



# DIVERSITY OF BIOLUMINESCENT BEETLES (COLEOPTERA: ELATEROIDEA) IN THE URBAN AREAS OF CAMPINAS, SOROCABA AND RIO CLARO.

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## INTRODUCTION

Brazil hosts the richest biodiversity of bioluminescent beetles in the world (Viviani, 2001). Several species are found in the Atlantic rain forest, one of the richest and most threatened ecosystems. However, no catalogs of the regional biodiversity have been made. Furthermore, studies on the effect of urbanization on bioluminescent beetles biodiversity are still missing. Such kind of studies could be especially helpful to select new night environment bioindicators.

## OBJECTIVES

In this study we have catalogued the biodiversity of bioluminescent species of Elateroidea superfamily occurring in three large and expanding urban areas in central São Paulo state: Campinas, Sorocaba and Rio Claro municipalities.

## MATERIAL AND METHODS

Collecting and observation sites.

Fireflies were collected and observed in Campinas municipality: Jardim das Palmeiras, Vila Nogueira and Fazenda Santana (Sousas); Sorocaba municipality: Campus of Universidade Federal de São Carlos, Jardim Clarice (Votorantim), and Rio Claro municipality.

Collecting techniques.

Fireflies and click beetles were collected in flight with entomological net or on the grass at night. Their larvae were collected on the ground and on the grass.

Identification of fireflies.

Fireflies and other luminescent beetles were identified by comparison with specimens of the Collection of Bioluminescent Coleoptera, under responsibility of Prof. Viviani at UFSCAR.

## RESULTS AND DISCUSSION

The municipalities of Campinas, Sorocaba and Rio Claro are located in the central region of São Paulo State, which previously was covered with seasonal Atlantic Rain forest and also cerrado (savannas). In Campinas municipality, we have followed the occurrence of bioluminescent beetles in different sites during the past 20 years. There were 26 species in Campinas, 21 in Sorocaba and 19 in Rio Claro. These species occur mainly in conserved remnants of Atlantic rain forest environments (LAMP:9 species; PHENG: 3 species; ELAT: 4 species), secondary growths (LAMP: 8 species; ELAT: 4 species), marshes (LAMP: 4 species) and open fields (LAMP: 8 species; PHENG: 1 species). Fireflies (Lampyridae) were found in almost all habitats, whereas click beetles (Elateridae) and railroadworms (Phengodidae) occur predominantly in woody environments. In urban areas only the fireflies *Aspisma lineatum*, *Cratomorphus concolor* and *Bicellonycha lividipennis* were found.

## CONCLUSION

As expected the richest environments are Atlantic rain forest remnants, followed by secondary growths, open fields and marshes. Urban sprawl has an evident impact on the biodiversity of this selected group of beetles, and special attention should be given to the effect of artificial night lighting in the occurrence of these beetles. These studies offer insights on the potential use of a selected group of luminescent beetles found in this region as nocturnal environment bioindicators.

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## REFERENCES

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