

# **Macrobiotic Vertical Transport of Litter Derived Carbon**

(Earthworm Phase)

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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



# November 2003 – Worm Shocking



# The Octet Device



# Sampling

- EBIS litter was applied and initial soil samples collected in November 2003
- Earthworms were applied following soil sampling
- Quarterly sampling of soils is planned for next two years
- End of study sampling of earthworms for  $^{14}\text{C}$  in each treatment

Plans for the Future:

**Macrobiotic Vertical Transport  
of Litter Derived Carbon  
(millipede phase)**