

sDiv working group meeting report

“sConsume”

Working group meeting report

The first sConsume meeting held from the 22nd to the 26th of January, 2024 was productive and enjoyable, bringing together early to mid-career researchers from biodiversity-disease and biodiversity-herbivory research fields. Seven participants joined in person in Leipzig and two participants online from Australia and the USA. The objective of the first meeting was to start working towards a manuscript that synthesises the definitions, mechanisms and outcomes of biodiversity-consumer relationships. This involved two aims:

1. Synthesise definitions and mechanisms of biodiversity mechanisms
2. To develop a framework to identify where similarities across consumer groups can be drawn and where they cannot

Each day we started with a ‘vision of the day’ where one participant would share their vision and ideas for where they saw the day leading. The days would then be a combination of presentations of ideas/concepts, whole-group discussions and smaller-group designated work on the manuscript we were aiming to produce.

To create a collaborative environment as a new team from a diverse range of backgrounds, we began the meeting with introductions on day 1. Participants not only shared their research experience but also what interests them in researching biodiversity-consumer relationships. Each participant also shared a favourite scientific figure showing pattern/s in biodiversity-consumer relationships. These introductions sparked key initial discussions of similarities and differences in biodiversity-consumer relationships between pathogens and herbivores.

After discussions from the first day, all participants were familiarised with the core concepts, patterns and mechanisms from biodiversity-consumer relationships, ensuring we had a better understanding of the opposite field (e.g. plant-herbivore experts learning about biodiversity-disease patterns and vice versa). Interestingly by the end of the first day, we summarised that there were many similar relationships in biodiversity-disease and biodiversity-herbivore patterns.

However, the second day brought more in-depth discussions about the mechanisms behind biodiversity-consumer relationships and this is where the team realised biodiversity-herbivory and biodiversity-disease relationships were quite dissimilar. We determined that the biology of the different consumer groups leads to differences in mechanisms and therefore dissimilar biodiversity-consumer relationships. For example, pathogens are quite sessile, whereas herbivores are mobile and have strong top-down control by predators.

On day 3, after we had constructed key background information on biodiversity-herbivore and biodiversity-pathogen relationships and the mechanisms behind these, we began the day envisioning the structure and style of the manuscript we wanted to write to create a framework to synthesise biodiversity-consumer relationships. We then mapped out a TREE-style manuscript structure and decided on the core elements (e.g. tables, figures, boxes) that this would include. We then spent the afternoon carrying out assigned tasks in groups such as creating a mechanisms table summarising all the different mechanisms of biodiversity-consumer relationships and how they differ or are similar; writing a glossary of key definitions of biodiversity-consumer relationships and writing text/creating a figure on the basic ecology/differences between the two consumer groups.

Day 4 began with continuing to write sections for the biodiversity-consumer relationship framework we were constructing and finessing the figures, tables and boxes around the text. We made excellent progress and began brainstorming ideas for the next steps and products we wanted to create as a working group. We had a presentation on the next stage of the project where we want to test the framework we have constructed in our review paper with real data from observational studies or experiments that have measured biodiversity-consumer relationships on both herbivores and pathogens. We discussed what data we have access to and how we might test the framework. We have plans to re-run a biodiversity-consumer relationships meta-analysis and use structural equation models (SEMs) to test our framework using data.

We finished our meeting with a shorter day, on day 5, wrapping up tasks for our framework paper and looking forward to collecting data to test the framework for our next paper. We look forward to sharing our framework paper widely soon as we plan to submit it to TREE by June 2024 and we will meet again in March 2025 to start testing our paper using pre-collected data.

Whilst we were very busy with sConsume work and discussions during the day, we had a really nice time in the evenings having dinners at local restaurants and discussing science and life more broadly. We are grateful to sDiv and iDiv for providing the resources to get this group together and synthesise this huge and exciting field of ecology.