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sDiv working group meeting report

"sOilFauna"

Working group meeting report

This 2-pager will be published on our website. It is meant to inform and update the sDiv board, the iDiv community and the public about your project and the activities and general progress you made at your meeting. But exclude the internal, especially not finished ideas and analyses etc. This report should also give some insights how synthesis group meetings are structured and which activities are usually happening at those meetings.

The following information should to be included and very briefly described:

- *focal areas of discussion + main results/conclusions + open questions*
  The project sOilfauna was funded by the synthesis center sDiv (Germany) to conduct syntheses of the consequences of human activity for soil macrofauna communities and the ecosystem services they provide, at a global scale. The project is based on the GlobalSoilMacrofauna database that we curate. This database now contains ~40.000 records (across ~10.000 sites) of the abundance of 17 soil macrofauna taxa, which were sampled simultaneously with the standard method named 'TSBF' (short for Tropical Soil Biology and Fertility). During this workshop, we worked in subgroups to explore the main questions of the project, in particular how to link human activities to soil macrofauna community structure in space and time, and their ecological consequences, at a global scale.

- *content of presentations*
  Several presentations were given by the members of the project. The actual state of the database (number of records, metadata) and new macroecological results about community structure were presented. A session was dedicated to explore methodological aspects due to the variability of sampling procedures or data availability. We also had presentations about the distribution of taxa biomass and body size, and how to estimate them at a global scale. Another presentation synthetized the first results about the effects of human activities and global environmental drivers on the soil macrofauna multitrophic communities and their consequences on carbon fluxes.

- *general research ideas, questions & directions discussed (incl. potential data to be used etc.)*
  We framed the outlines of several papers. One will focus on the general patterns of soil macrofauna community structure at the global scale, and how human activities altered them during the Anthropocene. One will focus on the distribution and drivers of taxa body size and population abundance. One hypothesis is that body size will vary with temperature and with land-use intensity. Another paper will compare the brown and green carbon fluxes in different land-cover types across the globe, in order to highlight the variation in their relative roles across environmental contexts.

- *general structure of the week (break out groups, presentations, sessions with remote participants etc.)*

We worked in subgroups during the week, with regular updates, and plenary sessions to discuss the outlines of the different papers. Remote participants participated in the plenary sessions and organized a specific online session on methodical aspects of the data.

- *next steps & upcoming deliverables*

We agreed to have plenary online meetings every two months to share the progress on the different papers and to provide feedback. We will explore options to have in-person meetings (e.g. at conferences) and follow-up workshops.

- *general working atmosphere and feedback on sDiv support (What kind of support? How helpful was it?)*

sDiv was very supportive in all aspects of the working group, including social events.

Deadline for sending back your feedback is 08.07.2024 *In case of questions, please contact Marten Winter marten.winter@idiv.de or tel. +49 (0)341 97 33129.*