FOOD FROM THOUGHT

UNIVERSITY of GUELPH

CANADA FIRST RESEARCH EXCELLENCE FUND

EARTHWORM COMMUNITY DIVERSITY ON A LAND-USE GRADIENT IN SOUTHERN ONTARIO

Marie-Eugénie Maggia[a] (mmaggia@uoguelph.ca), Thibaud Decaëns[b], Karl Cottenie[a], Dirk Steinke[a,c]

[a] Department of Integrative Biology, University of Guelph, N1G 2W1 Guelph, Canada

[b] CEFE, Univ Montpellier, CNRS, EPHE, IRD, Montpellier, France

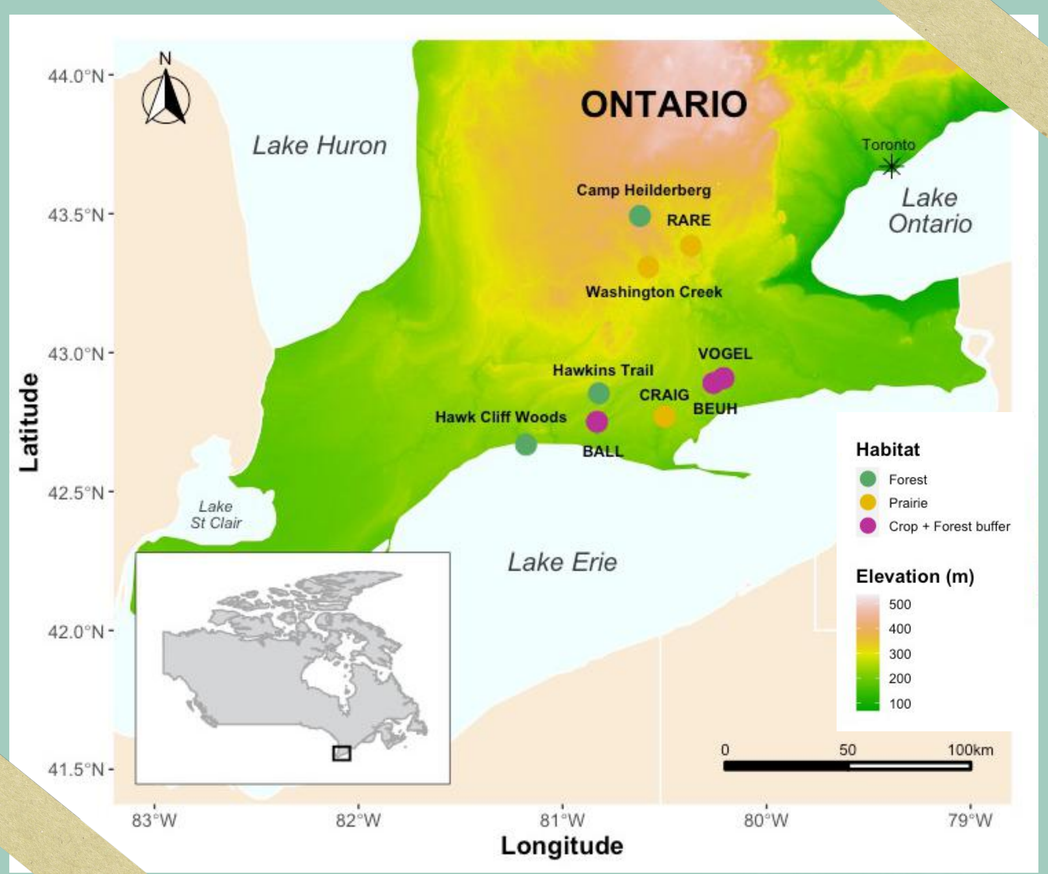
[c] Centre for Biodiversity Genomics, University of Guelph, N1G 2W1 Guelph, Canada

1

Do agricultural practices impact earthworms communities?

EARTHWORMS IN CANADA

- All native species presumed extinct after the last glaciation during the Pleistocene
- Recent colonisation from European/Asian species in the late 1800's - early 1900's
- >30 species
  - Ontario = 21 species (2 are considered natives)
- Earthworms can have a negative impact, especially in forests



METHODS

Habitats (*3 replicates)

Crop | Forest-buffer | Prairie | Forest

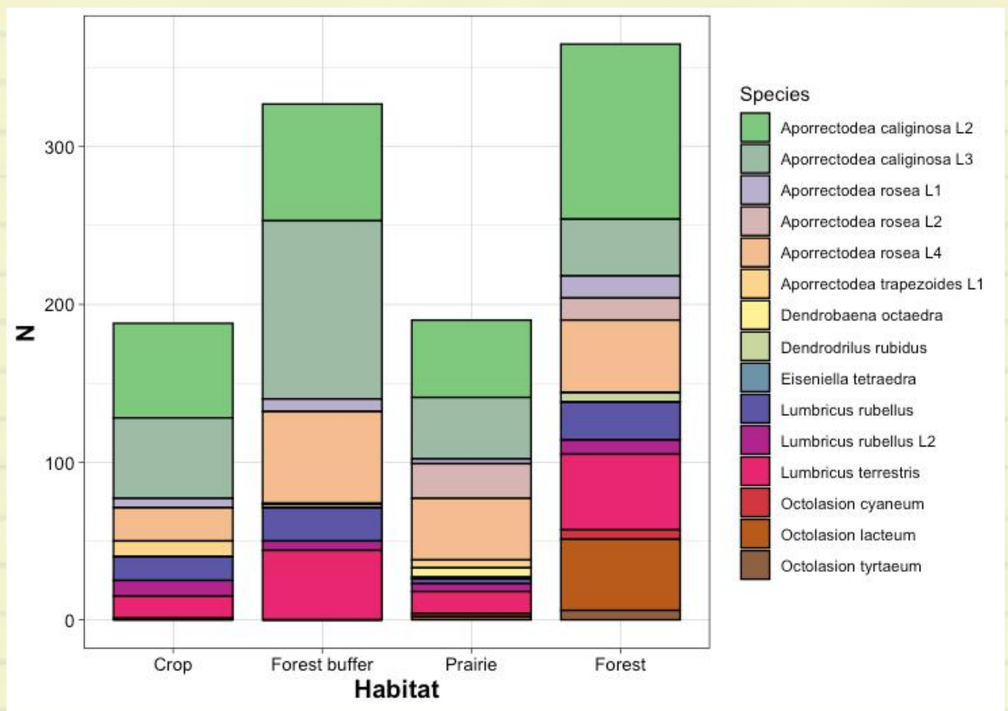
Sampling

- May-July 2019 + 2021
- Hand sorting

Species Identification

- Barcoding
- Batch ID Engine from BOLD SYSTEMS

→ **Homogeneous** earthworm community composition between habitats

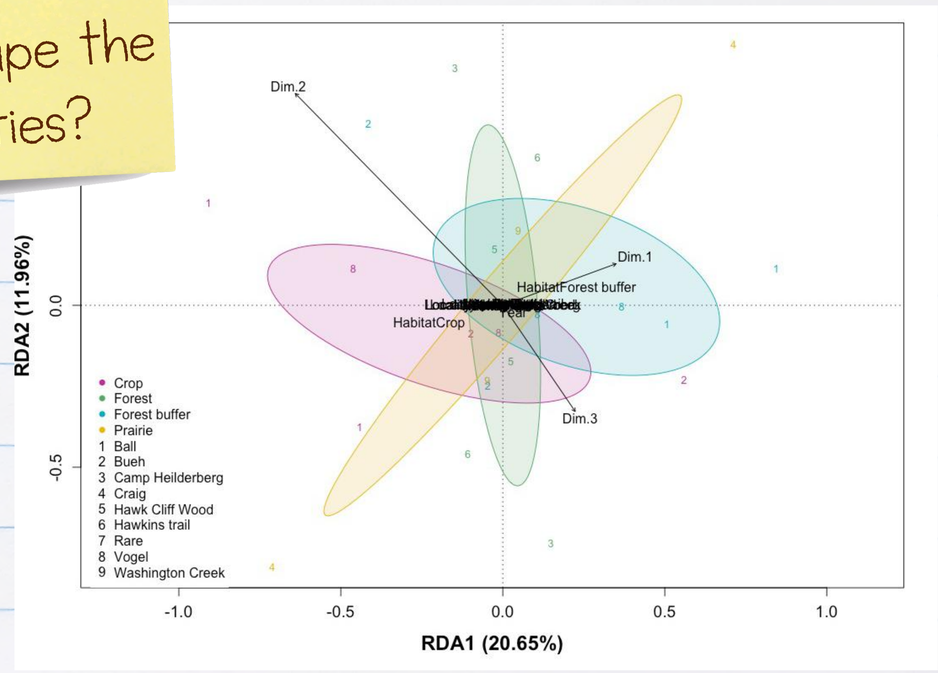


- 15 species-level lineages
  - All exotic and invasive members of the Lumbricidae
- No significant differences in abundance or species richness between habitat types

2

How do environmental variables shape the communities?

→ **Spatial structure** explaining species distribution across habitats



- RDA: environmental variables = 13.81% of the variability in earthworm communities