



SOIL SPIDERS OF INTRODUCED AND NATIVE ECOSYSTEMS IN THE CERRADO-PANTANAL ECOTONE

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INTRODUÇÃO

Spiders represent an abundant taxonomic group in most terrestrial habitats, being found anywhere from the soil and litter to the forest canopy, representing a significant portion of arthropod diversity in these sites. The distribution of these organisms depends directly on the physical structure of the environment, characteristics of the soil, and the availability of prey in the area. These can provide accurate information on the habitat structure, composition and organization of terrestrial invertebrate communities. Thus, spiders have gained wide acceptance in ecological studies as indicators of environmental quality since they have shown a strong preference for habitat type and pattern of land use (Weeks and Holtzer 2000). Despite being considered an abundant group in nature and all sampling efforts undertaken in inventories of the fauna of arthropods, knowledge on the community of spiders in Neotropical landscapes is incipient.

OBJETIVOS

Here we characterized the soil spider fauna in introduced (pasturelands of *Brachiaria* spp.) and native (patches of Brazilian savanna) ecosystems in Brazilian Cerrado-Pantanal ecotone.

MATERIAL E MÉTODOS

Spiders were sampled in four areas of exotic pasturelands (*Brachiaria* spp.) and two patches of native vegetation (Brazilian savanna), in the transition region between the Cerrado and Pantanal ecosystems in Aquidauana, Mato Grosso do Sul, Brazil (20°28'15" S, 55°47'13" W). The spiders were collected with pitfall traps buried at ground level containing approximately 250 mL of a 1.5% liquid detergent solution. In each of the six areas, four transects (100 m) were made and separated by 100 m. In each transect, three points separated by 50 m were defined. In each point, four traps were placed at a distance of 10 m from each other to form a square. Samples were collected in October 2010 when the traps remained active for 48 h in the field. The spiders captured were identified by the last author (PCM) and vouchers are deposited at the Arachnid Collection of the Department of Zoology of the

Universidade de Brasília (Brasília, Distrito Federal, Brazil). To evaluate the efficiency of the employed sampling program, completeness was assessed by calculating the number of observed species as a percentage of the total species richness, which was estimated based on the average of four abundance-based non-parametric estimators: Chao 1, 2, Jackknife 1, 2. The richness estimates were calculated with the software EstimateS 7.5, utilizing 500 randomizations (Colwell 2005).

RESULTADOS

A total of 145 adults were collected (112 males and 33 females) distributed among 12 families and 24 species of spiders in introduced and native ecosystems. We captured 120 and 25 adults in the exotic and native systems, respectively. Seventeen species were found in the exotic ecosystems, 10 in the native ecosystems, and only four were common to both systems. *Oxyopes salticus* (Hentz, 1845) (Oxyopidae), was exclusive of the pasturelands, and with 44 adults was the species most abundant, represented 30.34% of all individuals captured. Twenty-six juveniles distributed in eight families of spiders were sampled in introduced and native ecosystems. Four and five families were found in introduced and native ecosystems, respectively, and only Lycosidae was common to both. Oxyopidae with 10 specimens was the most abundant and represented 38.46% of all juvenile individuals sampled. The richness estimate indicated a maximum of 27 and 19 species for introduced and native ecosystems, respectively. The average of these estimates and observed richness indicates that sampling efficiency was roughly 72.08% for introduced and 64.20% for native ecosystems.

DISCUSSÃO

Our study of the spider community contributes to the understanding of local diversity of these arthropods. In exotic landscapes, the pattern of few abundant and many rare species is maintained, the standard in tropical biodiversity, even though it is a modified habitat. We believe the greater richness of adult spiders sampled in the exotic system is due to the fact that spiders move more in search of prey because litter complexity is lesser when compared with the Brazilian savanna, this causes the spiders to travel further and thus increases their chances of being captured by the traps. The high dominance of Oxyopidae (especially *O. salticus*) is possibly related with their preference for open environments (Lopes *et al.* 2006). Adults of Lycosidae were not found in the native ecosystem. Lycosidae has intimate relationship with open environments, such as pasturelands, being rarely found in dense forests and presumably coevolved with open environments (see review of Jocqué and Alderweireldt 2006). Thus, this is another indication that lycosids can be used to assess the environment quality. Although it was not possible to identify the species of the juveniles, a high proportion of adults in relation to juveniles was observed. This may indicate that the rearing period of many species may be during different seasons. Different periods of reproduction throughout the year can reduce intra and inter-specific competition, for a mate in the first case, and/or for prey, shelter, nesting, breeding and other factors, for both cases. The high estimated values of species richness were due to the presence of several unique species during sampling. Because greater values of spider richness and abundance have been sampled in the Brazilian savanna during the rainy season (e.g., Freire-Jr. and Motta 2011) we believe that the low sampling efficiency may be related to the period that trapping was performed, which was at the beginning of the rainy season.

CONCLUSÃO

Our findings about the characterization of the soil spiders fauna in introduced and natural ecosystems can help us understand the complexity of the effects of environmental impacts on Neotropical biodiversity.

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