

## **Grassland Reclamation Post-mining: Investigating Topsoil Stockpiling and Local Soil Inoculations**

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Because landscapes subject to opencast mining are severely disturbed, one restoration strategy includes the removal and storage of topsoil for revegetation post-mining. Microbial communities in the soil are particularly important to the restoration of these nutrient poor sites as they are drivers of nutrient cycling and they allow plants to exchange nutrients with one another through formed networks. For my research, I will be investigating the effect of stockpiling topsoil on its viability in revegetation, as well as investigating the use of productive local soils as an amendment to the stockpile soil. To do this, collected soil from the stockpile and local sites will be analysed for chemical and microbial composition, as well as undergo a greenhouse experiment. First, we predict that soil viability will decrease with stockpile depth. Additionally, we expect that the local soil inoculations containing beneficial microorganisms will result in an increase plant growth and health; therefore, demonstrating its potential to expedite the recovery of a native grassland post-mining. This study not only aims to assess and provide potential sustainable and successful management practices in post-mining reclamation, but to also give insight to roles of soil microbial interactions in plant community response to anthropogenic environmental changes.