



COMMUNITY STRUCTURE OF FRUIT-FEEDING BUTTERFLIES (LEPIDOPTERA) IN AN AMAZONIAN FOREST AREA IN THE MARANHÃO ISLAND, BRAZIL

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INTRODUCTION

Lepidoptera is the second order of insects, comprising *ca.* 146.000-180.000 species (Lamas, 2008). The butterflies are classified in six families: Pieridae, Papilionidae, Hesperiiidae, Riodinidae, Lycaenidae and Nymphalidae (Brown & Freitas, 1999). The adults are divided in two guilds: nectar-feeding and fruit-feeding (Brown & Freitas, 1999). Butterflies are considered important bioindicators of environmental impacts because these insects have short life cycle, are easy to sample and have a well known systematic and ecology (Brown & Freitas, 1999). Maranhão state is located in an area of transition between two Brazilian biomes, which makes it interesting from the biogeographical and diversity perspectives.

OBJECTIVES

Characterize the community structure of fruit-feeding butterflies in two Amazonian forest fragments.

MATERIALS AND METHODS

Study site: this study was carried out between April 2011 and April 2013 in an Amazonian forest area of approximately 400 ha located at São José de Ribamar, Maranhão (2° 38' 47.03''S; 44° 08' 26.25''W), covering about 80 ha of primary forest and 150 ha of secondary forest. The rest of the area is composed of mangrove (120 ha) and coastal vegetation (50 ha). The dominant climate is the moist mega thermic, with high temperatures practically through the whole year. The rainy station occurs usually from January to July, accumulating about 94% of the annual rain total.

Sampling: two sampling points were established, one at the primary forest fragment and the other at the secondary forest fragment. Each point is composed by a trail of 600 meters with three transects of 200 meters each. Monthly, in each one of the forest fragments, nine cylindrical traps were placed with fermented banana and sugar cane juice, during two days. The traps were disposed a meter and a half from the ground.

RESULTS

We captured 692 individuals in the traps, comprising 35 species, being 8 of them exclusive of the secondary forest fragment, 2 of them exclusive of the primary forest fragment and 25 species found in both areas. From these, 403 were collected on the rainy and 289 on the drought season. The abundance was different between the study areas, being 495 specimens (69%) sampled in the secondary forest and 173 specimens (31%) in the primary forest

fragment. The diversity indexes were different between the primary forest (Shannon H= 2.87; Fisher alpha= 8.608; Simpson= 0.913) and the secondary forest (Shannon H= 2.419; Fisher alpha= 7.804; Simpson= 0.8463), as the dominance (Dominance= 0.0869 and 0.1537, respectively). The richness estimators showed that 77-86% of the total richness of the studied assembly was sampled (Chao 2= 40.25; Jackknife 2= 45.36).

DISCUSSION

The higher dominance and the lower diversity index in the secondary forest might be due the major dominance of *Hamadryas februa* and *Hermeuptychia hermes* in this fragment. Moreover, the abundance difference between the two forest fragments can be explained by the fact that Nymphalidae butterflies suffer pronounced populational modifications in disturbed systems (DeVries & Walla, 2001). Several studies have showed diversity and abundance raise of fruit-feeding butterflies after a moderated disturb and our study corroborates these data (Brown & Hutchings, 1997). The different abundance between the seasons suggests an evident relation with the rainfall index. The number of species sampled is inferior to other studies in the Amazon (Ribeiro & Freitas (2012) and Shahabuddin & Terborgh (1999) collected 68 and 41 species, respectively). Thus, the good representativity of the assembly showed by the richness estimators of our study may be due to the number of traps and the characteristics of the study site.

CONCLUSION

The present study shows that the diversity, abundance and dominance in the fruit-feeding butterfly assemblage tend to be different in preserved and moderately disturbed areas in an Amazonian forest fragment, thus being an important point for the understanding of how these organisms respond to the anthropic pressures in a region of the country still with few studies of this nature.

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