The influence of epigeic earthworm D. octaedra on oribatid mite community composition and microbial community structure

Lead by: Brittany McAdams

Theme: Biodiversity

Status: Continuing

Start: 2016

Participants

- Brittany McAdams
- Sylvie Quideau

Background

Oribatid mites (Acari: Oribatida) most commonly range from 300-700μm and can be found in abundances upwards of several hundred thousands per one square meter of boreal forest soil (Behan-Pelletier 1999; Norton 1990). While not directly linked to nutrient cycling, oribatid mites shred larger fragments of organic matter and increase the surface area for microbial communities to assimilate organic material for nutrient release. Recent invasion of southern and central Alberta by Lumbricidae (Oligochaeta) has ignited the need to better understand the impact of these earthworms on boreal soil microarthropod communities (specifically oribatid mites) (McLean and Parkinson 1998; McLean and Parkinson 2000; Cameron and Bayne 2013) and microbial communities.

Objectives

The objective of this study is to identify the effects of the invasive earthworm D. octaedra on boreal soil oribatid mite and microbial communities in mature broadleaf and conifer stands using a mesocosm

incubation study. Specific objectives are to 1) classify physical changes in forest floor structure (Green et al. 1993) and 2)classify changes in oribatid mite communities using abundance and species richness, and microbial community structure through PLFA analysis. Measurements will be taken in both control broadleaf and conifer forest floor and amended (with earthworm) broadleaf and conifer forest floor.

Key Results

tba