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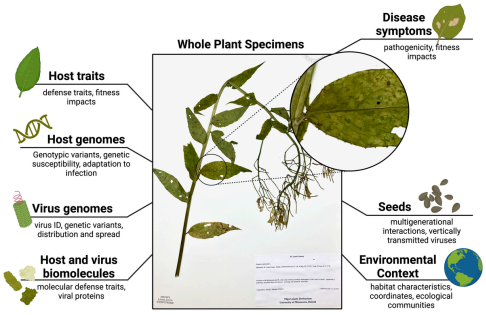
Highlighted Articles for February 2025

Deer reduce mating opportunities and seed production in unconsumed plants

Herbivores often influence the growth, survival, and reproduction of the plants they consume. **Researchers have hypothesized that herbivores could also depress reproduction in unconsumed plants by reducing mating opportunities and pollination, although the evidence supporting such indirect effects is scarce. To investigate this hypothesis, Beck and Wagenius mapped flowering *Lilium philadelphicum* (Liliaceae) individuals, documented spatial patterns of white-tailed deer herbivory, and quantified variation in rates of ovule fertilization (seed set).** The authors found that seed set decreased as distance to flowering conspecifics increased, and that accounting for spatial patterns of deer herbivory (i.e., measuring distance to unconsumed flowering conspecifics) best predicts the observed variation in seed set. **These findings suggest that deer herbivory reduces pollination and seed production in unconsumed plants by isolating them from prospective mates.** Both direct and indirect effects of deer herbivory contribute to widespread reproductive failure in *L. philadelphicum*; similar interactions between herbivory and pollination may influence reproduction in many plant species.

Jared J. Beck and Stuart Wagenius. 2025. Herbivory exacerbates pollen limitation by isolating unconsumed plants from prospective mates. *American Journal of Botany* https://doi.org/10.1002/ajb2.70002

Herbaria are invaluable for uncovering plant-virus diversity and consequences

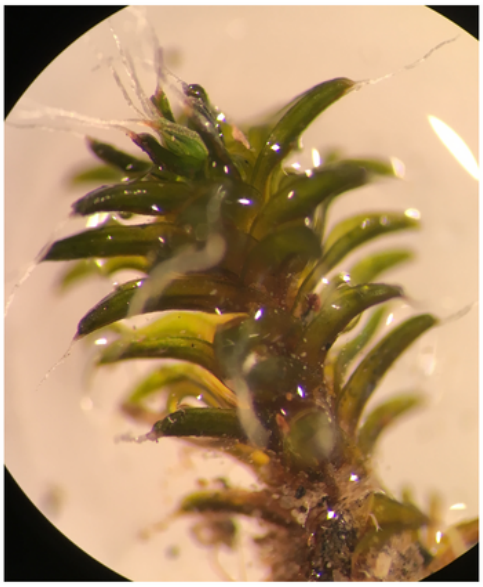


Elizabeth M. Lombardi and Hannah E. Marx. 2025. Herbaria as critical resources for studying plant-virus biodiversity and epidemiology. 2025. *American Journal of Botany* https://doi.org/10.1002/ajb2.16463

Plant viruses are often pathogenic and damaging to crops, but there is much to learn about the impacts of viruses that infect native plants. For example, although they are diverse and widespread, viral symbionts likely interact with many native and naturalized plant species without eliciting detectable disease symptoms. **Lombardi and Marx discuss here how herbaria are important resources to retroactively study the impacts of plant-virus interactions across space and time, improving plant-virus biodiversity baseline data for wild plant communities.** Herbarium specimens provide whole-host information and environmental context to better understand the ecology, evolution, and biogeography of plant viruses. In addition to using existing specimens, the authors encourage active collection of symptomatic plants, improved material specimen curation (e.g., cryopreservation of subsampled tissue), and methods development to facilitate sequence-based virus identification from degraded genomes preserved in planta. **Botanical collections provide unique capacities to detect plant disease outbreaks, safeguard crops, and better understand the ecological roles of plant viruses in changing environments.**

Can biocrust moss hide from climate change in sheltered microhabitats?

Desert mosses may be tiny, but they play a big role in stabilizing soils, nutrient cycling, water retention, and habitat for microbiota. Unfortunately, studies predict that mosses in biological soil crusts (i.e., biocrusts) will be the most vulnerable of photosynthetic biocrust organisms to climate change, especially during summer drought and insufficient precipitation events. Many scientists assume that higher elevations offer mosses a cool, safe refuge—but is that really the case? **This study by Clark et al. examined *Syntrichia caninervis,* a broadly distributed keystone biocrust moss.** The authors sampled three populations of the species spanning a 1200-m elevation gradient in the Mojave Desert. Surprisingly, moss stress did not vary by elevation. Instead, small-scale habitat features—such as shady spots under shrubs and north-facing slopes—offered the most protection from harsh conditions. Thus, these microhabitats can act as "climate shelters," buffering mosses from extreme aridity. **These findings suggest that conservation efforts should focus on identifying and protecting potential microrefugia, which may help biocrust mosses survive in a warming world.**



Theresa A. Clark et al. 2025. Can biocrust moss hide from climate change? Fine-scale habitat sheltering improves summer stress resistance in *Syntrichia caninervis*. *American Journal of Botany* https://doi.org/10.1002/ajb2.16464