

Biodiversity, foraging behavior and pollinator efficiency of flower visitors of *Aechmea nudicaulis* in secondary forest and restinga, Southern Brazil

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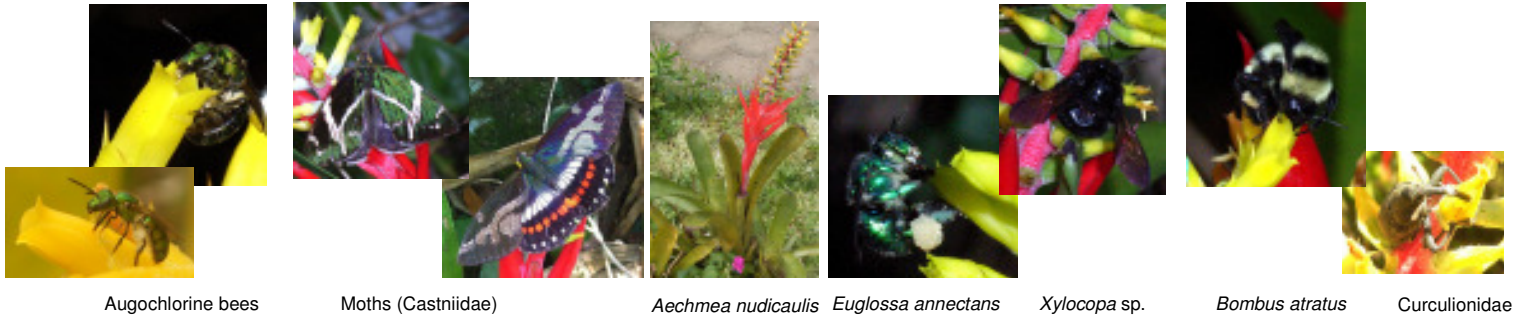


Introduction

Among bromeliads, ornithophily is the most widespread floral syndrome. However, bees and other insects can also be observed on their flowers. Therefore, we aimed to systematically record the spectrum of flower visitors and to document temporal pattern and pollinator efficiency.

Materials & Methods

- examined bromeliad species: *Aechmea nudicaulis*
- habitat types: secondary forest and restinga
- recording flower visitors and their behaviour at the inflorescences
- pollinator efficiency experiments with bagged inflorescences



Augochlorine bees

Moths (Castniidae)

Aechmea nudicaulis

Euglossa annectans

Xylocopa sp.

Bombus atratus

Curculionidae

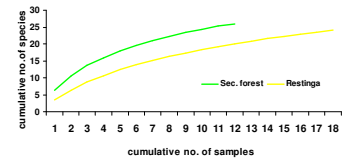
Results

1. Diversity of flower visitors

About 30 species of insects, two birds, *Thalurania glaucopis* (Trochilidae) and *Coereba flaveola* (Coerebidae) and some salticids were observed.

Bees represented 40% of all taxa in both habitat types as well as 86,4% (secondary forest) and 53,8% (restinga) of all individual flower visitors.

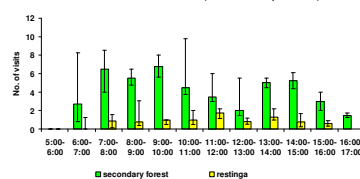
Species accumulation curves for both habitat types.



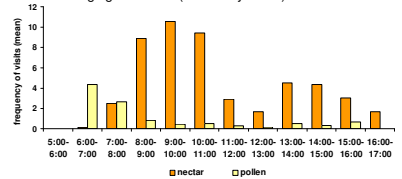
2. Foraging behaviour

- Pollen was mainly collected between 6 a.m. and 9 a.m., afterwards nectar was collected (diagram on the right)
- Some visitors (e.g. birds and moths) collected only nectar. Bees collected mainly pollen in the morning and switched to nectar after the pollen was depleted.

Number of flower visits / hour (median & quartiles)

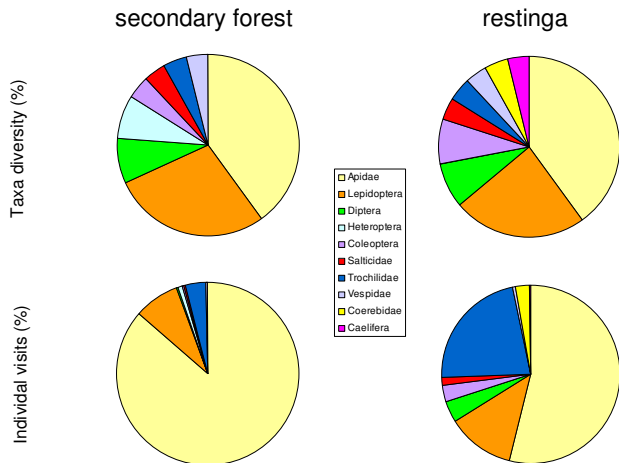
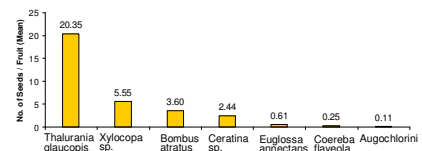


Foraging behaviour (secondary forest)



3. Pollinator efficiency of different visitors

- Thalurania glaucopis* is the main pollinator.
- Bee species like *Bombus atratus*, *Xylocopa* sp. and *Ceratina* sp. also pollinate the flowers.



Conclusions

- Although the flowers show an ornithophilous syndrome and the efficiency experiments revealed the hummingbirds to be the main pollinator, the flowers constitute a very important food resource for a huge range of insects, especially bees.
- Species accumulation curves indicate that diversity in secondary forest is higher than in restinga and that there are still species to discover.
- The pollen is rapidly depleted by bees most of which can be regarded to act as pollen and nectar thieves, stealing those "pollination rewards" throughout the whole day without conferring any benefits on the plant.

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Species accumulation curves were computed using „EstimateS" (Version 7.5, R.K. Colwell, <http://purl.oclc.org/estimates>)

