INSIGHTS INTO PAMPEAN AVIAN ASSEMBLAGES UNDER THE THEORY OF STATISTICAL ANALYSIS FROM COMPOSITIONAL DATA

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We investigated the proportional abundance of functional groups of birds in three different environments (grassland, forest, and palustrine) to be used as an ecological marker useful for palaeoecological reconstructions. Our interest lay in the relative changes of foraging strategies (FS) present in the Pampean Region of Neotropical Argentina: hawker (H), grazer (G), generalist (E), arboreal (A) and scavenger (S). Taking into account the sample space of compositional data, a simplicial PCA was applied to achieve two purposes: to detect relationships inside our data structure and to determine the laws for describing and modeling the behavior of the FS. A compositional linear trend was reflected in the statistical results in the forest three-part simplex H-A-G (99% of the total compositional variability) and the palustrine environment three-part simplex H-E-G (81% of the total compositional variability). When mapped, these FS assemblages display spatial patterns which correlate to climatic and fitogeographic factors. Three-part simplex H-S-G in grassland environments do not exhibit linear trends between the FS and therefore do not adjust to this predictive model. These qualitative analyses allow both understanding of the avian community structure and detection of parameters that strongly influence the distribution of some species.