

Project Update: March 2022

Updated abstract

Mangrove forests are immersed in anthropised coastal landscapes due to their high economic productivity, impacting their ecological processes. Bird assemblages may respond differently to landscape structure at different spatial scales, depending on species groups based on their food requirements, so their study in mangroves may reveal multi-scale influences. This study analysed the relationships between landscape features and mangrove-associated bird assemblages at three nested spatial scales (landscape, fragment, and local) in the central coast of Veracruz, Mexico. We established fixed width transects to record birds at three focal mangrove sites and classified the assemblage by diet type. We set 2-km radii at each site to delimit landscapes and estimate metrics. We placed three plots at each site to characterise local vegetation. We used simple negative binomial regressions to identify patterns of association between landscape variables and birds. Relationships were similar for some dietary types, carnivorous and crustaceous birds were associated with landscape (Shannon diversity) and local variables (basal area, mean height). Frugivorous and insectivorous species showed associations with mangrove area, fragment area and local variables. Omnivorous and vermivorous species had associations with landscape scale variables (Shannon diversity, agricultural area, and secondary vegetation) and fragment area. Our results suggest that the bird assemblage has different responses at the spatial scale of analysis depending on the dietary group, which is a function of their habitat requirement. For some mangrove-associated bird dietary groups, this habitat may be used as a feeding site, and for other groups as an extension of other habitats for roosting or refuge. We suggest continuing ecological research at different landscape scales in coastal ecosystems, in order to generate baselines and apply conservation strategies for the mangrove forest and its birds, as well as its associated habitats with more comprehensive approaches.