

**The New England Botanical Club
Graduate Student Research Award
2011 AWARD WINNER**

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**Determining patterns of genetic diversity and post-glacial
colonization of *Viola pedata* (Violaceae) with microsatellite markers**

Only a small body of literature exists using molecular tools to describe the modern distribution of perennial herbaceous plants in eastern North America, following their recolonization since the last Pleistocene glaciation. The genus *Viola* is the largest within the Violaceae and has an extensive diversity and distribution in north-temperate climates, making it ideal for such a review. Though numerous species endemic to North America demonstrate both variable and greatly diversified geographic and morphological aspects, little research has been done to address potential phylogenetic or phylogeographic questions in these taxa. One of the most distinctive and recognized North American violets is *Viola pedata*, commonly known as the "Bird's Foot Violet." This species occurs eastern North America, inhabiting prairies, dry woods, and roadsides, where it is easily identified by unique floral and vegetative traits. The distribution of this violet appears to coincide with areas considered Pleistocene refugia, making it an ideal candidate for addressing questions concerning the effects of glaciation, genetic variation, and the dispersal routes following the last ice age, and demonstrating how molecular methods may be employed to distinguish between *Viola pedata* varieties and their origins. Collection of leaf tissues for DNA extraction will be centered in presumed Pleistocene refugia with geographically intermediate sampling done as funding and time allow. Microsatellite markers will be used to assess genetic diversity between and within populations, with the expectation of providing the first large-scale genetic profile of a North American representative of *Viola*, and further, of an herbaceous plant on the eastern part of the continent. Identifying centers of diversity and the spatial pattern of genetic variation is valuable for conservation efforts, such as managing or reestablishing populations of potentially rare plants.

The New England Botanical Club offers each year up to \$2,000 total in support of botanical research to be conducted by graduate students. The awards are made to stimulate and encourage botanical research on the New England flora, and to make possible visits to the New England region by those who would not otherwise be able to do so. It is anticipated that two awards will be given, although the actual number and amount of awards will depend on the proposals received. The awards are given to the graduate student(s) submitting the best research proposal dealing with systematic botany, biosystematics, plant ecology, or plant conservation biology.