

sDiv Workshop
**“ A framework to improve our understanding of the distribution of global
soil biodiversity: establishing the first quantitative synthesis”**
(sOILDiv)
April 1-4, 2014
Workshop Summary

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Summary

- **Participant List (15)**

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Additionally, Dr. Jitendra Gaikwad of iDIV, Prof. Dr. Francois Buscot and Dr Tesfaye Wubet of the Helmholtz institute in Halle, Germany were also able to sit in for a short part of the workshop.

• Focal areas of discussion + main results/conclusions + open questions

As outlined in the proposal, the goal of this workshop was to establish a framework to bring together global soil biodiversity data. During the week the group split tasks into two parts. First, the actual logistics of linking soil biodiversity data. We decided to do this in the framework of GBIF, to start. This part of the project will be expanded on in a proposal (see deliverables below). The second group focused on the ecological theory and reasons for linking soil biodiversity data. This was a good exercise and provided the outline for the proposed manuscript (the framework for linking data will also be presented in the manuscript). A number of areas were discussed that still need more research. These will be highlighted in the manuscript and will be the focus of future working groups. Further, the group called for better collaboration between the various disciplines in soil ecology, and this will be made a topic at the Global Soil Biodiversity Conference (December 2014). The group acknowledged that we are just at the beginning of this expansive project, and much work and time are necessary to truly link soil biodiversity data globally.

- **Summary of presentations**

We had 7 presentations to help guide the workshop topics and goals. As the organizer I began by giving an overview of our proposed plan and the deliverables that I wanted to see at the end of the week. Mark St. John then gave a summary on why soil biodiversity data is difficult to collect and then synthesize. John Ladau presented on some of his current work, demonstrating the strength in using modelling techniques to predict bacterial distribution patterns.

1. *"Why are we here: workshop aims and deliverables"* – Dr. Kelly Ramirez (organizing Postdoc)
2. *"Soil biodiversity data: perspectives and challenges"* - Dr. Mark G. St. John (participant)
3. *"Mapping historic, current, and future soil biodiversity"* – Dr. Josh Ladau (participant)
4. *What can sDiv provide for our data synthesis needs?* – Dr. Jitendra Gaikwad, iDiv, Jena Germany
5. *"Edaphobase- an overview"* – Dr. David Russell (participant)
6. *Overview of GBIF and biodiversity data synthesis* – Mr. Markus Doring (participant)
7. *"Identifying the drivers of Belowground communities using structural equation modelling"* – by Prof. Nico Eisenhauer (participant)

The workshop seminar was given by Prof. Wim van der Putten (participant)
"Plant-soil biodiversity relationships during ecosystem restoration".

- **Outputs and work plan:**

1. Manuscript. The group has started work on a manuscript, the first draft deadline will be July 15th, with the final to be finished by mid-September. No new data collection is needed for the manuscript. Rather it will be written up as a perspectives paper for PNAS. Along with the manuscript we will prepare a cover letter to PNAS to propose the topic of our manuscript. The cover letter will be led by Wim van der Putten and Diana Wall; the manuscript will be worked on by all participants.
2. Working group to establish 'global' taxonomy list. List will be circulated and community can comment on. The list will be finalized at First Global Soil Biodiversity Conference (Dijon FR; Dec 2014). Coordinated by Kelly Ramirez, Ciro Giardi, David Russell, Diana Wall and the GSBI.
3. Working group to identify new and open research—To be coordinated by Josh Ladau, Franciska DiVries, Mattias Rillig. Identified questions will be discussed at the First Global Soil Biodiversity Conference. Also to work with the Plant Soil Ecosystems group to identify specific questions that could be funded for a workshop.
4. Proposal for a larger synthesis project – draft outline by Kelly Ramirez and GSBI. Undecided which funding source to apply to. Kelly will draft and circulate to participants next fall.

5. Proposal for working groups to address specific 'problems' of the synthesis.
 - Sequence Data – Jon Leff,
 - Limits of soil - session at esa or IGNITE session – GSBI
6. GBIF Integration (see item no. 2) – Led by GSBI and Markus Doring
 - a. Organize and motivate community [GSBI, Mark St. John]
 - b. Templates for collecting data
 - c. Add information to GSBI
 - d. Training at taxa conferences
 - i. GBIF reps can come
 - e. Test standards and parameters with example datasets
 - f. Timeline: now to Dec 2014
7. Parameter standardization [GSBI, Markus/GBIF, Jon, David]
 - a. Timeline: now to Dec 2014
 - b. DWC archives -
 - c. Environmental material, ongoing

- **New Collaborations**

A number of new collaborations were made at the workshop; namely between the Global Soil Biodiversity Initiative (GSBI) GSBI (representing the soil ecology community) and GBIF. We identified a number of ways forward to work within the GBIF framework. Additionally, the GSBI will also now collaborate with Edaphobase (David Russell represented). There is also potential for collaboration between members of the group within the different working groups outlined above.

- **General working atmosphere and feedback on sDiv-support**

The sOILDiv workshop was a success- we came away with deliverables and a clear plan forward, in part due to the support and accommodations provided by sDIV. sDIV provides a great environment for brainstorming and innovation.