APPS SPECIAL ISSUE CALL FOR PAPERS:

Quantifying plant and fungal dispersal: New methods from multiple disciplines

Proposal Deadline: June 24, 2024

Applications in Plant Sciences (*APPS*), the BSA's open access journal highlighting new tools and protocols across the plant sciences, is organizing a special issue titled "Quantifying plant and fungal dispersal: New methods from multiple disciplines."

Dispersal is a key process in ecology, evolution, and conservation that allows for resilience in the face of global change. It influences fitness, population dynamics, genetic diversity, and biodiversity across temporal and spatial scales. Without dispersal, plants and fungi cannot migrate to suitable habitat as conditions change, nor can gene flow occur to allow for adaptation to these changes. However, dispersal is a complex, multiscale process that is difficult to measure. The majority of dispersal of seeds, spores, and pollen relies on one or more abiotic and biotic vectors. Dispersal can be broken into source (including pre-dispersal and departure), relocation, and destination (including deposition and post-dispersal) processes. Studying dispersal in fungi has its own challenges due to their unique life forms and life history strategies.

Both plants and fungi are now facing altered landscapes and new conditions due to global change, highlighting the need for a mechanistic understanding of dispersal for accurate predictions about the future. This complexity requires multiple disciplinary perspectives (e.g., genomics, physiology, animal movement, atmospheric sciences, hydrology, ecology, evolution) to measure the dispersal of propagules and pollen by a diversity of vectors and resulting dispersal patterns.

This special issue will highlight new approaches, tools, databases, and software for measuring plant and fungal dispersal from multiple disciplinary perspectives and across space, time, and levels of biological organization. We encourage submission of papers focused on new methods and comparative evaluation of existing methods to measure dispersal, for example:

- Reviews, tools, or approaches for combining empirical data with mathematical or computational approaches to ground-truth existing models, and forecast plant movement from available data.
- New genetic approaches for measuring dispersal, including landscape genomics and other population genomics methods, and statistical approaches to describe dispersal.

- Mechanistic mathematical or computational approaches to predict dispersal, including AI-based predictions.
- Methods to quantify the ability of rapid evolution of seed dispersal in response to change (i.e., genetic variability vs. phenotypic plasticity, phenotypic plasticity due to epigenetic control).
- New empirical tools for quantifying dispersal processes and effectiveness for a variety of dispersal modes (e.g., abiotically or biotically mediated), across space and time, particularly those introducing standardized methods for distributed experiments.
- Best practices or new approaches for quantifying the sources and consequences of intraspecific variation in dispersal.
- New tools to estimate long-distance dispersal.
- Reviews or best practices for explicitly incorporating dispersal in mathematical or computational approaches to predict local population dynamics, species range dynamics, or community dynamics.
- Techniques for quantifying the relative importance of different adaptive advantages of dispersal for fitness.
- Software that collates disparate available databases relevant for dispersal or new databases that describe relevant dispersal processes and outcomes.

How to submit a proposal: Authors interested in contributing to this special issue should email a proposal that includes a ***tentative title, tentative author list, manuscript category***, and a ***200–300-word abstract***. The abstract should ***explicitly address the topics of the special issue*** and explain how the proposed manuscript advances techniques, software, or resources in the plant sciences; reviews comparing different techniques are also welcome. Please send your proposals to apps@botany.org.

The deadline for proposal submission is June 24, 2024. Proposals will be reviewed by the Editor-in-Chief and the special issue editors. Authors will be notified by July 19, 2024, as to whether their proposal was accepted.

Authors whose proposals are accepted should submit their manuscript by January 10, 2025. Note that acceptance of a proposal does not guarantee the eventual acceptance of the manuscript, as all manuscripts will be rigorously peer-reviewed and held to the standards of the journal. **The target date for publication of the special issue is late 2025;** however, accepted manuscripts will be made available online on the *APPS* website in advance of issue publication.

Reduced article publication charges (at the BSA member rate) are available for papers accepted for publication in the special issue. Authors seeking a publication fee waiver should follow the process outlined on the *APPS* APC page. For more information about journal scope, article

types, and manuscript preparation, please see the **Author Guidelines**. Any questions may be sent to the *APPS* editorial office (apps@botany.org).

The Botanical Society of America and its publications are committed to inclusive science that reflects disciplinary, human, and geographic diversity. Submissions are welcomed from applicants of all ethnicities, races, colors, religions, sexes, sexual orientations, gender identities, socioeconomic status, national origins, disabilities, ages, or other individual status.

Sincerely,

Noelle G. Beckman, Utah State University
Sally Chambers, Eastern Kentucky University
Irene Cobo-Simón, Forest Research Centre, CIFOR-INIA-CSIC
Lauren Sullivan, Michigan State University
Special Issue Editors

Photo credits: left: Sally Chambers; top right: Tilottama Roy; bottom right: Lauren Sullivan.