



Ecology and Evolution of Peatmosses (*Sphagnum*)

Sphagnum-dominated peatlands form in waterlogged habitats around the Northern Hemisphere and store huge amounts of carbon in the form of partially decomposed plant material – *Sphagnum* peat. These peatlands have been a focus for community ecologists for nearly a century so there is a lot known about the niches and ecology of northern *Sphagnum* species. More recently, *Sphagnum* has become a “model” for studying how plants and their associated microbes respond to changing climates, and much has been learned about the genomes of *Sphagnum* species and some of their associates.

This seminar will provide an overview of peatmoss systematics/taxonomy, biogeography, morphology, and ecology. In our first meeting we provide a phylogenetic, morphological, and taxonomic overview of the Sphagnopsida, which includes *Sphagnum* as well as three smaller but related genera: *Ambuchanannia*, *Eosphagnum*, and *Flatbergium*. We will then focus on morphological and ecological divergence among the subgenera within *Sphagnum*, including evidence of interspecific (and inter-subgeneric) hybridization. In our third meeting we focus on the reproductive biology of *Sphagnum* and consider issues surrounding sexual- vs asexual reproduction, sexual mating patterns in natural populations, spore production and dispersal, and the recent discovery of sex chromosomes in *Sphagnum*. Our last two sessions will focus on the systematics of critical species complexes within *Sphagnum* and will include unpublished results of ongoing research. In week 4 we will discuss current research on the “*S. magellanicum* complex”, which is now known to include four species in North America. During our last meeting we will focus on the “*S. capillifolium* complex”, including species delimitation, phylogenetic relationships, biogeographic patterns, and hybridization in this group of important peat-formers.

Jon Shaw (shaw@duke.edu) is a Professor of Biology at Duke University, where he has been on the faculty since 1996. Although he studied with Drs. Dale Vitt and Howard Crum, two leaders in peatland ecology and *Sphagnum* taxonomy, Jon did not develop an interest in *Sphagnum* until he arrived at Duke and was much influenced by Dr. Lewis Anderson. For the last 20 years, he has worked on the systematics and population genetics of various peatmoss groups. He is an active and enthusiastic field biologist and likes to integrate field experience with molecular data to better understand peatmoss ecology and evolution.

**December 1, 3, 8,
10, and 15, 2026**
7PM–9PM ET
\$225

Participants need to have a Zoom account (<https://zoom.us> sign up for zoom is free). You will receive a secure link to join the instructor before each class. Classes will be recorded so participants can review them or make up missed ones.

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