

**New England Botanical Society
Graduate Student Research Award
2022 AWARD WINNER**

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**Effects of flowering phenology on pollination and reproduction
of a protandrous plant**

Hermaphroditic flowers employ a variety of mechanisms to discourage self-pollination and promote outcrossing with pollen from other individuals. One particularly common strategy is protandry, where a flower's male components mature, and pollen is released before the flower switches to a female phase in which it can receive pollen and set seed. Aside from helping to limit self-pollination, protandry can have other consequences for plant reproduction. Because all flowers of a given protandrous species follow the same male-to-female progression, few female-phase flowers are available to receive pollen when flowering begins, while male pollen donors are typically scarce near the end of the flowering season. While this phenomenon may lead to temporal variation in pollination and seed set of individual flowers, the extent to which it affects reproduction and associated costs in entire plants that differ in their overall timing of flowering (flowering phenology) is unclear. This study focuses on relationships between flowering phenology, pollination, and seed production in *Parnassia glauca*, a protandrous perennial wildflower. By monitoring flowering, reproduction, and survival of *Parnassia* over multiple years, this research will investigate 1) how intrapopulation variation in flowering phenology influences overall seed production of individual plants and 2) whether flowering phenology predicts costs of reproduction and timing of flowering in future seasons, providing novel insight on the pollination ecology and demography of protandrous plants.

The New England Botanical Society offers awards of up to \$3,000 to graduate students to support botanical research. The awards encourage and support botanical research on the New England flora (plants, algae, and fungi), including support for field, lab, and herbarium work, as well as travel to New England by those who would not otherwise be able to work in the region. The awards are made to the graduate student(s) submitting the best research proposal dealing with systematic botany, plant ecology, genetics, plant conservation biology, or related fields pertaining to the New England flora.