Poster #1-65

Fine-Root Traits by Succession Level in Puerto Rico

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BER Program: TES
Project: NGEE-Tropics
Project Website: https://ngee-tropics.lbl.gov/

Fine absorptive roots of vascular plants play an important role in the cycling of nutrients, carbon, and water in terrestrial ecosystems. Understanding how fine roots respond to various ecological metrics will inform model that predict how ecosystems respond to ecological stressors such as climate change. Some root traits have been shown to be highly correlated to one another, and these correlations persist when grouping tree species phylogenetically or by functional groups. This study sampled fine root vouchers from five common tree species: one native pioneer (*Cecropia scherberiana*), one introduced pioneer (*Spathodea campanulata*), one native nitrogen fixer (*Inga laurina*), and two native non-pioneers (*Dacryodes excelsa* and *Prestoea montana*). We sampled these species at six different sites in Puerto Rico with different soil phosphorus availability, plant composition, precipitation, and forest age. Only three of these species (*P. montana,C. scherberiana, and S. campanulata*) were distributed across multiple site. We measured six fine-root traits using only the first two root orders: root branching ratio, root branching intensity, root diameter, root specific length, mycorrhizal colonization, and root phosphorus concentration. We found that various root traits such as mycorrhizal colonization, specific root length, branching ratio, and phosphorus concentration showed significant relationships when grouping by successional level. Other relationships such as diameter and mycorrhizal colonization displayed trends indicating potentially similar relationships could be apparent given a larger sample size. We also found that the traits of the species that were distributed in different sites, did not change among sites. We conclude that the root traits measured in this study were related to the tree successional type and that the species that were distributed across multiple sites maintained their functional traits fixed despite the differences in forest environment.