Boreal Ecosystem Recovery & Assessment
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ECOLOGICAL TEAM FALL 2018: *EFFECTS OF MOUNDING ON THE UNDERSTORY REGENERATION OF SEISMIC LINES IN TREED PEATLANDS*

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Project summary

In treed peatlands, micro-topographic heterogeneity is an important driver of plant communities. Disturbance in treed peatlands can result in a loss of micro-topographic variation—primarily the loss of hummocks. As a restoration technique, mounding can re-establish micro-topographic variation and has been shown to create suitable conditions for sapling survival in peatlands drained for forestry. In Alberta, the use of mounding is being explored to assist with the regeneration of areas affected by in-situ mining. Mounding has shown some success for sapling development on abandoned wellpads; however additional research is needed to explore how mounding affects the understory vegetation and the recovery of seismic lines. In addition, little is known as to the efficacy of a delayed application of the mounding treatment. In this study we examine how mounding affects the understory vegetation at different micro-topographic positions. Our objectives are 1) to compare the recovery of understory communities on mounded and unmounded seismic lines and 2) to determine how this recovery varies with micro-topographic position.

Progress to date

I started on this project in January 2018 and data collection was completed in August 2018. We sampled 24 seismic lines (10 mounded and 14 unmounded) and the adjacent treed peatlands; the communities in the adjacent treed peatlands will be used as a reference for recovery. For each seismic line, we sampled three mounds at four micro-topographic positions− top of the hummock, slope, level, and hollow. At each position, we sampled the bryophyte and vascular plant community in 20 cm by 20 cm quadrats. Preliminary data analysis and vascular plant identification is currently underway and will be completed by January 2019. Bryophyte identification will be completed by May 2019.

Management implications

Studies suggest that seismic line regeneration is slowest in treed peatlands. It is hypothesized that this delay is due to the loss of hummocks, which provide an aerobic rooting zone for shrubs and trees. Mounding can help re-establish hummocks and provide suitable conditions for woody plants. This research will assess the effects of mounding treatments on the understory vegetation and determine if it assists with seismic line recovery in treed peatlands.

Geographic location

Data was collected in the Kirby South area, near Conklin, Alberta.

Please note that Laureen is a PhD student of the Alberta Biodiversity Conservation Chair program at UofA and will undertake this research as one her chapters in collaboration with BERA in the Ecological Team.