

Plant functional diversity responses to earthworm invasion

We offer a Master thesis on the plant-earthworms relationship in the biological invasion context.

Background

Understanding the mechanisms by which an introduced species modify native communities and ecosystems is a key question in ecology. Invasive species can radically transform native ecosystems when they introduce novel traits that are dissimilar from those of the native community. ***Invasive earthworms*** induce habitat modifications, such as changes in spatial distribution of organic matter and nutrients in the soil, from uniform to patchy. These changes might alter the ***composition and functioning of native communities*** due to the selection for particular traits and species from the community (*i.e.* traits and species more suitable to new environment) (Funk et al. 2008, Wardle et al. 2011).

What is the objective of this Master project?

The main objective of the project is to detect ***mechanisms driving plant community assembly during earthworm invasion***. In spring-summer 2019, we will study two forests with an earthworm invasion front, located in the ***Kananaskis Valley (Alberta, Canada)***. In non-invaded and invaded areas of each of these forests, we will establish observation plots, where we will assess the plant community ***species richness and species-specific cover***. We will measure ***plant functional traits*** (related to development, resource acquisition, and to competition) on the dominant plant species, in order to assess potential shifts in plant traits and their diversity, according to different invasion stages of exotic earthworms.



What we offer and expect?

We offer a research training at a unique research center and the possibility to do ecological fieldwork in ***forests of the Rocky Mountains***. The Master student will have fieldwork experience, and learn relevant methods in plant ecological research, such as ***plant community assessment and plant trait measurements***. The student will also be able to gain insights into other sampling and research activities related to the main project (*e.g.* earthworms and aboveground invertebrate sampling, etc.).



We are looking for dedicated students with good organizational skills and strong interests in plant ecology and community assembly. The ability and willingness to work in a team are necessary. Basic skills in the statistical software R or the motivation to acquire them are also required. Knowledge of plant identification and plant trait measurements will be appreciated. We encourage motivated students to apply to this Master thesis to perform exciting research in a beautiful but threatened landscape!

How to get in touch?

The main project is run by **Prof. Dr. Nico Eisenhauer** (nico.eisenhauer@idiv.de), and this projects will be co-supervised by **Dr. Lise Thouvenot** (lise.thouvenot@idiv.de). Please get in touch with us if you have any questions and are interested to discuss the project.

References:

Funk J. L., Cleland E. E., Suding K. N. & Zavaleta E. S. (2008), *Trends in Ecology & Evolution*, 23(12): 695-703.
Wardle D. A., Bardgett R. D., Callaway R. M. & Van der Putten W. H. (2011), *Science*, 332(6035): 1273-1277.