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Avian Beta Diversity in a Neotropical Wetland: the Effects of Flooding and Vegetation Structure

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Abstract

Habitat heterogeneity in the Pantanal results from flood dynamics and vegetation characteristics. Considering that these impacts affect landbird nesting conditions and food resource availability, species turnover and richness should respond to them. We conducted this study in the northeastern Pantanal, in two dominant habitats, savanna and forest, covering two annual cycles. The objectives were: (1) evaluation of trophic structure, (2) analyses of species dissimilarity patterns, and (3) investigation of whether seasonal changes in the flood regime and/or vegetation characteristics drive these patterns. We used mist nests to acquire data on bird species composition, abundance, and guilds. Insectivore and omnivore species were the predominant guilds. The bird community showed very high overall dissimilarity, with a Jaccard Index of 0.86, with 86% attributed to species replacement and 14% to species nestednesss. This high dissimilarity reflects the reduced number of shared species, mainly between some savannas and forests (12%). Our analyses also showed that habitat characteristics, specifically the differences in vegetation structure and composition, mostly explained the species turnover. Flood seasonality was also an important driver of bird community spatial variability, in which dissimilarities in species composition increased from the terrestrial to the aquatic phases, with the wettest phase being the most dissimilar.

Keywords Pantanal · Neotropical landbird communities · Dissimilarity · Nestedness · Vegetation structure

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