

**Documenting Bat Diversity with focus on Habitat  
Preference and Capacity Building to Conserve  
Blandford's Fruit Bat (*Sphaerias blandfordi*) in  
Chukha, Bhutan**

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# Presentation outline

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# Introduction

- Small Mammals have highest diversity of known mammal species 5, 418 (Rajchal, 2007).
- The 1,116 bat species represent about 20% of the known small mammal species (Rajchal, 2007).
- Bats are the only flying mammals in which forelimbs are modified into wings and fly like birds and are perhaps the most easily recognizable group of animals.
- Bats are good pollinators, pest controllers and seed dispersers

# Problem Statement

- Lack appropriate baseline information on bat diversity, habitats, geographic distribution and abundance.
- Only few specific species from Bhutan are reported for documentation in IUCN red list.
- The detail bat study was not done so far in Bhutan
- Lack data/no updated status on Blandford's Fruit Bat (*Sphaerias blandfordi*) which was reported from Ganglakha under Chukha District in 2008 by IUCN
- Conservation organizations focus mainly on flagship species

# Research Objectives

- Document bat diversity of Chukha District
- Assess disturbances and threats on bats of Chukha District
- Study vegetation preference of specific species for its protection and conservation
- To rediscover Blandford's Fruit Bat (*Sphaerias blanfordi*)
- and its habitat assessment
- Carry out Conservation Capacity-Building through education and conservation awareness.

# Materials and methods: Study area

- Chukha District covers an area of about 1,802 sq. km with elevations ranging from 200 to 3500 meters above sea level.
- It is one of the two districts without any protected areas in Bhutan
- Ganghlakha as habitat for Blandford's Fruit Bat (IUCN, 2008) covers 247 sq. kilometers.

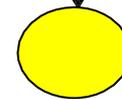
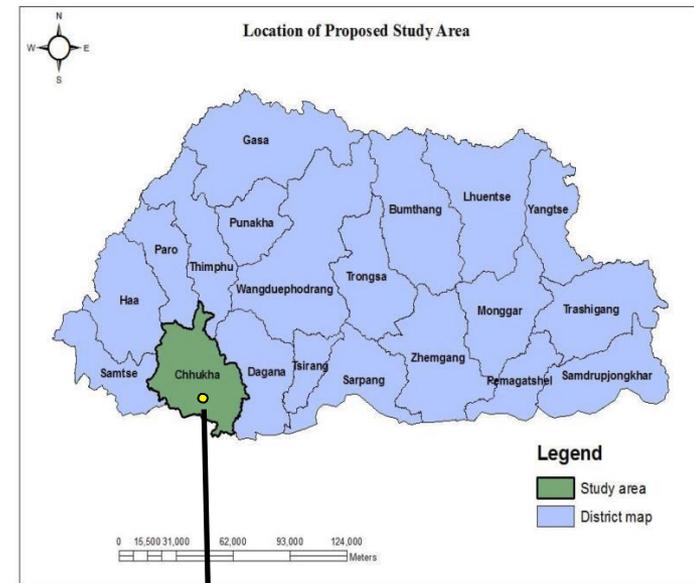
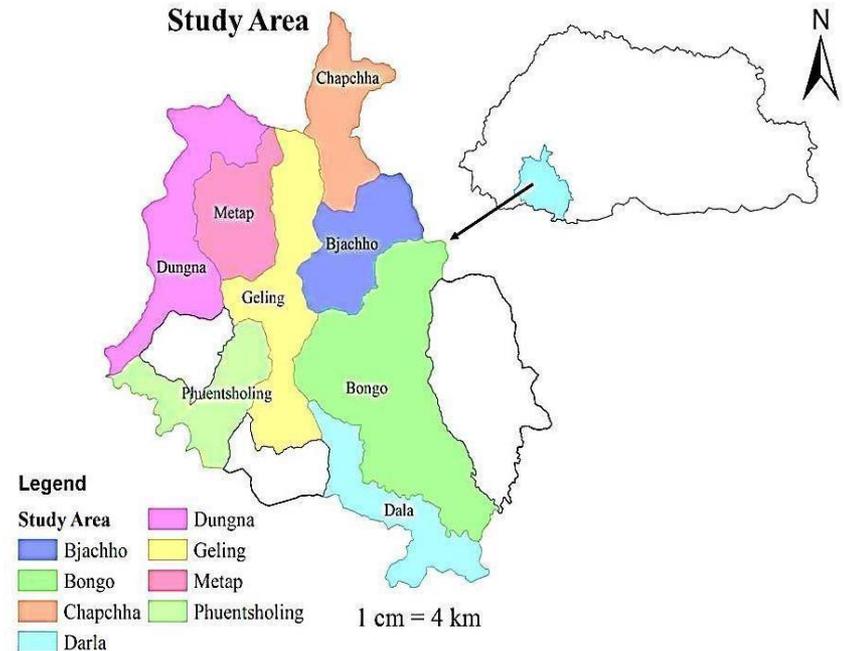


Fig.1: Blandford's Fruit Bat habitat in Study area

# Research Design

- Sampling design: Stratified random sampling
- Sample size: Based on randomness 70% of blocks (Gewogs) and further 70% of village from each selected blocks were sampled for bat survey.



**Fig.2:** Randomly selected research sites

# Data Collection

- Set mist nets at various habitat types (forests, streams,
  - Orchards and around human habitation.
- Sex, weight and measurements of bats were done.
- Recorded geographical coordinates (latitude, longitude, altitude.



**Fig.3:** A. Bat bags, B. Mist net, C. Bat identification and D. Measuring weight of bat

# Data Collection

- Use of hand nets (hoop- nets)
- Bat search in its roosting sites during day time recorded.
- Anthropogenic activities: mining, timber extraction, roost disturbance etc.



**Fig.4:** A. Bat roosts, B. Measuring wingspan of bats, C. Bat capturing using hand net and D. Human disturbances and threats on bats

# Materials used



A



B



C



D



E



F

**Fig. 5:** A. Pesola spring; B. Bamboo pole; C. Vernier caliper; D. Mist net; E. Hand gloves; F. Data sheet.

# Safety Equipment



A



B



C



D

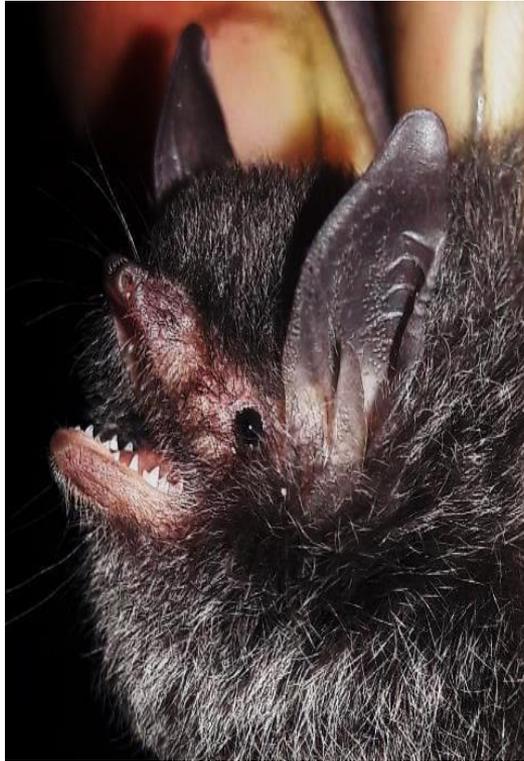
**Fig.6: A. Hand sanitizer, B. Gloves, C. Mask and D. Soap**

# Results – Bat captured



**Fig. 7:** A. *Miniopterus fuliginosus* Hodgson, 1835, B. *Rhinolophus luctus* and C. *Rhinolophus macrotis*

# Results – Bat captured cont...



**D**



**E**

**F**

**Fig. 8:** **D.** *Myotis siligorensis*, **E.** *Hipposideros armiger* and **F.** *Rhinolophus affinis*

# Results – Bat captured cont...



**G**



**H**



**I**

**Fig. 9:** **G.** *Rhinolophus sinicus*, **H.** *Myotis longipes* and **I.** *Myotis siligorensis*

# Results – Bat captured cont...



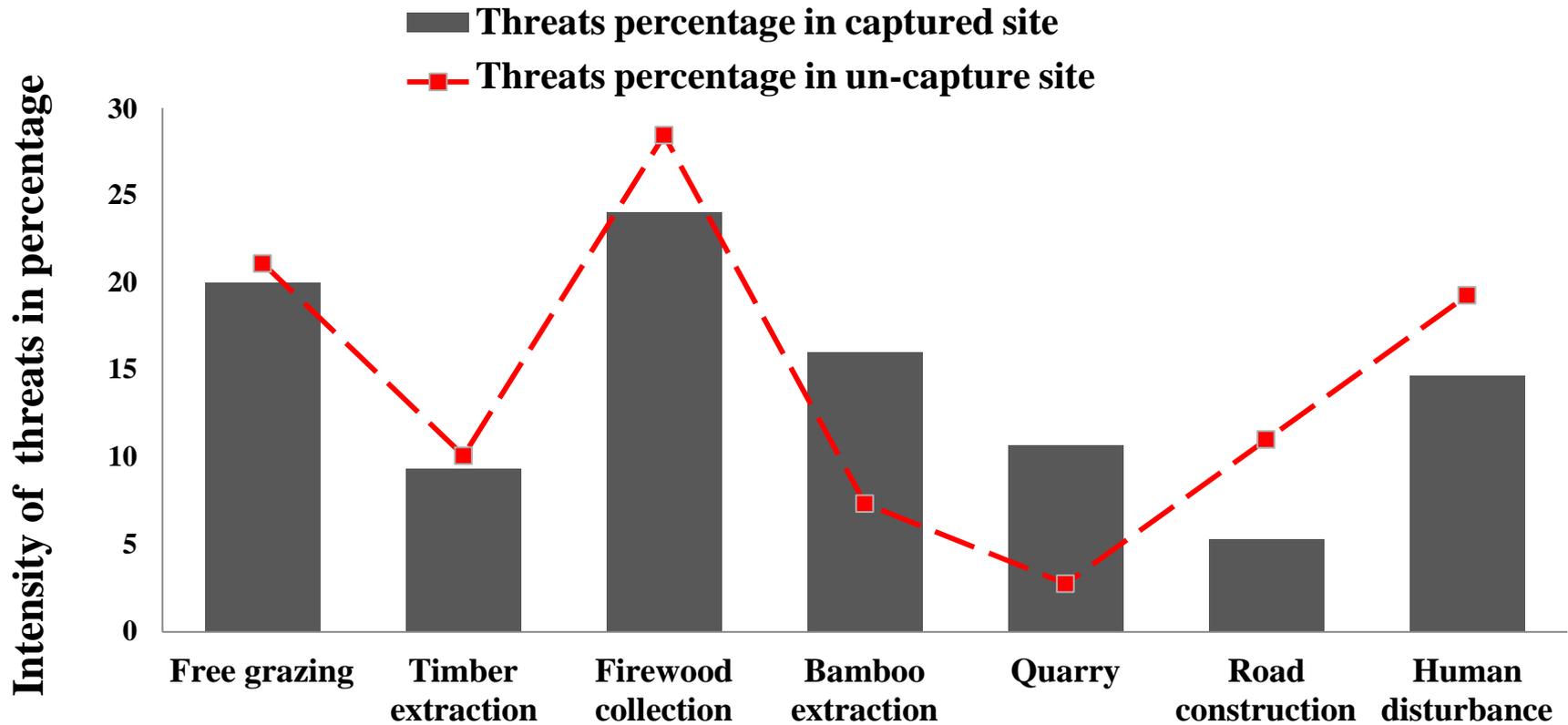
**J**



**K**

**Fig. 10: J.** *Rhinolophus lepidus* (Blyth, 1844) and **K.** *Rhinolophus pusillus* (Temminck, 1834)

# Results cont...



## Conservation threats

Fig 11: Types of conservation threats

# Results cont...

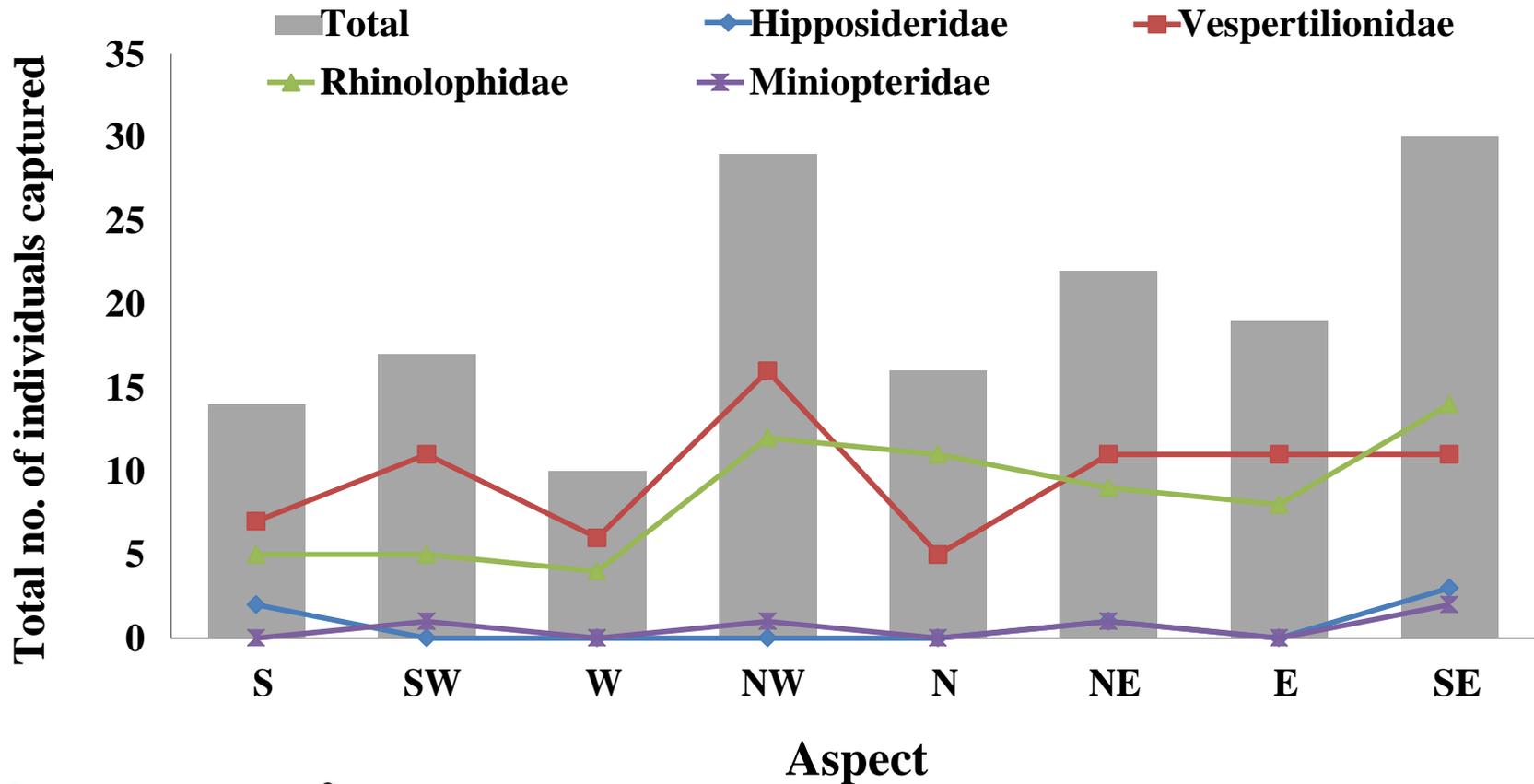


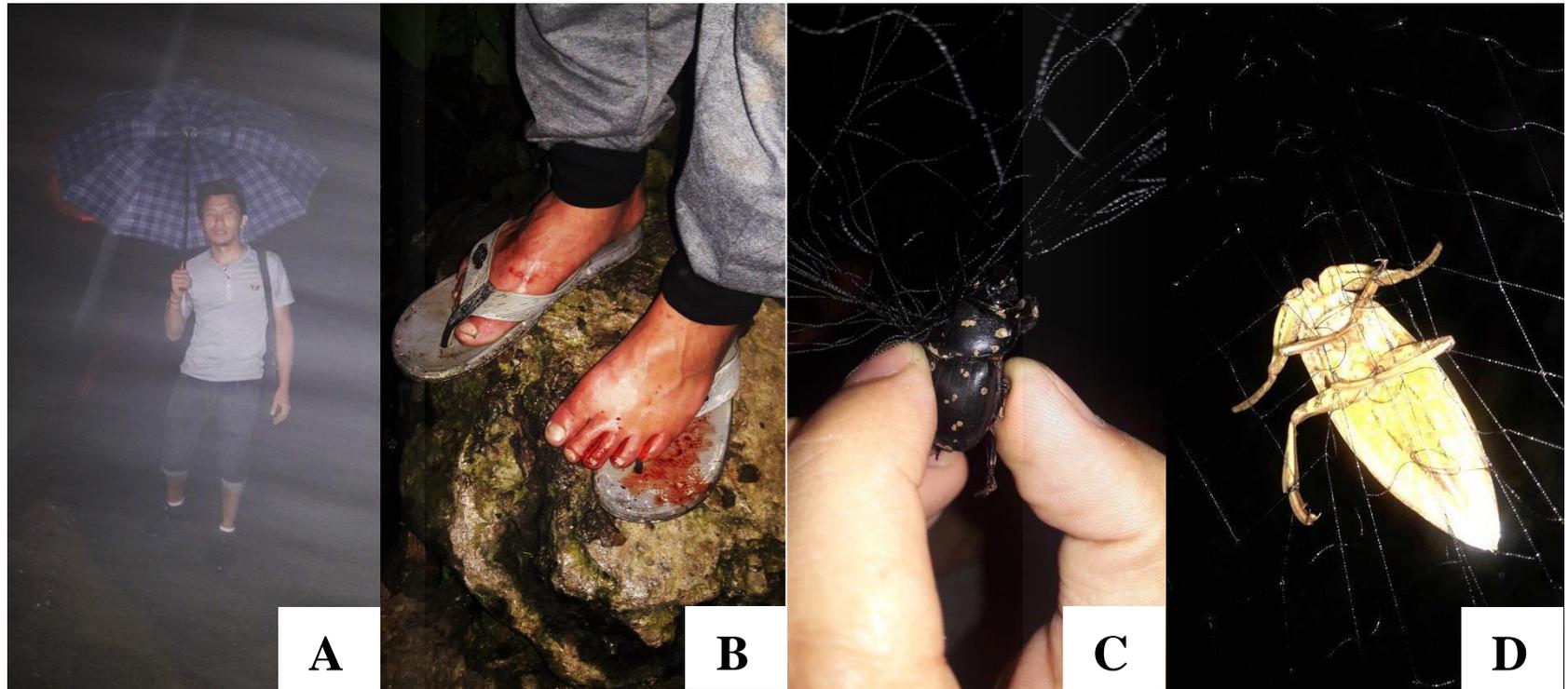
Fig 12: Response of bats to aspect

# Conservation capacity building



**Fig. 13:** Conservation awareness in levels: **A.** Students (trainees), **B.** Local, Stakeholders **C.** and **D.** Interview survey

# Challenges in bat research



**Fig. 14:** A. Night work without locals to guide, B. Prey to leeches, C. and D. Nocturnal insects destroying mist nets

# Conclusion

- The species diversity of bats were comparatively high in *Rhinolophus spp* followed by *Vespertilionidae spp* and least in *Miniopteridae spp* and *Hipposideridae spp*.
- Total number of bat species captured was strongly associated to aspects.
- Firewood collection followed by free grazing has high intensity disturbance compared to other conservation threats.
- Local residents are not aware of bat diversity and they have different perceptions on bats.

# Recommendation

- Conservation awareness are strictly recommended to reach sustainability in conservation of bats.
- Anthropogenic activities like mining, free grazing, firewood collection etc. should be monitored.
- Community engagement in bat studies for effective conservation.
- Organizations and institutes like WWF Bhutan, RSPN, UWICE, DoFPS etc. need to focus on bat research as species go extinct unnoticed and also to document comprehensive list of bat species of Bhutan.

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THANK YOU FOR YOUR TIME

