

Vegetation Team: Fire Promotes Tree Regeneration on Exploratory Well Pads

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Project Summary

BERA researchers are working to understand the role of wildfire in boreal restoration. Our data suggests that fire promotes natural regeneration on some forest types while impeding it on others. In this study we examined the effects of wildfire on natural regeneration in exploratory well sites in jack pine-dominated forests. Specifically, we examined natural regeneration in post fire conditions on abandoned exploratory well sites and compared these with adjacent forest stands using belt transects and stem counts. We found that tree recruitment was higher on well sites than in adjacent forest plots for areas without fire. A natural lack of recruitment is expected in unburned jack pine stands. However, this trend was reversed at higher fire severity, with high overstory mortality from fire resulting in much higher tree regeneration rates for both forests and well sites. Our results suggest that fire can lead to natural forms of restoration on exploratory well sites in forests with fire-adapted species such as jack pine.



Management Implications and Lessons Learned

Silvicultural restoration treatments, such as planting, in areas dominated by jack pine is likely to be inefficient. The reasons for this are two-fold: (1) jack pine is a shade intolerant species, rarely growing or surviving in the understory; and (2) the jack pine life cycle is dependent on wildfire to release seeds from serotinous cones where new forest stands regenerate with minimum overstory cover. Therefore, the application of tree planting in this forest type is unlikely to result in well-regenerated forests. We propose that reclamation managers consider these ecological constraints.

Publication(s)

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