**Assessment of below-ground plant diversity in wetland soil through environmental DNA**

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Plant communities are essential to ecosystem function thus plant diversity is an informative aspect of ecosystem health that can be assessed for biomonitoring initiatives. This can especially be critical in wetlands as they go through changes in hydrological regimes. Biodiversity analysis from environmental DNA through DNA barcoding in combination with next-generation sequencing techniques offers a solution to past vegetation survey impediments. Due to the relative stability of DNA and the below-ground accumulation of plant tissues - from actively growing roots and rhizomes to dormant seeds and non-living plant detritus - this method is expected to capture plant diversity from broad spatial and temporal scales in a single sample. This research will examine variance in below-ground vegetation diversity relative to past above-ground vegetation surveys in the hydrologically variable Peace-Athabasca Delta wetlands of Wood Buffalo National Park while also addressing the challenging trade-offs between size of DNA marker region and taxonomic resolution inherent with degraded environmental DNA.