

3rd Working Group Meeting – Report

“sCaleGrassDiv – 3rd working group meeting”

26 – 31 May 2024

<https://www.idiv.de/en/scalegrassdiv>

Our working group studies the factors influencing plant diversity in grasslands and the mechanisms at different spatial scales. By plant diversity, we refer to various facets of biodiversity, including taxonomic, phylogenetic, and functional diversity. To achieve this, we gathered data from eleven datasets collected during different sampling campaigns from 2010 to 2022. These datasets, obtained from various grassland habitat types across Ukraine, were collected using the same methodology (available at edgg.org/databases/GrassPlot). Our dataset includes 191 plot series, with 7 nested subplots of smaller scales within each plot.

Before the WG 3, we accomplished the following:

- finalized the analyses for the first manuscript and finished the writing
- Joining trait data from different sources
- Finishing trait selection due to the thresholds
- Trait imputation
- Finalized the analyses for the first manuscript and finished the writing (*led by Oksana Buzhdygan*).
- Joined the plant trait data from different sources, finishing trait selection due to the thresholds, performed the trait imputation (*led by Selina Baldauf*).
- Refined the R code, finalized analysis & prepared the figures for the 2nd manuscript (*led by Selina Baldauf and Denys Vynokurov*).

During the meeting, the focal areas of discussion was on different plant diversity facets (i.e., species. Functional, and phylogenetic) and their varying responses to scale and how they differ across grassland habitat types. Our main results show that the richest habitats not only vary by the sampled scale, but also by the biodiversity facet being examined. This was particularly valid for functional diversity, where communities were poor in diversity at small scales but rich at larger scales. Our team accomplished the following tasks during the meeting:

- (1) Refined and submitted the 1st manuscript (*led by Oksana Buzhdygan*) to *Journal of Ecology*
- (2) Worked on the conceptual framework for the 2nd manuscript (*led by Denys Vynokurov and Selina Baldauf*), which compares taxonomic, phylogenetic & functional diversity across spatial scales and grassland habitat types.
- (3) Advanced the conceptual framework for 3rd manuscript (*led by Svitlana Iemelianova and Anna Kuzemko*) on the patterns of native vs. alien diversity, their drivers across scales.

(4) Advanced the conceptual view for 4th manuscript (*led by Olha Chusova*) on the species niche using the ecological indicator values EIV and their drivers across spatial scales.

During the meeting we had 12 participants, out of whom two were the remote participants. We worked in the break-out rooms for the tasks on the different manuscripts and we also worked all together as a group in a single room for discussions of the progress, developing the conceptual structure of the papers and for planning of our work. During the week, the first two days we focused on the 2nd manuscript (*led by Denys Vynokurov and Selina Baldauf*) on the scale-dependency of the biodiversity facets. The day 3 was dedicated to the development of the manuscripts 3 on the alien species. On day 4 we worked on the 4th manuscript on the ecological niches of plant species. On the finale day 5 we have finalized the 1st manuscript on the project and submitted it to the journal. Also, on the 5th day we planned our work after the workshop.

Following the WG meeting 3, the sub-teams will meet several times to make progress in the following areas:

- To finalize and to submit the 2nd manuscript (*led by Denys Vynokurov and Selina Baldauf*) on taxonomic, phylogenetic & functional diversity across spatial scales and grassland habitat types.
- To finalize analysis and to write the 3rd manuscript (*led by Anna Kuzemko and Svitlana Iemelianova*) on native/non-native species and their relation to spatial scale. To submit the manuscript to *Biological Conservation*.
- To work on the literature in order to develop the solid conceptual framework for the 4th manuscript (*led by Olha Chusova*) on EIV, to finalize the analysis

These post-meeting activities were designed to propel our research forward, enabling us to finalize the already developed 2nd manuscript (*led by Denys Vynokurov and Selina Baldauf*), to finalize the data analysis and write the 3rd and 4th manuscripts.

During the workshop we had a great working atmosphere, which was very friendly, and it facilitated great brainstorming and strong progress of our project. The sDiv support team was extremely helpful in all aspects of the project. This includes all the organizational issues for our travelling, accommodations, as well as for our work during the workshop in iDiv. We thank the entire support team of iDiv for all these help, with the special thanks to Marten Winter for all great suggestions and help on our project, and to Ronja Wodner for all the assistance in the organization of our workshops and of our stay in Leipzig. We acknowledge and highly appreciate the significance of the sDiv support for our project as it enabled our team to meet, to brainstorm and to synthesize our data by bringing together a diversity of expertise. Given the ongoing war in Ukraine, this our progress would not be possible without all this iDiv support. Moreover, for certain team members, it facilitated research collaboration extending far beyond the scope of the project itself.