Macrobiotic Vertical Transport of Litter Derived Carbon

(UPDATE)

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Why Earthworms?

- Large biomass in temperate systems
- Large effects on processes
- Differences in ecological strategy
- Native vs. introduced questions

Ecological Strategies

Endogeic - Feed on polyhumic substances almost exclusively subsurface

Epigeic - Feed on fresh litter, rarely enter mineral soil layers

Anecic - Build deep permanent burrows drag fresh litter from surface into burrows for “fermentation”

Native vs. Introduced Worms

- Fauna dominated by introduced worms across the continent
- Effects of introduced worms relative to native fauna not well documented
- Some native fauna (a surprising amount, really!) still found on the ORR

Our Approach

control	- native + anecic
-native +epigeic	- native + nothing

Methods

- October 2003
- Plots installed using "ditch-witch" trencher
- trench ~40 cm deep
- Aluminum flashing installed to prevent emigration/immigration

Sampling

- EBIS litter was applied and initial soil samples collected in November 2003
- Earthworms were applied following soil sampling
- Quarterly sampling of soils is ongoing

Progress Report

- Second cohort of labeled litter applied a couple of weeks ago
- Earthworms were observed to have an effect on litter disappearance
- One year of soil sampling is complete, samples yet to be analyzed
- More worms will be added next month
- End of study sampling of earthworms for ^{14}C in each treatment

Plans for the Future:

Macrobiotic vertical transport of litter derived carbon-millipede phase

More germane to upland sites
Sampled uplands for worms (and found one)