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THE IMPORTANCE OF DIFFERENT ENVIRONMENTAL FILTERS AND SPATIAL EXTENT IN TADPOLE METACOMMUNITY STRUCTURE

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Because similar metacommunity processes may operate in local and regional scale, the spatial extent of studies is important when we attempt to recognize processes that generates metacommunity patterns. These patterns may also change when we consider different ecoregions which vary in barriers to dispersal and environmental filters. Here we attempt to answer the following question: How does environmental filtering and dispersal processes affect tadpole metacommunity structure in different spatial extents and different ecoregions? We conducted this work in the Seasonal Semideciduous Forest (SSF) and Dense Rain Forest (DRF) from the Atlantic Forest. These ecoregions mainly differ in their climate seasonality and land use intensity, so we had the following predictions: (1) All tadpole metacommunities have greater influence of environmental filtering processes in fine spatial extent (FSE); (2) Considering only deforested areas of the SSF, broad spatial extent (BSE) metacommunities may have similar patterns of those found in FSE; (3) Considering forestated and deforested areas of SSF, environmental filtering should still be the main structuring process, separating groups of species from forestated and deforested areas; (4) Dispersal is the main structuring process in the BSE in DRF metacommunity due to dispersal barriers. We found weak evidence of greater environmental filtering process in FSE, but strong evidence of it for all BSE metacommunities. The deforested/forestated areas did separated species in two different groups and the deforested metacommunity had similar patters to some found in FSE. Interestingly, the broad scale DRF metacommunity showed a nested species distribution pattern accordingly to canopy cover. In conclusion, we found that the Atlantic Forest tadpole metacommunity structures are more influenced by environmental filtering than dispersal process, and the most important environmental filter is canopy cover, which generates nested metacommunity patterns. In the absence of canopy cover, other important filters emerge, such as hydroperiod and local vegetational heterogeneity.

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