

HABIT DISTURBANCE & ANT DIVERSITY IN URBAN AREAS: A CASE STUDY IN THE CAMPUS OF THE UNIVERSITY OF SÃO PAULO, SÃO PAULO, BRAZIL

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Introduction

Ants are present in almost all environments, and have a huge ecological importance as they represent a large proportion of the animal biomass and provide various ecosystem services. Ants are also considered good indicators of ecosystems health. Hence, understanding how ant communities are structured in urban areas is important to evaluate how habitat disturbance affect them. We compared the diversity, richness and abundance of ants present in two urban environments, one preserved and the other disturbed.

Methods

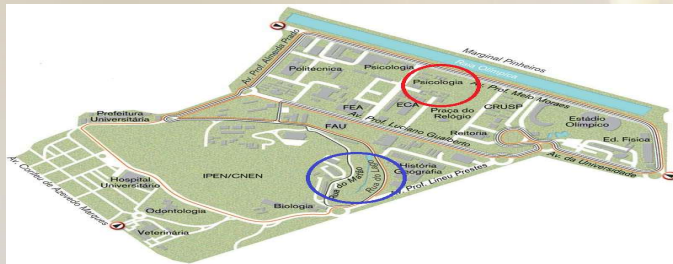


Figure 1: Map of the Cidade Universitária with the collection sites delimited. In red the Psychology Institute. In blue the Forest reserve.

Psychology Institute - IP



Figure 2: Map of the IP, with the transects and points delimited. Buildings are represented in black.

Forest Reserve - Matinha



Figure 3: Map of the Matinha with the transects and points delimited. The colors represent different vegetation compositions.



Figure 4: Pitfall trap used in ant collection.



Results

A total of 1838 ants, from 43 species, and 6 subfamilies: Ponerinae (6), Dorylinae (1) Ectatomminae (2), Myrmicinae(24), Formicinae (8) e Dolichoderinae (2) were collected. The disturbed area presented 28 species, and the preserved area 26 species.

Table 1: Results of T-Test for the abundance, richness and diversity between the both environments.

Simpson Index	Higher in the matinha (P<0,001)
Richness	Higher in the IP (P<0,001)
Abundance	Higher in the IP (P<0,001)

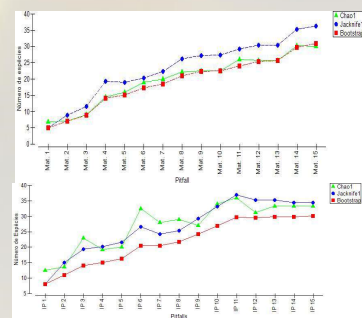


Figure 4: Chao, Jackknife and Bootstrap curves for species accumulation from the 15 pitfalls of the Psychology Institute (superior) and the Forest Reserve (inferior).

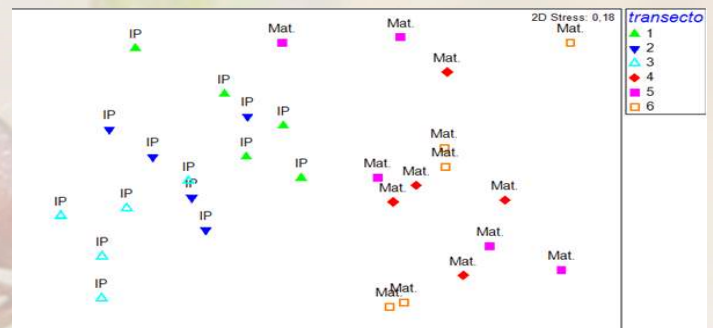


Figure 5: NMDS based on the matrix of Bray-Curtis similarity of abundance of species in each pitfall. Mat.: Matinha, IP: Psychology Institute. IP transects are represented by triangles and Matinha transects by squares (cf. legend).

Discussion

- IP has a low urbanization degree, allowing a similar ant diversity than that of the preserved area.
- Species composition was very different in the two environments, with an overlap of only 25,58%.
- There was a predominance of mass recruitment in the IP, and the presence of more hypogaeic species in the Matinha.
- The two environments have very distinct vegetations. The IP has a more heterogeneous composition than the Matinha and transects differed in their composition
- The Matinha present a predominance of trees. However we did not collect arboreal ants, and the number of species that use this niche was underestimated.

Bibliographic References

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 Lach, L., Parr, C. L., Abott, K. L. (2010). Ant ecology. Oxford University Press