of fire severity (defined as percent overstory tree mortality) with different seismic line characteristics (forest gap width and orientation). Overall, jack pine regeneration was 2-fold higher on seismic lines compared to adjacent burned forests with stem density increasing with fire severity on both seismic lines and adjacent forests, especially when fire severity was greater than 40%. In fact, jack pine regeneration peaked when stand heights were 16 m and fire severity at 100%. We suggest that observed increases in tree regeneration on seismic lines may be due to: (1) removal of biomass and exposure of mineral soils on seismic lines creating more favorable conditions for jack pine seeds and seedlings; and/or (2) increases in available light resulting in better growing conditions and survival for this shade-intolerant species. Finally, we suggest that natural recovery (passive restoration) of seismic lines should be expected post-fire in jack pine stands and thus active restoration of these sites through silviculture and tree planting may not be the wisest use of limited restoration dollars if fires are locally common.



Management Implications and Lessons Learned

Results from this project informs government and industry on where to focus line reclamation. The examination of fires in xeric jack pine stands suggests that natural recovery (passive restoration) of seismic lines should be expected post-fire for these sites. Restoration efforts here are not therefore recommended if frequent fires are experienced.

Publication(s)

Filicetti, A. T., and Nielsen, S.E. (2018). Fire and forest recovery on seismic lines in sandy upland jack pine (*Pinus banksiana*) forests. *Forest Ecology and Management* 421, 32-39.