

sDiv working group meeting report

“sOilFauna: How human activities impact soil macrofauna communities and how it relates to primary productivity? A global synthesis.”

Understanding global biodiversity change, its drivers, and the ecosystem consequences requires a better appreciation of both the factors that shape soil macrofauna communities and the ecosystem effects of these organisms. The project “sOilFauna” was funded by the synthesis center sDiv (Germany) to address this major gap by forming a community of soil ecologists, identifying the most pressing research questions and hypotheses, as well as conducting a series of workshops to foster the global synthesis and hypothesis testing of soil macrofauna. The overarching goal is to analyze the most comprehensive soil macrofauna database - the MACROFAUNA database - which collates abundance data of 17 soil invertebrate groups assessed with a standardized method at >7000 sites around the world, and seeks to foster the collection of future data to address novel research ideas & directions.

The presentations given during the conference reflect the interdisciplinarity of the working group. They include general frameworks and concepts in ecology to discuss how they could be applied to soil macrofauna. Moreover, state of the art approaches in the macroecology of above-ground biodiversity were discussed (W. Thuillier and I. Calderone) and latest global-scale soil mapping approaches were presented (M. Witjes). Furthermore, there were two presentations on food web approaches and flux estimations, in general and in soils (E. Thebault and A. Potapov), one on energy fluxes in tetrapod foodwebs (C. Antunes), one on the stability of foodwebs (B. Gauzens), and presentation of preliminary results obtained on these different topics, based on a preliminary version of the database (J. Mathieu)

We started each day with a presentation from a member of the working group. The presentations focused on a topic on which the speaker is a specialist in. It covered ecological theory and predictions, as well as methodology. The rest of the morning and early afternoon were dedicated to elaborate on how we could apply the most relevant ecological frameworks to soil macrofauna, with the database MACROFAUNA. In the middle of each afternoon, a virtual session was organized to update and exchange with remote participants. One morning focused on the database structure and access, as well as on authorship policy. One afternoon was dedicated to define potential papers and leaders. The last morning was dedicated to organize the work before the next working group.

We published a workshop report in the open journal Soil Organisms (<http://soil-organisms.org/index.php/SO/article/view/282>), where the main conclusions of the workshop were presented. A preliminary version of the database was shared with paper leaders.

sDiv was very supportive in all aspects of the working group, including social events. Nothing to improve.