Caterpillar community feeding on *Spathodea campanulata* (Bign.), an alien tree in lowland rainforests of New Guinea

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Background

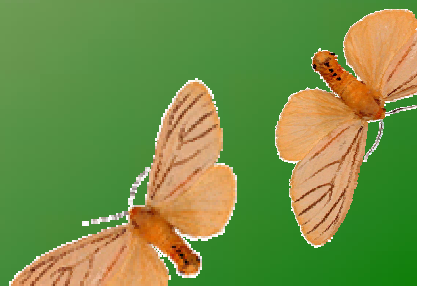
- Native to Africa widely cultivated in Asia and introduced to the Bismarck archipelago during German occupation of New Guinea
- One of the most abundant trees in secondary forests in Madang area
- No close relatives native to New Guinea

Recorded as invasive weed in Christmas Island, Hawaii.

Objectives

The aim of this presentation is twofold

1. First is to record the number of species of caterpillars that have successfully colonized *Spathodea campanulata* in the secondary forests around Madang area
2. The second objective of this study is to determine the native hosts from which the caterpillars feeding on S. campanulata came from.

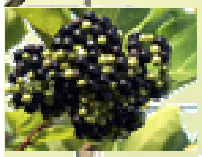


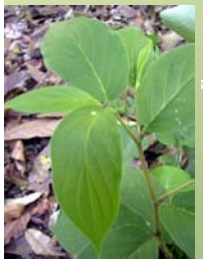
Methods

- Field collection (3 days a week for 7 months)
- Assigning of caterpillars to species and digital photography
- Rearing of caterpillars to adult moths
- Mounting and drying of specimens
- Labeling and data basing of specimens

Methods

Host preference experiments





S. campanulata
Bignoniaceae

T. dendrophila
Bignoniaceae

Vitex cofassus
Lamiaceae

P. obtusifolia
Verbenaceae

Geunsia farinosa
Verbenaceae

C. magnusianus
Acanthaceae

Nauclea orientalis
Rubiaceae

Ficus pungens
Moraceae

Macaranga frag.
Euphobiaceae

Trichospermum sp.
Malvaceae

Piper aduncum
Piperaceae

- 10 plants species

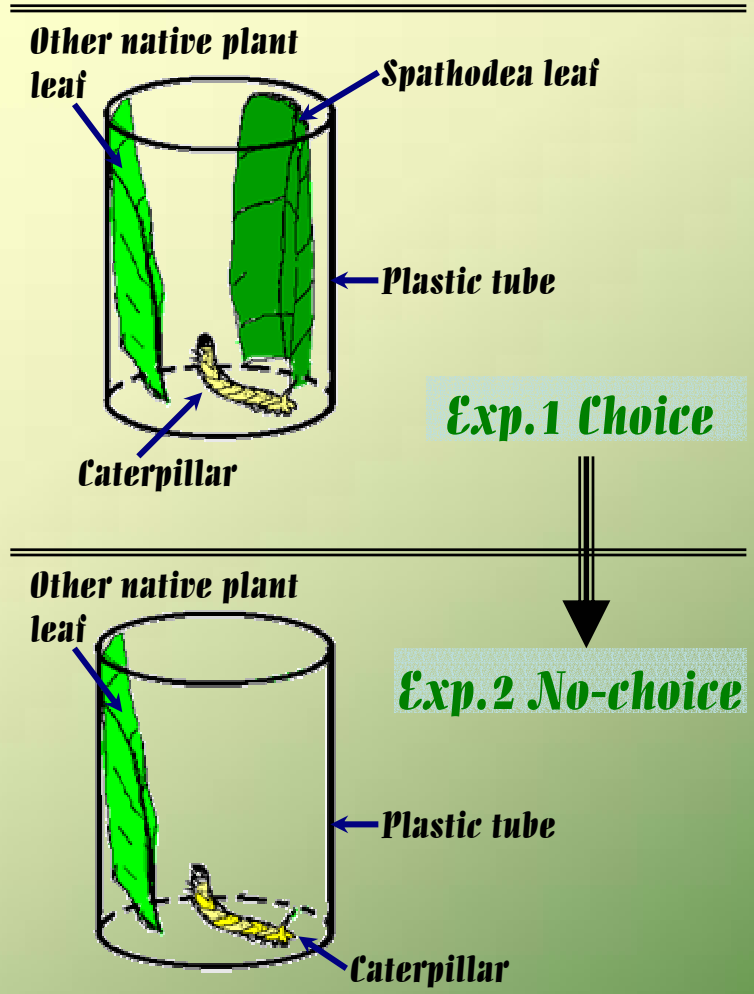
selected for feeding test experiments are both from

the closely related families

and other distantly related families as well.

Methods

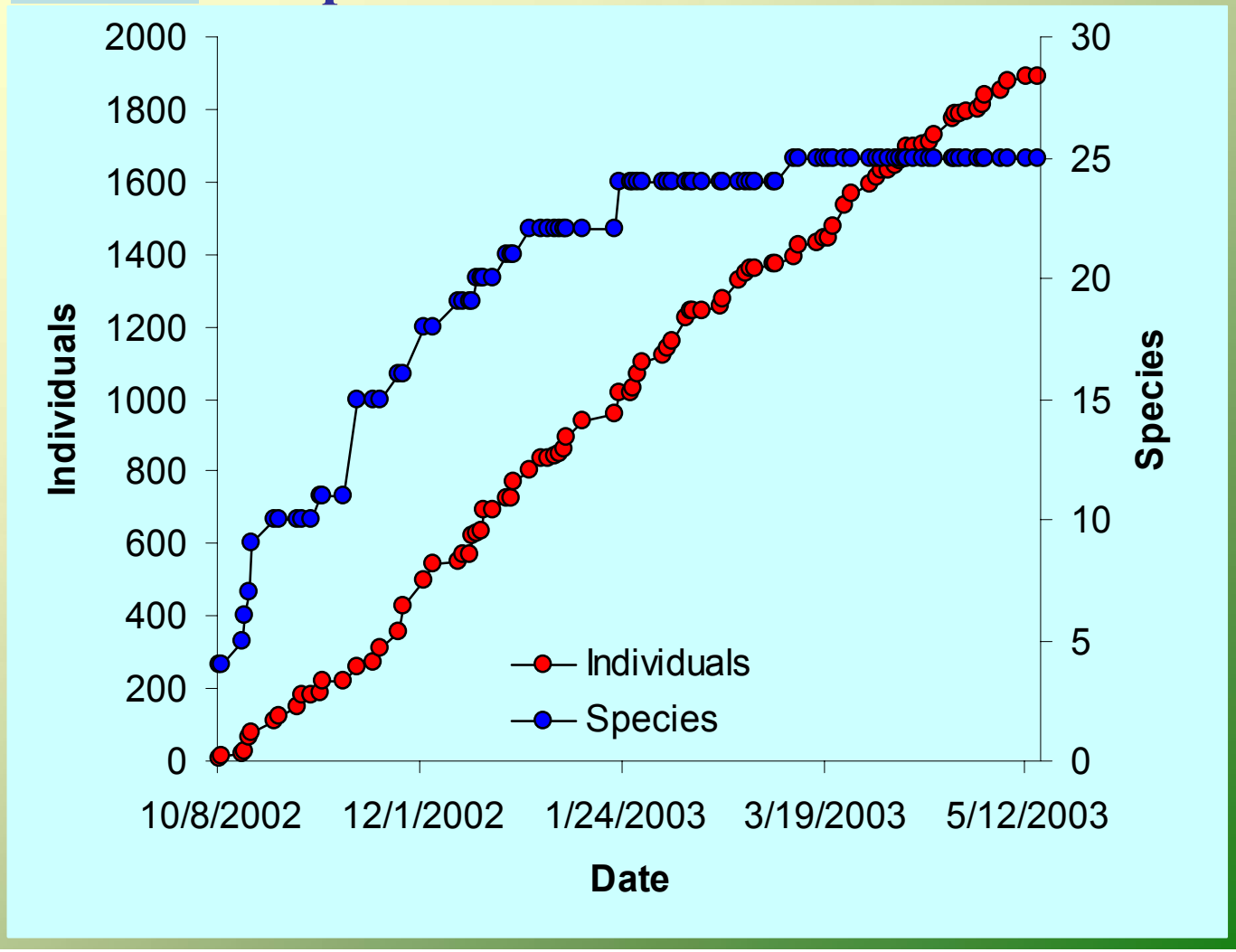
Host preference experiments



- Test feeding was set up for 24 hr. period.
- *Exp.1 (Choice experiment)* the caterpillar is placed with Spathodea and one of the other ten test plant.
- *Exp.2 (no-choice experiment)* When there is no feeding on test plant in Exp.1. The Caterpillar is placed in the same vial with only the test leaf for yet another 24hr.period.

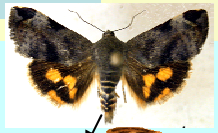
Results

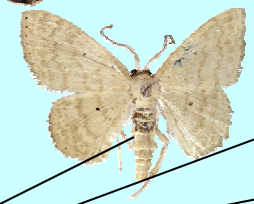
Species accumulation curve

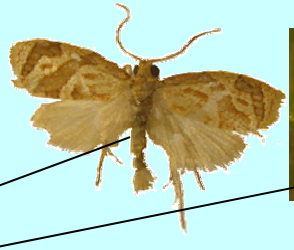


Results

Species proportion.



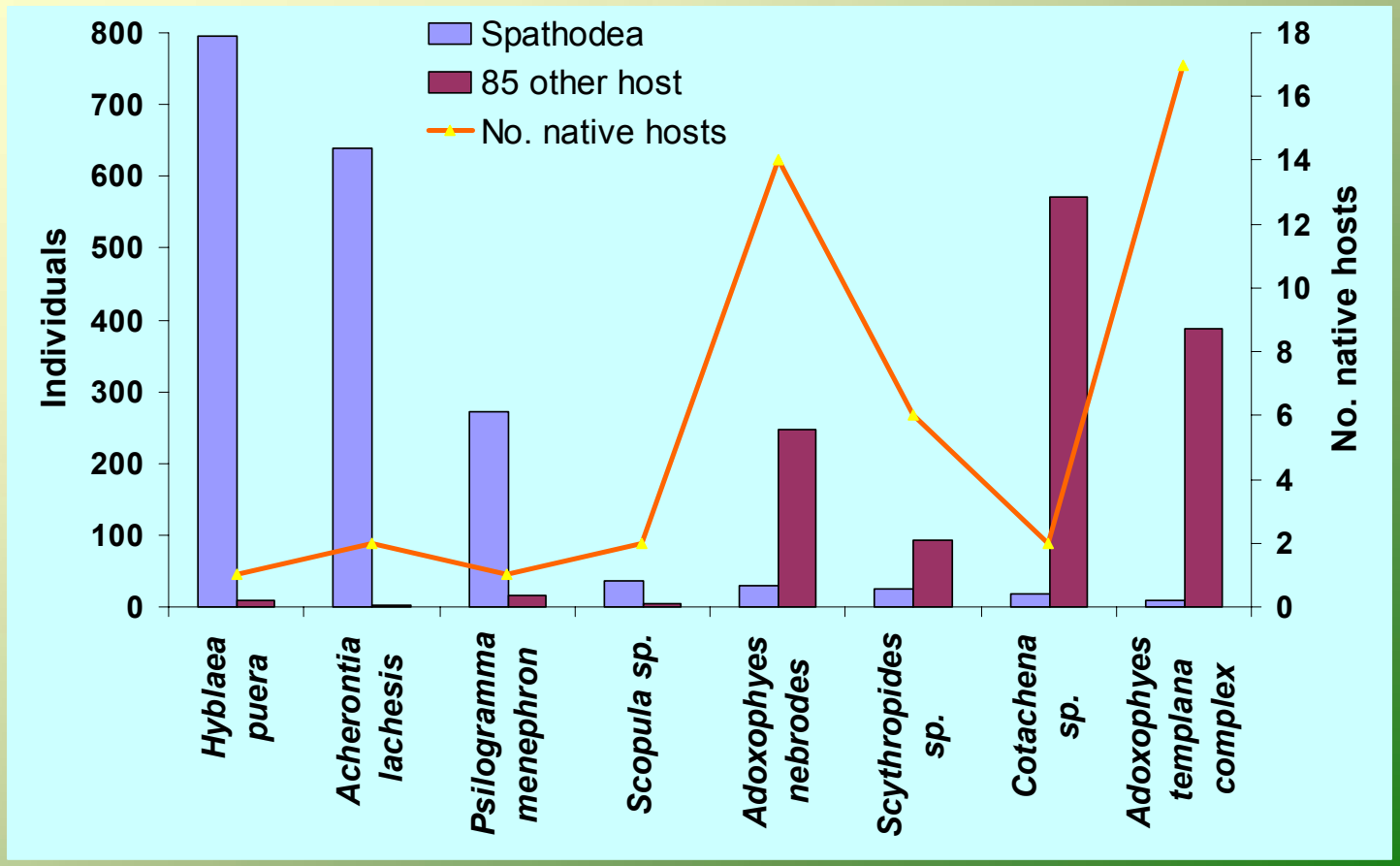




Overall foliage area sampled: 1700 m²

Results

Caterpillar community composition on Spathodea



Results

Three most common species feeding on Spathodea

Fam.Hyblaeidae

Sp.*Hyblaea puera*

Dist. Malesian; India, Taiwan, NG, Northern Australia.

Fam. Sphingidae

Sp.*Acherontia lachesis*

Dist.Oriental, (This 1 sp. extended to NG),

Common name

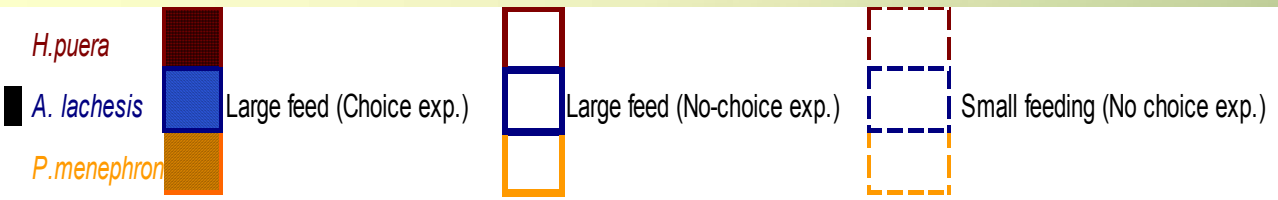
Fam.Sphingidae

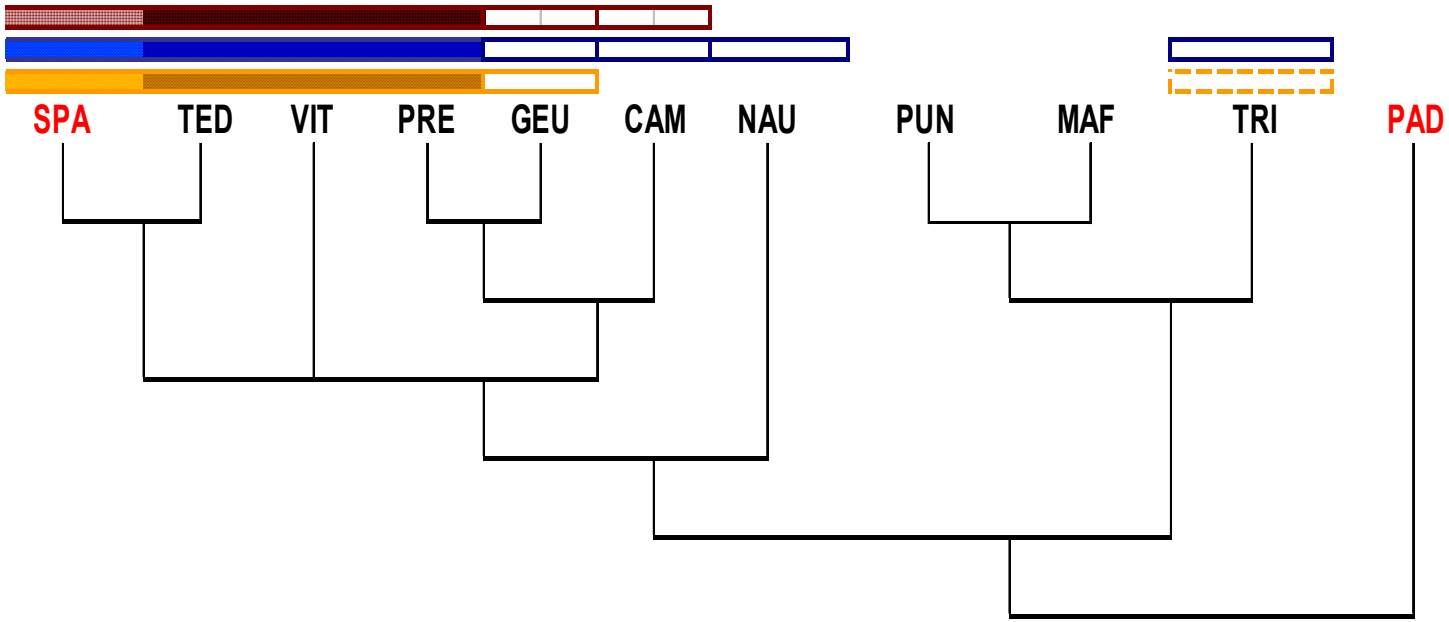
Sp. *Psilograma menephron*

Dist. Malesian; India and Indo-Australian regions.

Results

Host preference experiments





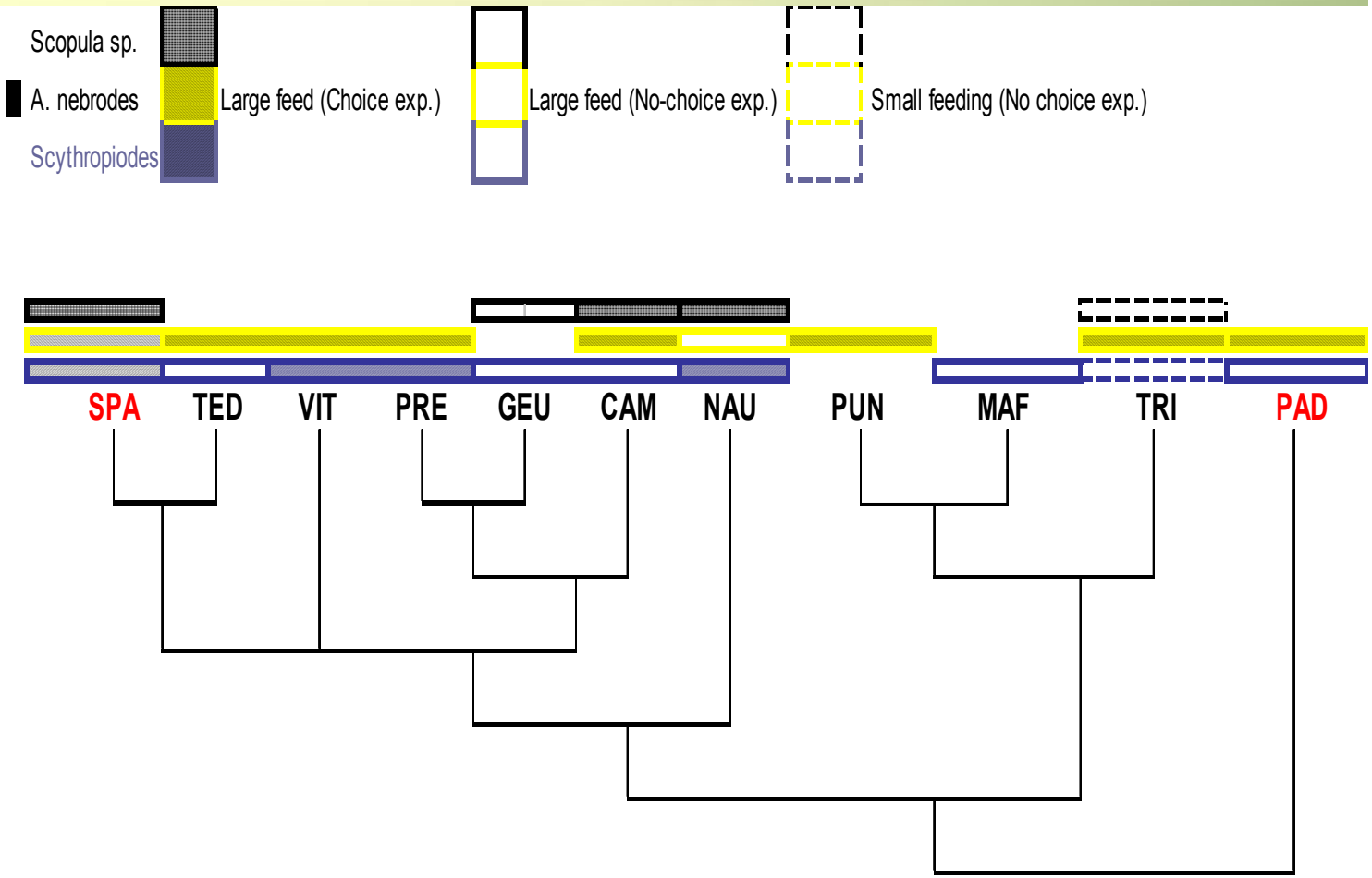
Results

Other species feeding on Spathodea

 Average wing length =0.9cm		Superfam: Geometrioidea Fam. Geometridae Sp. *Scopula sp.* Dist. Malesian area, Rubiaceae and Oleaceae
 Average wing length =0.6cm		Super fam. Totricoidea Fam.Tortricidae Sp. *Adeophyes nebrodes* Dist.Malesian area
 Average wing length =0.8cm		Superfam. Gelechioidea Fam. Lecithoceridae Sp. *Scythropiodes sp.* Dist. Malesian area

Results

Host preference experiments



Conclusions

- **Species accumulation has reached an asymptote at 25 species**
- **Two distinct groups of caterpillars have colonized *Spathodea campanulata***
  1. **Specialist species from related families and**
  2. **Generalist species.**
- ***S. campanulata* has been able to recruit a distinct caterpillar community comprising species drawn from both native and introduced fauna.**

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