

sDiv working group meeting report

“sNEXT II”

Overview

The second workshop of the sNEXT project built directly on the foundations laid at the first meeting, moving the group from shared conceptual groundwork toward concrete empirical and simulation-based outputs. sNEXT brings together an international team of researchers from Spain, Mexico, Colombia, Brazil and Germany to analyse how *extreme climatic events* (ECEs) reshape plant–pollinator and plant–frugivore networks.

As with the first meeting, the structure of the week mirrored the synthetic nature of the project. The group first worked together to finalise and close its synthesis manuscript, which was submitted to *Trends in Ecology & Evolution* during the workshop. From there, work moved into two parallel breakout groups that stayed closely connected: one concentrated on the empirical attribution of extreme-event impacts using European network data, and the other developed a simulation pipeline to test how climate stress propagates through interaction networks. These threads were repeatedly drawn back together in integration sessions, and the conceptual framework was also presented and discussed at an iDiv seminar, with the feedback feeding directly back into the group’s work.

Conceptual advances

A central achievement of the meeting was completing and submitting the project’s conceptual framework paper, *“From pulse to collapse: how climate extremes restructure mutualistic networks.”* The framework positions network ecology as the connective tissue linking the effects of extreme climatic events across biological levels — from individual physiology through population dynamics and community structure to ecosystem functioning — using plant–pollinator mutualisms as a model system. Presenting the framework at the iDiv seminar generated valuable discussion that fed back into the revision. With this submission, the group delivers on the first objective of the original proposal and establishes the conceptual scaffolding on which its empirical and simulation work now builds.

Empirical and methodological advances

During the last two days, the group advanced its empirical analysis of a large European plant–pollinator interaction dataset, with the aim of attributing the effects of droughts and heatwaves to changes in network structure at the community level. Building on the data-harmonisation work begun at the first workshop, the team assembled a curated “before-and-after” dataset of local networks with enough sampling to detect change over a season. For each network, the group characterised the extreme climatic events that occurred at its location during its sampling window, distinguishing heatwaves and droughts relative to a

long-term historical baseline drawn from climate reanalysis data. This curated dataset provides a robust basis for the community-level analyses the group will carry out ahead of the third workshop.

The group also designed a modelling pipeline that connects the conceptual framework to testable predictions. The simulations vary the width of species' interaction niches — reflecting how heatwaves and droughts are expected to narrow individual thermal tolerances and interaction possibilities — and trace how these individual-level changes propagate upward into community-level network structure, offering a controlled way to test the framework's central expectations. A key open question, and the main task ahead, is how best to ground the simulations in realistic, empirically derived values rather than exploring the parameter space arbitrarily. Other open questions carried forward from the first meeting include how to identify the most ecologically relevant time lags following a climatic event.

What's next for sNEXT?

The group will focus on compiling empirically grounded parameters to lend realism to the simulations, and carrying out a first analysis of the empirical "before-and-after" dataset to generate initial results and figures. A future workshop will then be dedicated to bringing both the empirical and the simulation manuscripts to completion. Closing these two manuscripts, together with the already-submitted framework paper, would complete the empirical objectives of the project and deliver on the goals of the original proposal as a whole.

Thanks sDiv team!

As at the first meeting, the atmosphere throughout the workshop was focused and collegial, with early-career and established researchers contributing across every session. The support from sDiv was again indispensable. Beyond seamless coordination of travel, accommodation and meeting facilities, sDiv's collaborative workspaces made it possible to advance real analysis and manuscript work on-site — something rarely feasible within a single meeting. This infrastructure, together with sDiv's scientific and organisational support, allowed the group to convert a week of discussion into concrete, submittable outputs and to set a clear course for the final phase of the project.