

Relatedness and Ecological Niche Similarity in the Genus *Heliconia*

Shalika Gupta

ABSTRACT

This study explored the ideas of phylogenetic signal and niche conservatism in the genus *Heliconia*. The ecological niches of species within two clades in the genus *Heliconia* were modeled using the Maxent modeling algorithm and were compared using mantel tests and age-range correlations. There was no evidence of phylogenetic signal as evidenced by age range correlations in either of the two clades of *Heliconia*. However, in the clade of Central American origin it appeared that distantly related species tended to have more similar niches than expected by random chance, indicating that distantly related species' ecological niches may have converged over time. These results support the notion that ecological niche conservatism may not be a fundamental guiding process in speciation of these tropical flowering plants and support other recent studies that suggest that phylogenetic signal of ecological traits and niche conservatism are not as widespread as previously assumed.

KEYWORDS

phylogenetic signal, niche conservatism, Maxent, age range correlation, mantel test