COASTAL MAINE BOTANICAL GARDENS
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1865 THE UNIVERSITY OF MAINE
SCHOOL OF FOOD AND AGRICULTURE

Posting: Environmental Horticulture Graduate Research Assistantship

Summary: This Research Assistantship in the School of Food and Agriculture is fully funded and is co-hosted by the University of Maine, Orono and Coastal Maine Botanical Gardens, Boothbay, Maine. This unique position is the first in an innovative joint program intended to provide opportunities for graduate students to experience and engage with the plant science and research teams at both institutions by advancing collaborative research initiatives.

The student selected will receive seven semesters of support, including a monthly stipend of $1,888.92, tuition, and the Graduate School's standard health insurance benefit.

Committee Chairs:

Advisor and Committee Co-Chair: Dr. Bryan Peterson, Interim Director, School of Food and Agriculture and Associate Professor of Environmental Horticulture, University of Maine; Faculty, Certificate of Native Plants and Ecological Horticulture Program, Coastal Maine Botanical Gardens.

Committee Co-Chair: Melissa Cullina, M.S., Director of Plant Science & Collections, Coastal Maine Botanical Gardens; External Graduate Faculty, School of Food and Agriculture, School of Forest Resources, University of Maine.

Research Project: "A test of genetic interactions between native plant cultivars and Maine wild relatives with implications for wild relative fitness."

Native plant cultivars have received much recent attention in ornamental horticulture because of their beauty, ecosystem services, and inherent suitability for local climate conditions. For these reasons, Coastal Maine Botanical Gardens and horticulturists at the University of Maine have explored and taken steps to initiate native ornamental cultivar development programs.

Recently, Coastal Maine Botanical Gardens has paused exploration of a native cultivar development program in response to concerns and questions posed by conservationists and colleagues about the use native plant cultivars in rural areas where proximity to wild relatives is likely. The uncertainties stem from speculation that native plant cultivars may cross with local populations of wild relatives to the detriment of those wild populations.

Native plant cultivars may have origins in different climatic regions of the country, may be hybrids with other taxa, or may be heavily selected for ornamental traits, such as flower color or size, double flowers, variegated foliage, compact habit, or any number of traits desirable in a garden setting. Any of these traits, underlain by the cultivar's genetic composition, may influence an individual plant's fitness, or ability to thrive and to pass its genetic material to offspring. Introducing such cultivated material in proximity to wild relatives could increase opportunities for crossing and geneflow, with unclear consequences for populations of wild relatives. While there is concern that crossing native plant cultivars with wild relatives may cause long-term harm to (reduce fitness of) populations of wild relatives, there is little if any empirical evidence in the scientific literature to substantiate such claims.

The Graduate Research Assistant will conduct experimental research to test whether, and to what extent, selected native plant cultivars will cross with populations of the same species in the wild in Maine and compare fitness of resulting progeny (in both wild and cultivated settings) with that of nearby wild populations to determine whether reductions in fitness occur after such crossings.

The results of this study will shed light on the current horticultural conversation on the use of native plant cultivars in rural settings. Implications are particularly important for our institutions and others practicing and teaching best ecological horticulture practices - and potentially developing cultivars - in a predominantly rural state such as Maine. The results will specifically help guide policy decisions on cultivar development at Coastal Maine Botanical Gardens and may impact policy decisions more broadly across public gardens that advance objectives in both conservation and ornamental horticulture.

Qualifications:

- An earned B.S. or B.A. in plant biology (horticulture, botany, ecology, agriculture) or related field.
- Must be able to work both independently and as part of a collaborative research team.
- Commitment to working across both organizations to support our shared research and educational missions and environmental horticulture objectives to develop cultivars that are ecologically responsible.
- Excellent communication, writing, and organizational skills are required.
- Experience with field research is preferred.
- Experience or a strong interest in genetics lab work is preferred.

Work schedule:

This is a year-round, 20-hour-per-week position which is planned to start in the spring 2025 semester. The student will be based at the University of Maine during the fall and spring semesters, and at both locations during summer terms. We are presently seeking funding to support travel between both locations and summer lodging at one of Coastal Maine Botanical Gardens' intern houses.

For consideration, please submit the following to bryan.j.peterson@maine.edu:

1. Your curriculum vitae (CV) detailing your education, research experience.
2. Cover letter indicating your interest in, and experience related to, this position.
3. Unofficial transcripts from all universities/colleges attended.
4. Contact information for three professional references who can speak to your qualifications for this position.
5. Scores for IELTS/TOEFL (if applicable) and GRE (optional).