Oral Defense Announcement
University of Missouri – St. Louis Graduate School

An oral examination in defense of the dissertation for the degree
Doctor of Philosophy in Biology with emphasis in Ecology, Evolution, and Systematics

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M.S. in Biology, July 2014, University of Missouri-St. Louis
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Regional and Historical Influences on the Spatial Distribution of Neotropical Trees

Date: November 21, 2019
Time: 10:00 a.m. to 13:00 p.m.
Place: 236 Benton Hall

Abstract
This dissertation seeks to understand the effects of regional and historical processes on the spatial distribution of Neotropical tree species. In chapter 1, I investigate regional enrichment of local species assemblages testing two hypothesis: i) local species assemblages are enriched by unfiltered species pools, which are composed of all species that can disperse to a locality, regardless of the suitability of the local environment; and ii) local species assemblages are enriched by filtered species pools, which are composed of all species that can disperse to a locality from similar environments. I found that unfiltered species pools enrich local species assemblages. In chapter 2, I explore two legacies of the Great American Biotic Interchange: i) a major contrast in plant family composition between lowland and montane tree floras, and ii) lowland floras form a nested gradient of species diversity from the Darien to the Tehuantepec region, whereas montane floras form a nested gradient in the opposite direction. I found marked differences in the representation of families between lowland and montane floras. However, lowland and montane floras do not exhibit the proposed nested gradients of diversity. In chapter 3, I focus on the effects of the Last Glacial Maximum on the distribution of palms across Neotropical lowland humid-to-superhumid forest. I explore the hypothesis of postglacial migration lags, which states that due to the effects of past glaciations species do not occupy all climatically suitable areas. I found that palm species had little opportunity to experience postglacial migration lags but, nonetheless, seem to exhibit such lags. This thesis illustrates how consideration of processes operating at different spatial scales in particular historical contexts contributes to our understanding of current patterns and dynamics of species distributions, providing a foundation for efforts directed at the conservation of biodiversity.

Defense of Dissertation Committee
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