

ABSTRACT

Species distribution and composition of bird communities of South Africa is not accidental, but is influenced by environmental conditions, habitat structure, and natural history of the area. Functional traits of the species (morphology, dietary strategies or reproductive parameters) give information on how the individuals interact with the environment they live in. The description of the functional characteristics, expose specific adaptations and the role of the species in the studied ecosystem. On the basis of functional characteristics we are able to estimate functional diversity of studied community. The spatial variability of species and functional diversity allocates longitudinal gradient. Regarding the morphological and reproductive parameters that are continuous in nature and more species-specific, we observe a faster increase in functional diversity. Considering the feeding preferences that are categorical and show a limited number of levels, a modest increase in functional diversity apparent is. Dietary functional diversity is more evenly distributed. Relationship between the functional and species diversity can provide us with information about how species are added to the community or answer the question to what extent the higher number of species requires more ecological space. The highest values of functional diversity are typical for productive, structured and heterogeneous floristic habitats of forests, savannahs and grasslands, which is valid to low levels of species diversity. Conversely, functional diversity increases slightly with increasing gradient of species diversity in these areas which are functionally more equal. Nama Karoo and succulent Karoo, the less productive environments with poorer vegetation cover, show the lowest level of functional diversity at low species richness values. But there is a more evident increase of functional diversity with the number of species increase. It's caused by the presence of specific microhabitats, especially water areas that are suitable for ecologically more diversified species. Relative functional diversity refers to different levels of functional diversity, higher or lower than expected, at the particular value of species diversity. The general trend indicates a higher relative functional diversity in productive, heterogeneous vegetation environments of savannahs, forests, grasslands and fynbos. Lower relative functional diversity prevails in the western part of southern Africa, in the Nama Karoo and Succulent Karoo, which low productivity, poor vegetation cover and limited water availability is typical for. The relationship between the functional density and functional volume reflects the relative distinction between these two aspects. For a given volume level, we observe the highest overestimated density in areas of high species richness, productivity (savanna, forest, thickets) and heterogeneity and uniqueness of vegetation (inland fynbos). Areas with the lowest density relative to the volume are located in less productive areas in central part of the region (succulent Karoo, Nama Karoo, Lesotho) and coastal parts of fynbos (heterogeneous, finely structured area, providing space for more finely ecologically diversified species).