The impact of global change drivers on soil fauna: a meta-analytic approach

We offer a number of master's theses to investigate the effect of global change drivers on soil fauna. The thesis will be within the framework of the "The effects of global change on soil faunal communities" project, which investigating the effects of multiple global change drivers on soil fauna (Phillips et al., 2019, DOI: 10.3897/rio.5.e36427).

Background: Human impacts are causing an unprecedented change of biodiversity, at global and local scales. To quantify the nature and degree of the biodiversity change there have been a number of meta-analysis studies investigating the effects of global change drivers e.g., land use, climate and pollution (e.g., Murphy and Romanuk 2014, DOI:10.1002/ece3.909; Mantyka-Pringle et al., 2011, DOI:10.1111/j.1365-2486.2011.02593.x). These studies include few primary literature studies of soil biodiversity, despite soil biodiversity being exceptionally important for a variety of ecosystem services that are critical for human wellbeing (Wall et al., 2015, DOI:10.1038/nature15744; Bardgett et al., 2014, DOI:10.1038/nature13855). We aim to bridge this gap by undertaking a variety of meta-analyses that look at the impact of various global change drivers on soil fauna.

Thesis project: The student(s) will conduct a meta-analysis tailored to their interests, and depending on the abilities and interests of the student, the exact topic can be further discussed. The meta-analysis will consist of comparing the effects of an aspect of a global change driver (choosing from one the themes of land use intensification, habitat fragmentation/loss, climate change, invasive species, and nutrient enrichment) on soil fauna. The meta-analysis process has already started, so students will only be expected to extract data from the literature, with suitable literature already having been identified, and conducting appropriate analyses (with assistance in statistical techniques). The student would also be expected to write up the results of the project, to the quality needed for their thesis.

What we offer and what we expect: We offer research training and education in a diverse, welcoming and motivated team, supervision by experienced and highly motivated researchers at a unique research centre and the possibility to work on a globally important ecological question. We are looking for students who are interested in soil biodiversity and broad-scale ecology, whilst also in learning or expanding upon their computer skills. The students will be able to learn and improve upon their skills in R (a statistics programming language) and Git (a version control program), which will be needed for the statistics, as well as data cleaning and manipulation.

Contact: "The effects of global change on soil faunal communities" project is lead by Dr Helen Phillips (helen.phillips@idiv.de), and the thesis will be co-supervised by Prof. Nico Eisenhauer (nico.eisenhauer@idiv.de).