

**Stony Brook University
The Graduate School**

Doctoral Defense Announcement

Abstract

Comparative analysis of phenotypes, phenotypic plasticity, and phenotypic integration of variably invasive *Centaurea* and *Crepis* introductions to North America.

By

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Despite a large amount of research on biological invasions, relatively few generalizations have been supported regarding their causes and consequences. Here I illustrate patterns of interest central to biological invasion research and suggest that better articulated questions and more appropriate experimental designs could significantly improve our understanding. I implement an alternative study design using variably invasive *Crepis* and *Centaurea* (Asteraceae) introductions. In these groups I compared architectural and fitness phenotypes, phenotypic integration, and phenotypic plasticity across phosphorous and water gradients. In single environment univariate analyses we found very few traits that systematically differed between invasive and non-invasive species. When grown across environmental gradients, invasive species showed greater evidence of tolerance to low phosphorus conditions. Path analysis of integrated phenotypes in a single benign environment suggested that invasive phenotypes may well be less constrained than less invasive species. Across a range of environments, some invasive species demonstrated an ability to relax trait constraints observed under more stressful conditions when they were grown under more favorable conditions.

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Place: Life Sciences Building, Rm 038

Program: Ecology and Evolution

Dissertation Advisor: Massimo Pigliucci