



2020 Project Summaries

Boreal Ecosystem Recovery & Assessment

An NSERC Collaborative Research & Development Program

Vegetation Team: Mounding Alters Understory Vegetation Communities in Restored Peatlands

Laureen Echiverri, PhD Candidate

University of Alberta, Department of Renewable Resources
echiverr@ualberta.ca

Research Team:

Dr. Scott E. Nielsen and Dr. Ellen Macdonald
University of Alberta, Department of Renewable Resources

Project Summary

In treed peatlands, micro-topographic heterogeneity is an important driver of plant community composition. Disturbance in treed peatlands can result in a loss of micro-topographic variation—primarily the loss of hummocks—with restoration techniques of mounding used to re-establish micro-topographic variation. Although mounding has primarily been used to assist with the tree regeneration, more research is needed to explore how mounding affects understory vegetation and recovery of peatland vegetation on seismic lines. In this study we examined how mounding treatments on seismic lines affected the understory vegetation at different micro-topographic positions. Specifically, our objectives were to: 1) compare the recovery of understory communities on mounded and unmounded seismic lines; and 2) determine how this recovery varies with micro-topographic position. This study was conducted at the Kirby area near Conklin, with seismic lines mounded approximately 15 years after seismic line creation and vegetation sampled three years after mounding treatments. Overall, we found signs of recovery in unmounded seismic lines, with higher shrub and total understory cover at the ‘tops’ of the small, natural hummocks than at lower micro-topographic positions—much like the trends in adjacent reference forests. In contrast, mounding treatments changed the understory plant communities, with bryophyte cover being the most reduced.



Management Implications and Lessons Learned

Contrary to previous findings, and in particular for tree recruitment, our results suggest that the understory vegetation on unmounded seismic lines are recovering—without need for intervention. In contrast, mounding treatments altered the understory vegetation communities. Our results highlight the need for more research on the impact of mounding, especially on bryophyte communities. Based on our results, we would caution the widespread use of mounding treatments on seismic lines in treed peatlands without further research, as our findings suggest it may cause more harm to the recovering understory vegetation.

Publication(s)

Echiverri, Macdonald, and Nielsen. (in review). Is intervention necessary? Signs of recovery in the understory communities of linear disturbances in treed peatlands. *Canadian Journal of Forest Research*.