

## DOCUMENTING BAT DIVERSITY WITH FOCUS ON HABITAT PREFERENCE AND CAPACITY BUILDING TO CONSERVE BLANDFORD'S FRUIT BAT (*SPHAERIAS BLANFORDI*) IN CHUKHA, BHUTAN

### ཆུ་ཁ་རྫོང་ཁལ་གི་ཕོ་མ་མ་གོ་ཉམས་སྲུང་དང་སྲུང་སྐྱོབ་འཛུལ་འཇོག་པ།

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#### Background

Bats are the flying mammals in which forelimbs are modified into wings and are perhaps the most easily recognizable group of animals (Rajchal, 2007). Of the total 1,116 species of bats, Bhutan claims 65 species which constitute 33% of all mammal species (Marimuthu, 2009). At night, bats fill the skies to forage on diversity of food items ranging from insects, nectar, and fruit and to seeds (Kunz, Torrez, Bauer, & Lobo, 2011). Bats are important components of forest as well as agricultural ecosystems (Gaikwad, Narwade, Fartade, & Korad, 2012). Bat has been well studied in many of the countries and have added interesting information (Korad V. S., 2014) but these have been seriously lacking in Bhutan till date. Absence of baseline data has impeded the understanding of bat diversity, habitat preference and conservation. This shows how crucial it is to study bats in Bhutan.

#### Problem statement

- Conservation organizations focus mainly on flagship species often neglecting bats.
- There is lack of baseline information on the bat diversity, habitats and the distribution.
- The detailed bat study was not done so far in Bhutan
- Only few bats are documented, so major species still remains undiscovered in Bhutan

#### Research objectives

- Document bat diversity of Chukha District.
- Assess disturbances and threats on bats of Chukha District.
- Study vegetation preference of specific species
- Rediscovering Blandford's Fruit Bat and habitat assessment
- Carry out conservation capacity-building

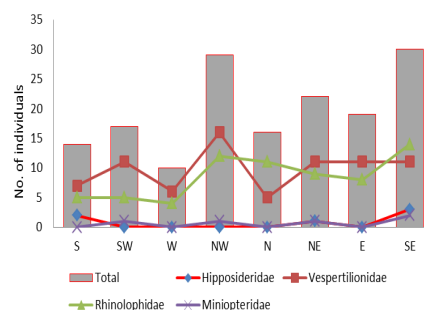
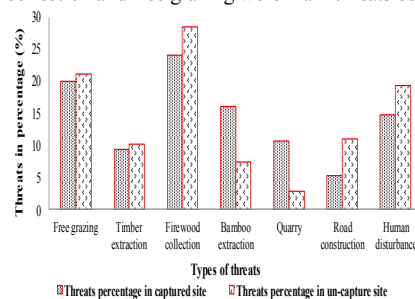
#### Methodology

- Stratified random method was used to select sampling sites
- Mist nets were checked every half an hour to avoid injury.
- 6 and 9 m length, and 2.5 m high of 4 or 5 shelves were erected
- Trapping was carried out till 10 PM or 10:30 PM depending on capture success and weather conditions.
- Roost visit during day time and hand nets were used to capture bats.

#### Results and discussion

Sl. No.	Family	No. of individuals
1	Hipposideridae	12
2	Vespertilionidae	51
3	Rhinolophidae	93
4	Miniopteridae	1
<b>Total</b>		<b>157</b>

A total of 157 individuals were captured between 23 August, 2016 to April 3, 2017 (data collection period) under 4 families comprising 10 species (Hipposideridae: 1 species, n = 12), (vespertilionidae: 2 species, n = 51), (Rhinolophidae: 6 species, n = 93) and (miniopteridae: 1 species, n = 1). All 10 species were reported for the first time from study area (Chukha District) as detail bat study has not done so far in the area as well as other parts of the country. Shannon-Weiner index ( $H'$ ) of species diversity concluded that diversity was higher in forests ( $H'=0.35$ ) and lowest in abandoned house with  $H'=0.09$ . Species distribution were also associated to aspects with highest in SE (n=30) and NW (n=29) and lowest in W (n=10). Firewood collection and free grazing were main threats observed in sampling sites. Different vegetation preference of specific species were also recorded during field work.



#### Conclusion

Rhinolophidae spp were more diverse and its relative abundance was comparatively high in forests, stream and forest trail. No fruit bats (including *Sphaerias blanfordi*) were captured during our field survey, this might be due to less abundance of fruit diversity in the study area. Bats were closely associated to various environmental parameters like habitat types, aspects, and slope. Threats were also recorded during our field work.

#### Acknowledgement

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#### References

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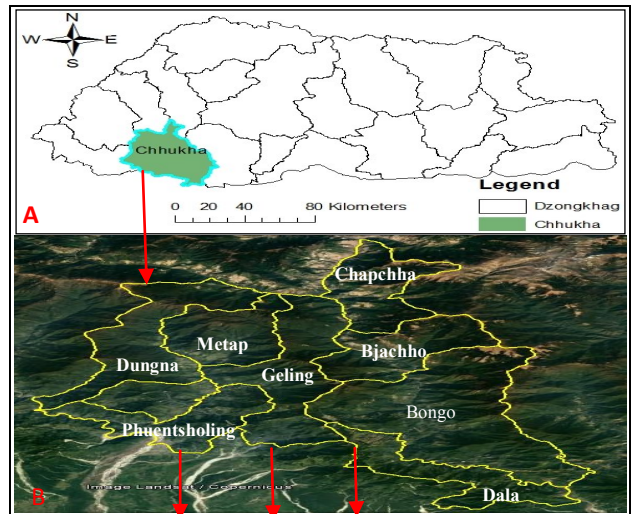


Fig. A: Bhutan map showing Chukha District, B: Sampling sites and C: Captured bats