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Photo: *Pyrops clavatus*

# Vietnam, a champion for insect biodiversity: A win-win commitment

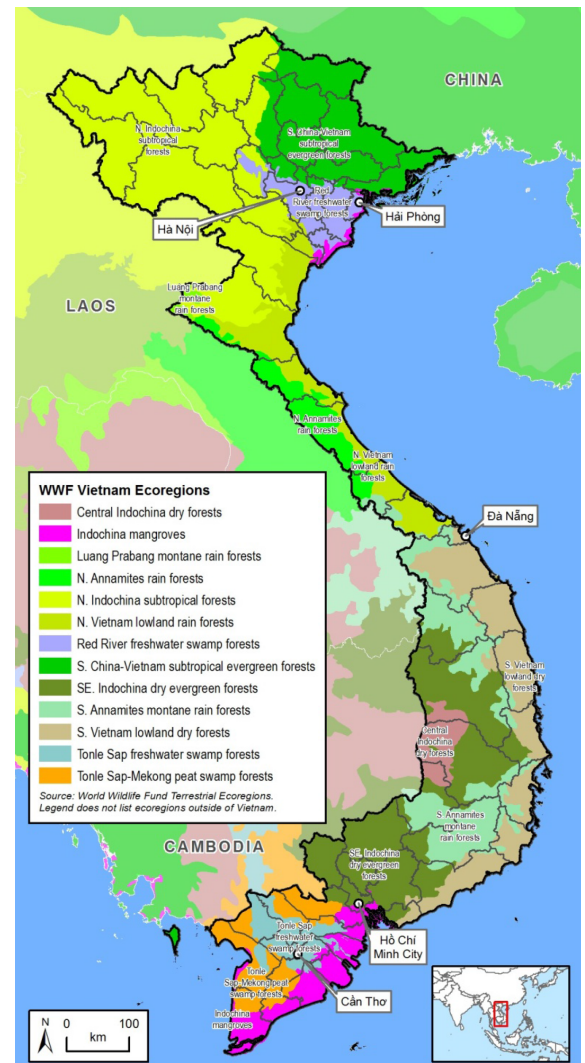
## Vietnamese Biodiversity

- High level of endemism (species occurring only in Vietnam): 10% of Vietnam's plants; 12 mammals, 7 birds, 48 reptiles, 33 amphibians, 80 freshwater fishes...
- 164 terrestrial protected areas (e.g. 32 national parks and 58 nature reserves), covering 7.5% of the country, virtually addressing all of Vietnam's major ecosystems.
- Vietnam contains 14 terrestrial ecoregions and 110 key biodiversity areas. It is the 16th most biodiverse country and is part of the Indo-Burma hotspot designated by Conservation International.

## What about insect diversity and its importance?

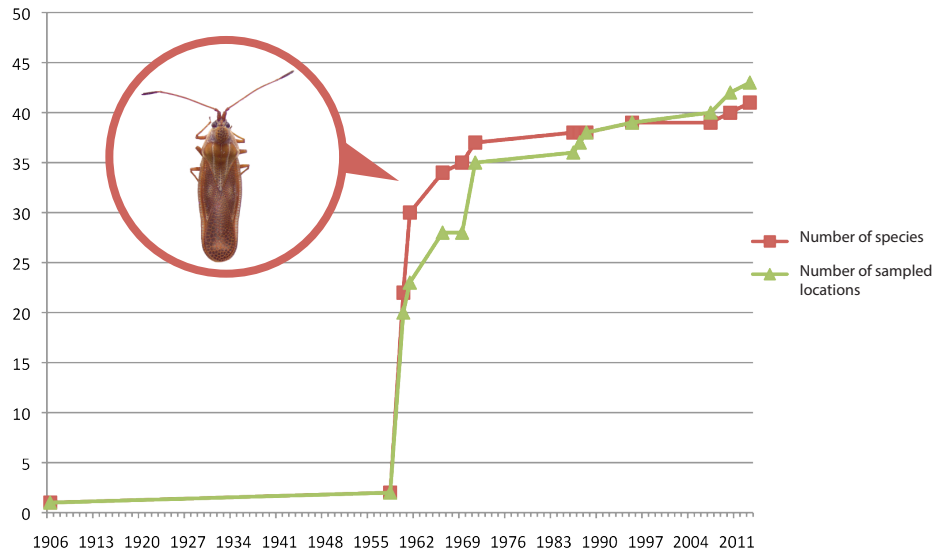
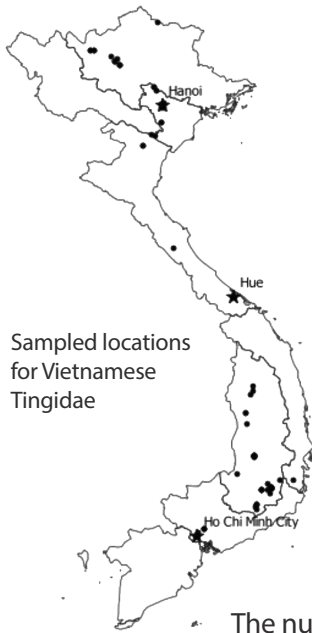
- An estimated 80% of species on earth are insects.
- About 20,000 species recorded from Vietnam represent only 10% of estimated diversity (200,000 species expected!).

**INSECTS = half of known species**





## Case study 1 - Lacebug diversity



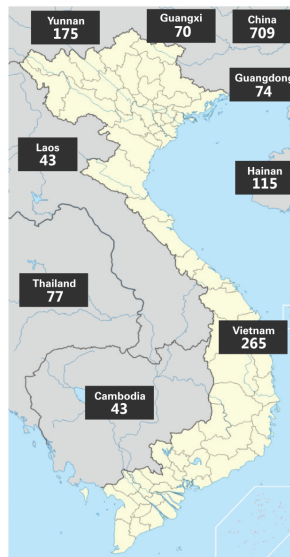
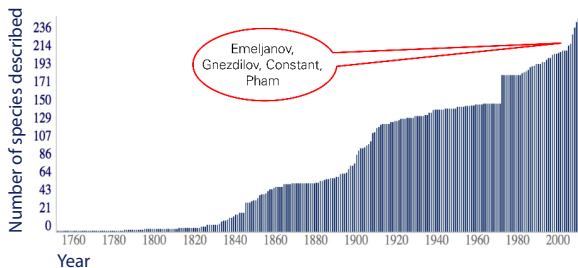
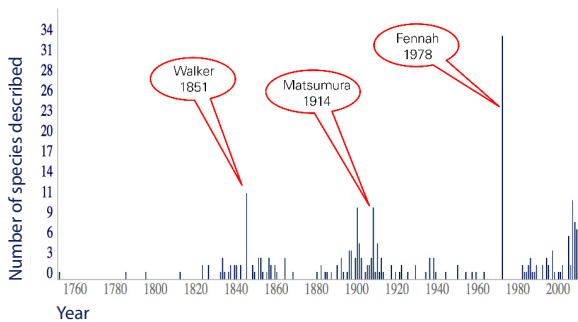
The number of species is directly related to the number of locations sampled.  
**Each new location sampled = Discovery of new species!**



## Case study 2 - Planthopper diversity



**Numerous peculiar habitats = Lots of very local species**



The higher number of species described from China is due to the number of Chinese scientists dedicated to the study of the group.

**The number of new species described depends on the number of specialists.**

Number of planthopper species described per country/province  
 Source : <http://hemiptera-databases.org/flow/>  
 (December, 2017)

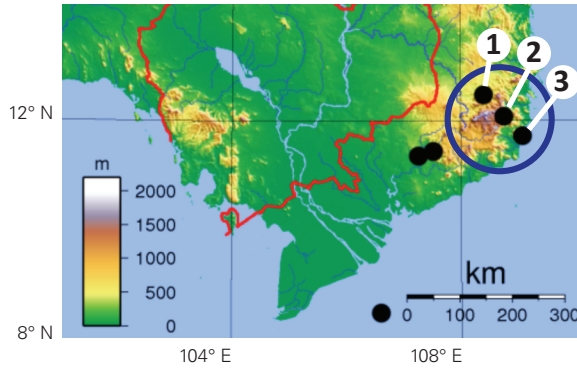




# Case study 3 - Stick insect diversity



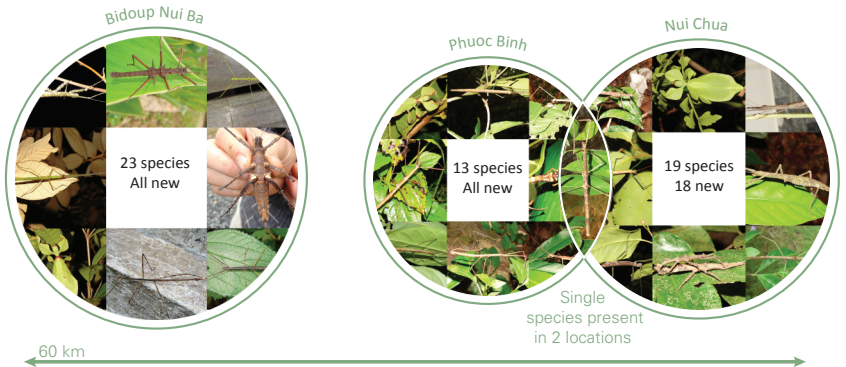
Sampling areas



The sampled areas are three locations over a short distance (60km):

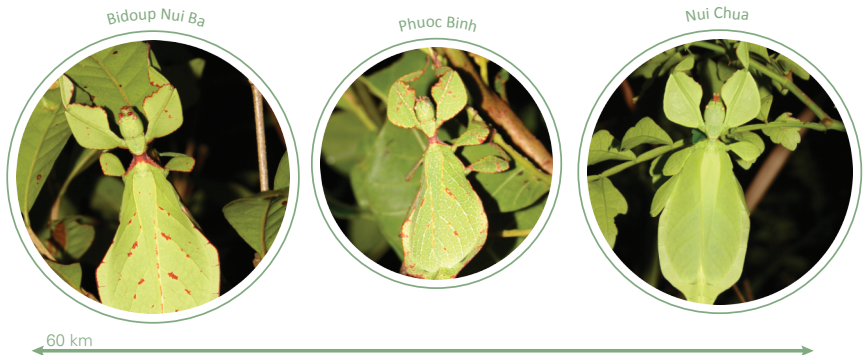
- Bidoup Nui Ba National Park (1)
- Phuoc Binh National Park (2)
- Nui Chua National Park (3)

Example of high rate of endemism in three protected areas of southern Central Vietnam.

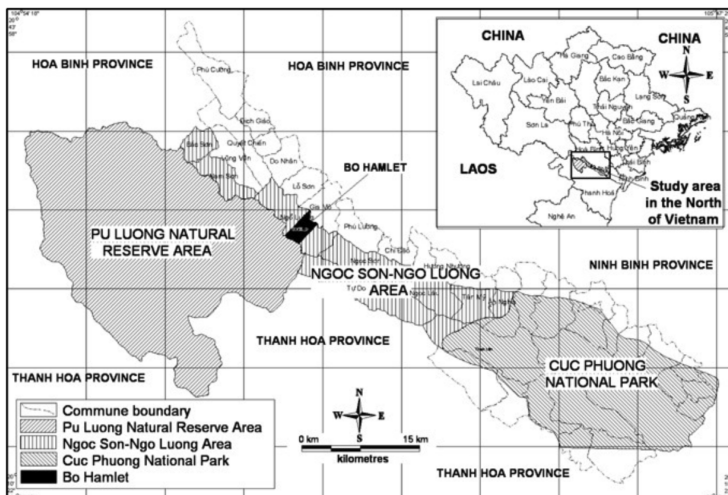


Each location contains its own unique species

Endemism in three protected areas of southern Central Vietnam. Three species of Leaf insects ("Bo La" - Vietnam Red Book)



Urgent need for more protected areas



Ngoc Son – Ngo Luong Nature Reserve Recently created (2006)

- Connection between Pu Luong Nature Reserve and Cuc Phuong National Park (corridor)
- Pu Luong: no data
- Cuc Phuong: 33 species
- Ngoc Son – Ngo Luong: 42 species

Corridors connecting protected areas are recommended



The biodiversity is already very rich but still very poorly known.  
It is fragile and threatened by deforestation, slash and burn agriculture,  
mining, poaching and pollution.



Efficient protection of biodiversity  
requires the commitment of scientists and conservationists.

#### SCIENCE

- Improve collecting and taxonomic capacities
- Explore and inventory unique habitats
- Describe the new species
- International collaboration
- Complete hotspot status with insect diversity

#### MANAGEMENT TOOLS

- Taxonomic lists, online access, digitalization for Vietnam and for each park

#### CONSERVATION

- Communication
- Education
- Public awareness
- Develop the Convention on Biodiversity (CBD) Clearing House Mechanism (CHM - internet platform to share data)
- Ecotourism

- Vietnam = Hotspot also for insects!
- Each new location sampled = discovery of new species!
- More taxonomic experts = more new species!

- More efforts = more species
- Important to create more protected areas
- Important to connect protected areas with corridors



#### CONTRIBUTORS

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