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Abstract:

Grasslands provide many ecosystem goods and services such as biodiversity, wildlife habitat, forage production, erosion control, pollination and carbon sequestration. However, grasslands in British Columbia are endangered ecosystems. They represent less than 1% of British Columbia's land base but provide habitat for more than 30% of BC's species at risk. Grasslands are further threatened due to land conversion, desertification, and the introduction of non-native invasive species. Future precipitation in Southern BC is predicted to be less in the summer and more in the winter. The combination of reduced summer rainfall and spring snowmelt can lead to more intense, prolonged drought. Over time these droughts may increase plant susceptibility to mortality creating spatial gaps in plant communities that allow for non-native species to readily invade. This project will investigate the invasiveness of non-native species when exposed to drought. A 1 in 100 year drought is simulated using rain-out shelters previously constructed in Lac du Bois Grasslands Protected Area, BC, Canada. At the end of the growing season, drought and control soils will be removed from the Lac du Bois sites, transferred to pots in the greenhouse and sown with native and non-native seeds. Plant biomass, plant diversity and seedling survival will be analysed. This project will further our knowledge on how our native grassland soils will be influenced when faced with drought and may provide a forewarning that new management practices may need to be implanted or increased to prevent further non-native invasion.