

## **sDiv working group meeting report**

### **“sRealBioFun II”**

The second meeting of the sRealBioFun working group was held in Leipzig from 27 to 30 April 2026. Building on the foundations laid in our inaugural meeting (April 2025), the group of 16 in-person and 2 remote participants came together to advance ongoing synthesis projects, explore new research directions, and plan for a third and final meeting.

#### ***Meeting structure***

The four-day meeting was structured to maximize both focused work and cross-project exchanges. Summary interim reports were circulated before the meeting to allow participants to come prepared with questions and ideas. Each morning began with progress presentations on designated projects, following a standard template: aim, approach, importance, key analyses, obstacles, results so far, surprises and plans. After each presentation, whole-group discussions identified key issues, which were then explored in depth through breakout sessions. Breakout groups allowed participants to switch between projects, ensuring that expertise was shared across the portfolio. Subgroups reported back to the plenary to synthesize conclusions and identify cross-cutting themes. This rhythm of presentation, whole-group discussion, focused subgroup work and plenary synthesis proved highly effective in advancing multiple projects in parallel while maintaining coherence across the working group.

Beyond the ongoing active projects, the group devoted time to brainstorming new research directions in the afternoons of the first three days. While these ideas remain at an exploratory stage, they point toward a potential second phase of synthesis beyond the current project portfolio. We also discussed common issues regarding analysis methods.

#### ***Project highlights***

Six core projects were presented and discussed during the meeting, combining observational and experimental data to advance the understanding of how realistic biodiversity changes affect ecosystem functioning.

**Project 1** explores whether global co-occurrence information can predict the performance of plant species in BEF experiments. The team is testing whether species that frequently co-occur in nature—inferred from sPlot data—also perform better when grown together in the Jena biodiversity experiment.

**Project 2** examines how climate changes modify species responses to land-use intensification in German grasslands using the Biodiversity Exploratories data. The team has been exploring how land use intensification (LUI) affected plant species abundance

and occurrence, how climate change (e.g., warming and drought) modified these impacts of LUI, and which functional traits best predict species responses to LUI and climate change.

**Project 3** investigates the impact of eutrophication-driven plant diversity change on ecosystem functioning, using long-term grassland experiment of BioCON. The team has been testing how CO<sub>2</sub> and nitrogen enrichment affect plant species' temporal change of biomass, which functional traits can best predict such species biomass response, and how species variation in their responses to CO<sub>2</sub> and nitrogen enrichment translate to shifts in biodiversity and productivity.

**Project 4** investigates how land-use intensification and climate change drive long-term shifts in species abundances and diversity in Southern Africa's Succulent Karoo. The team has developed a drought-event index to estimate vegetation resistance and resilience, and is analyzing responses at both community and life-form levels.

Two other projects focus on large-scale forest dynamics using US Forest Service Forest Inventory and Analysis (FIA) datasets. **Project 5** examines whether regeneration gaps and mismatches between tree and sapling layers are increasing in eastern North American forests and how these changes may affect forest biodiversity, productivity and carbon storage. **Project 6** explores how climate change is affecting sapling abundances of tree species and their consequences for forest productivity.

### ***Next steps***

We submitted our group opinion paper to *Trends in Ecology & Evolution*. It is now in final revision after a second round of reviews. We aim to submit manuscripts from projects 1–3 in the autumn of 2026 and those from projects 4–6 in the spring of 2027. We ask lead authors of each project regularly to share reports on their progress.

We are preparing a proposal for the third and final meeting, scheduled for spring 2027. At our final meeting, we will finalize the six core projects and plan out analyses and writing for spin-off papers and the new ideas that emerged during our second meeting. One of these is to use long-term BEF experiments to validate the mechanistic framework outlined in our TREE opinion paper to disentangle how environment-driven changes in diversity affect ecosystem functioning by altering species identities and interactions.

### ***Meeting atmosphere***

The meeting was characterized by a highly collaborative and productive atmosphere. The organizational support provided by iDiv and the sDiv coordination team was instrumental: from pre-meeting logistics and catering to reimbursement procedures and the use of iDiv's seminar and meeting spaces. A special highlight was the two iDiv seminar talks delivered by working group members, which attracted broad interest from the iDiv community. The group also enjoyed social time via diverse dinners and walks in nice weather in Leipzig.