Diversity of butterflies at Mount Serambu, Bau, Sarawak

Pang Sing Tyan, Alexander Kiew Sayok and Mathew Jenang

Institute of Biodiversity and Environmental Conservation
Faculty of Resource Science and Technology
Universiti Malaysia Sarawak
Introduction

• Mount Serambu is a Bidayuh heritage site in 2009
  - James Brooke and Alfred Wallace’s stay in 1855
• Quasi-pristine habitat
  - regenerated vegetation and mature fruit trees
• Study on insects including butterflies has been conducted by JC. Moulton in 1912

• Objectives of the study were
  - to determine the composition of butterfly species (elevations and sampling periods)
  - to extend the list of butterfly
  - to compare species collected after a century
Selected study sites and sampling periods at Mount Serambu, Bau
Source: Google Earth
Sampling methods

Aerial net

Effort put: 72 Man hours
(2 nets x 9 hours x 4 days)

Baited trap

Effort put: 576 trap hours
(12 traps x 12 hours x 4 days)
Analysis

• Diversity
  - Shannon Index H’

• Comparison between elevation & sampling periods
  - t-test

• Sex ratio comparison
  - Chi-square test $\chi^2$
Result and discussion

- 377 individuals; comprising 98 species
- Fruit-feeders mainly made up by Nymphalidae
- Fruiting season during the sampling in Jan and March 2013
  - *Lansium domesticum*
  - *Artocarpus integer*
  - *Baccaurea angulata*
  - *B. motleyana*
  - *B. brenteata*
  - *Garcinia mangostana*
  - *Durio zibethinus*

- 46 species were singletons and 20 species were doubletons
Most abundant species

*Melanitis zitenius rufinius*
(45 individuals)

- Fly slow and low on the ground
- Associate with bamboos which are abundant at the sites

*Neorina lowii lowii*
(30 individuals)

- Fly low on the ground
- Feed on rotten fruits
Comparing between…

• **Gender** (♂ vs ♀)
  - 7 species with over 10 individuals captured
  - Sex ratio 1:1

• **Sampling periods (Sept 2012 vs Jan 2013)**
  - H’ 3.629 vs 3.428, NS
  - Raining did not affect the diversity
  - Less butterflies trapped during frequent raining period
    (Christarina, 2011)

• **Elevation (347 m vs 78 m) ASL**
  - H’ 3.428 vs 3.268, NS
  - *Elymnias* spp. found only at lower elevation where palm trees were more abundant
Accumulation curve of butterfly species captured at Mount Serambu, Bau
Comparing with Moulton 1912

- Additional 58 species including 8 species of fruit-feeding butterflies
  eg. *Amathusia* spp., *Discophora* spp. and *Faunis* spp.

- Total number of species recorded in Mount Serambu is 111.
- Changing land use – the nearest opening land is 2.4 km
Comparing with other well sampled sites....

- Lambir Hill NP
- Lanjak Entimau WS
- Mount Jagoi
- Mount Singai

- Lowland dipterocarp forest
  - 4 Hes 9 Lyc
  - 4 Nym 3 Pap 7 Pie

- Community forest
  - 1 Hes
  - 4 Lyc 1 Pap
  - 24 Nym
  - 3 Pie

- Bau limestone areas
  - 3 Hes
  - 4 Lyc 3 Pap
  - 47 Nym
  - 8 Pie

- 19 hills

- 3 Hes 5 Lyc 10 Nym 1 Pap

- 19 species found only at Mount Serambu

- Emigration from adjacent logged areas
The 19 species are including ....

Kalima limborgi boxtoni

Papilio fuscus dayacus

Neptis sp.
Conclusion

- 98 species from current study brings total to 111 species
- Nymphalidae - the most abundant and diverse family
- Mount Serambu still serves as a good habitat to butterflies