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Title: *Linking microbial communities in Arctic tundra soils to decomposition processes: effects of vegetation type and season*

Abstract:

The investigator will study particular aspects of the arctic terrestrial carbon pool that appears to be very sensitive to climate change. A predicted increased shrub abundance could trigger changes to decomposition in the soil by altering nutrient uptake, carbon supply, and soil physical conditions. These in turn could alter the composition of soil decomposer microbial communities, which may feed back on the carbon storage and climate change. This specific project will compare seasonal variations in active and dormant microbial community composition beneath shrubs, acid tussocks, in intertussocks, and in a continuing snow fence experiment. In addition, the functional diversity of soil microbial communities will be evaluated using a physiological approach, shifts in substrate use will be examined through a stable isotope probing experiment, and the effects of an increased snow pack will be evaluated through a DNA community fingerprinting method.