



Characterization of earthworm communities along an altitude gradient in Switzerland

Context:

Biodiversity loss is having a major impact on terrestrial ecosystems. We know that biodiversity increases ecosystem resilience and helps overcome extreme environmental changes. Carbon is an important element in the constitution of living matter. Underground, soil communities - notably earthworms - play a central role in the decomposition of organic matter. In this way, their activities regulate the availability of assimilable carbon for plants and influence plant diversity above ground. As a result, in nature, underground variations in communities along the ecological gradient can be expected to translate into variations in plant and animal communities.

Aim of the study:

The aim of the project is to characterize earthworm communities along altitude gradients. Firstly, the different earthworm communities will be collected in the field (manual sorting) at 4 different possible sites (canton of Vaud, Valais and Ticino) and assigned an ecological category. Then, in a second phase, to identify individuals, in order to analyze the composition and diversity of earthworm communities. Soil samples will also be collected in the field and analyzed in the laboratory. The data set compiled during this work follows on from several projects carried out between 2020 and 2022.

Necessary knowledge and working method(s):

- Interest in interdisciplinary research on abiotic and biotic soil systems covering earthworm ecology and organic matter decomposition.
- Ability to work independently in the field in different environments.
- Basic skills in field and laboratory pedology.
- Advanced understanding of (modern) statistics and their implementation in R.
- Good command of English.
- Highly motivated and self-motivated.

Collaboration: Claire Le Bayon et Sarah Semeraro (doctorante), UniNE.

Keywords: altitudinal gradients, earthworms, organic matter decomposition.

Working place: UniNE, Functional Ecology Laboratory, fieldwork in Valais and/or Ticino

References:

[Gabriac, Q., Ganault, P., Barois, I., Aranda-Delgado, E., Cimetière, E., Cortet, J., ... & Decaëns, T. \(2023\). Environmental drivers of earthworm communities along an elevational gradient in the French Alps. *European Journal of Soil Biology*, 116, 103477.](#)

Contacts

Claire Le Bayon et Sarah Semeraro, Université de Neuchâtel, Faculté des Sciences

E-mail: claire-lebayon@unine.ch, sarah.semeraro@unine.ch