TROPICAL DECIDUOUS FOREST: A FUNCTIONAL GROUP APPROACH

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INTRODUÇÃO

Functional groups are grouping of species which have similar characteristics or use the same resource (Lyon & Sagers¡ins datetime="2011 - 04 - 18T14:51"cite="mailto:V»,¡/ins¿ 2003) and thus perform the same or, at least, similar role in a community or in the ecosystem (Blondel¡ins datetime="2011 - 04 - 18T14:51"cite="mailto:V»,¡/ins¿ 2003; Walker *et al.*, ¡ins datetime="2011 - 04 - 18T14:51"cite="mailto:V»,¡/ins¿ 1999). The classification in functional groups (FGs) allows to reduce a great quantity of species in a small group of functional types, which incorporate the same answers to perturbations or are similar regarding to dispersion, competition and survival processes (Hubbell¡ins datetime="2011 - 04 - 18T14:51"cite="mailto:V»,¡/ins¿ 2005; Skov¡ins datetime="2011 - 04 - 18T14:51"cite="mailto:V»,¡/ins¿ 2000).

For a good representation of ecological functions we need to choose traits that represent important functions to systems. Most studies on functional diversity in plant communities have focused on the importance of traits associated with plant physiology (Girão *et al.*, ¡ins datetime="2011 - 04 - 18T14:51"cite="mailto:V»,¡/ins¿ 2007). We still know ¡del datetime="2011 - 04 - 18T08:31"cite="mailto:hp»¡/del¿little regarding the functional diversity of traits that affects ecosystem functioning, such as those related to plant - animal interactions (Mayfield *et al.*, ¡ins datetime="2011 - 04 - 18T14:51"cite="mailto:V»,¡/ins¿ 2005). So we need studies that associate plant physiology and plant - animal to better understand and compare forests systems. We will try to understand the functionality of seasonally dry tropical forest, one of the most threatened ecosystem in Brazil (Espirito - Santo *et al.*, ¡ins datetime="2011 - 04 - 18T14:51"cite="mailto:V»,¡/ins¿ 2009). Nevertheless dry forest are neglected on research and conservation efforts compared to tropical rain forests (Sanchez - Azofeifa *et al.*, ¡ins datetime="2011 - 04 - 18T14:51"cite="mailto:V»,¡/ins¿ 2005). We know little about the ecological functions of these threatened forests to ecosystem and comparisons of ecological functions in similar physiognomic environments are still lacking.

OBJETIVOS

Our objective is test the follow questions: 1) does dry forest presents the same functional groups? 2) Does these functional groups have the same value to ecosystem?

MATERIAL E MÉTODOS

This study was conducted in three dry seasonal forests in state of Minas Gerais, southeastern Brazil. The sites were in the same climatic zone characterized by warm temperatures throughout the year with a rainy summer and dry winter. A plant species list of the three seasonal deciduous in arboreal communities studies (Kilca *et al.*, ¡ins datetime="2011 - 04 - 18T14:51"cite="mailto:V»,¡/ins¿

2009; Siqueira *et al.*, ¡ins datetime="2011 - 04 - 18T14:51"cite="mailto:V»,¡/ins¿ 2009).Only species with at least five individuals with circumference at breast height (CBH) equal or higher than 15 cm were included. For each species, data were collected on a range of three physiological traits: (1) shade tolerance, (2) deciduousness, (3) desiccation tolerance of seeds; one structural feature: (4) vertical strata; and two animal - plant interaction: (5) dispersal syndrome and (6) pollination syndrome. A total of 53 species were analyzed. First we perform a presence/ausence matrix with traits then transform these data in a ecological distance matrix (Petchey & Gaston 2002b). The functional groups were revealed by a cluster analysis defined by Euclidian distance and dendrogram generated thought the Ward Method.

RESULTADOS

The 53 tree species here analyzed represents 92% of the individuals showed in the deciduous sites. These high values indicate the high representation of species analyzed to these systems. The dendrogram form five functional groups and all five occurred in three deciduous forests; however the number of individuas was variable. Group 1 (G1) was the more abundant group in all dry forest and represents the largest biomass retainer forest. This group is a canopy, deciduous, light demanding group and abiotically dispersed mainly by wind with orthodox seeds. G1 is the characteristic group in dry forests due canopy deciduousness and we believe it is important classify these forests based on the others traits presents in G1. Other deciduous group is G2, however is a sub - canopy group. This group is interesting because has both light demanding and shade tolerant species and exemplifies the distinct illumination degrees below canopy. The other three groups are extremely important due faunal resources. All three are perennials and dispersed by animals, thus provide two valuable resources: shade and shelter from strong tropical temperatures and food. Group 3 is the only group dispersed by mammals and deserves special attention as conservation. This group is perennial, light demanding and canopy too and represents about 10% of trees. G4 and G5 are two ornitochorous shade - tolerant and subcanopy - understory groups. These groups represent a neglected forest piece because most classifications works with canopy and their characteristics, but the understory is totally different and should be considered in forest classifications. For example, in one studied deciduous forest, these groups represent more than 50% of forest trees but not to other two forests (below 20% of representativeness).

CONCLUSÃO

Thus this work shows that the dry forests present the same functional groups and re valuable to ecosystem functions. However some are neglected in classification and should have major relevance to conservation efforts.
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