

Small and surrounded: How population size and land use can influence patterns of reproduction in a native plant across remnant serpentine barren grasslands of southeastern Pennsylvania

Rachel Spigler, PhD, Presenter

Held October 7, 2021

Watch this PA Botany webinar on YouTube: <https://www.youtube.com/watch?v=avr8p-legkl>

Abstract

Fragmentation and habitat loss are well known to reduce population sizes and reproduction of remaining plants. In particular, the reduction in seed production is thought to be driven by a disruption in plant-pollinator interactions, but few studies have explicitly evaluated pollination dynamics across a fragmented landscape. Moreover, we understand little the extent to which fragmentation and land use alter connectivity of the remaining populations across the landscape and whether those populations experience divergent selection pressures. We have performed a series of field experiments and population genetic studies to address these gaps in the native biennial *Sabatia angularis* (Gentianaceae). These studies show that small populations surrounded by greater development are more likely to rely on self-pollination and that plants in populations with weak plant-pollinator interactions experience greater selection on traits related to pollinator attraction. Moreover, both agriculture and urban development reduce connectivity of *S. angularis* populations. These results have implications for understanding how plant populations may persist in an increasingly changing world.

Presenter

Dr. Rachel Spigler received her BS in Ecology & Evolutionary Biology from the University of Arizona and PhD in Botany from the University of Georgia. She is currently as Assistant Professor of Biology at Temple University, where her lab focuses on the evolutionary ecology of plant reproduction. Since moving to Temple, she has conducted her research in the serpentine barren grasslands in southeastern Pennsylvania, with the overarching goal of understanding how land loss and land use influence plant reproduction, connectivity of plant populations among remaining grasslands, selection on floral traits, and, ultimately, population persistence.