

FUNCTIONAL TRAITS OF WOODY SPECIES AT THE RESTINGA AND LOWLAND FOREST AT THE ATLANTIC RAIN FOREST, BRAZIL

Theme: Biodiversity conservation indicators

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The ability of a given species to establish, survive and reproduce in any environment is associated to morphophysiological traits that improve acquisition of resources and resistance to harmful conditions. Thus, these functional traits have been considered as good proxies to resource acquisition from individuals to ecosystems. Based on functional traits, the ecological strategies of species has been tracked, since bring it up information about the life history, coexistence and niche differentiation of species. In resource-poor environments, for instance, plants tend to have a high leaf mass per unit area (LMA), high wood density (WD) and low growth rates that are related to the conservative use of resources. Considering conceptual difficulties associated to inferences of strategies such as competitiveness or shade tolerances, which are difficult to compare across habitats, functional traits provide the means to compare species from contrasting environments. In tropical forests, different sets of traits may allow plant species to cope to the high spatio-temporal environmental heterogeneity associated to factors such as forest structure, soil and topography. Therefore, comparisons of plant's performances along environmental gradients are important to evaluate the processes structuring plant communities. Here, we compared bivariate trait correlations between morphophysiological traits in two adjacent forests, the Restinga Forest (RF) and the Lowland Forest (LF), which have distinct conditions and resources. Although lies adjacent to the species-rich LF, fewer species colonize the RF's sandy substrate due to low water and nutrient content. Our study was performed at the Serra do Mar State Park, where we sampled from 1 to 4 individuals belonging to 37 woody species at the RF and 41 species at the LF. We measured traits such as LMA, WD and leaf thickness (LT), electron transport rate (ETR) and chlorophyll content (CL). We detected that RF and RF have differences in CL, ETR and LT. Considering these trends, we show that differential responses, associated to distinct array of traits, are related to different abiotic factors affecting plant species in both sites. Ultimately, by analyzing the different sets of functional traits at these forests, we brought new important pieces to the puzzle of which factors are structuring plant communities at the Brazilian coast. Keywords: functional traits, Atlantic Rain Forest. Acknowledgments: the research was supported by the State of São Paulo Research Foundation (FAPESP) as part of the Thematic Project Functional Gradient (Process Number 03/12595-7), within the BIOTA/FAPESP Program, The Biodiversity Virtual Institute (<http://www.biota.org.br>).