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sDiv working group meeting report
"sNEXT"

Overview

The first workshop of the sNEXT project (sDiv Synthesis Center for Biodiversity Sciences) laid the foundation for a global analysis of how *extreme climatic events* (ECEs)—such as heatwaves and droughts—impact plant-frugivore and plant-pollinator networks. Our five-day meeting brought together an international team of researchers from Spain, Mexico, Colombia, Brazil and Germany to align on key concepts, analytical approaches, and upcoming outputs. Discussions were rich, the atmosphere collaborative, and sDiv's support critical to our success.

The structure of the workshop itself mirrored the synthetic nature of the project. The first two days were devoted to shared learning: full-group presentations oriented everyone to the project's overarching goals, the scope and structure of the available data, and preliminary analytical approaches. From there, the team split into focused breakout groups that worked in parallel but stayed closely connected. One group concentrated on articulating the conceptual and theoretical scaffolding for the project, while the other refined technical approaches to climate data and network metrics. On the final day, these threads were drawn back together in a series of integration sessions where ideas were shared, critiqued, and refined in preparation for concrete next steps.

Conceptual advances

A central focus of workshop discussions was the challenge of defining and detecting extreme climatic events in a way that is meaningful for ecological networks. The group worked toward a shared understanding of how best to characterize events such as droughts and heatwaves, not only from a meteorological standpoint but also in terms of their ecological relevance. Reaching consensus on appropriate temporal and spatial scales was critical, as was developing strategies to link climatic anomalies to observable shifts in plant-pollinator and plant-frugivore interactions. At the heart of these conversations was the question of how abrupt climatic pulses differ from the more gradual "press" disturbances associated with long-term climate change, and how each type of change may leave distinct signatures on the structure and dynamics of ecological communities.

Methodological advances

The empirical backbone of the project is a remarkable collection of over 100 plant-pollinator network time series from across Europe, representing one of the most comprehensive datasets of its kind. Discussions around this dataset were dynamic and productive, ranging from strategies for quality control to potential ways of enriching the database with new contributions. Participants emphasized

the importance of accommodating networks with varying sampling designs and temporal resolutions, and began developing standardized protocols for harmonizing data analysis across regions and contexts. These efforts will ensure the scientific rigor and comparability of the large-scale synthesis we aim to produce.

What's next for sNEXT?

One of the workshop's most consequential outcomes was the decision to pursue a dual-publication strategy. Rather than forcing theory and data into a single narrative, the team will produce two complementary papers. The first will develop a conceptual framework that brings together ecological theory, climate science, and network dynamics to articulate how and why extreme events matter for biotic interactions. The second will present the results of a global-scale empirical analysis, testing some of the key hypotheses outlined in the conceptual paper. While several methodological and analytical questions remain open—such as how to determine the most ecologically relevant temporal lags after a climatic event, or how to factor in geographic and climatic variability—these uncertainties were framed as creative challenges rather than obstacles, and will guide the next phase of the work.

In the coming months, the team will finalize the literature review for the conceptual manuscript and begin drafting its main sections. In parallel, data cleaning and standardization protocols for the empirical analysis will be completed, laying the foundation for robust cross-site comparisons. Each team member left with specific responsibilities aligned to their expertise, ensuring that momentum will carry forward even after the physical meeting concluded. Longer-term goals include the submission of both papers to high-impact journals, the release of an open-access analytical framework for broader use, and the development of new collaborations to expand the dataset globally.

Thanks sDiv team!

Throughout the workshop, the energy was both focused and collegial. The blend of early-career researchers and established scientists created a lively atmosphere where mentoring, idea-sharing, and mutual respect were evident in every session. The support from sDiv was indispensable—not just logistically, though that too was seamless—but in setting the tone for a synthesis-driven, interdisciplinary, and truly global conversation. From well-equipped meeting spaces to smooth coordination of travel and accommodations, the organizational infrastructure allowed participants to concentrate fully on the science. Access to shared workspaces, collaborative tools, and real-time computing resources also made it possible to begin data exploration and manuscript planning on-site, something rarely feasible during a single meeting.