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Identification of Tom Bat Species (Taphozous Longimanus Hardwicke, 1825) in the Field Based on their Morphological Characteristics

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A B S T R A C T

Bats are the most diverse and abundant group of small mammals, having great economic & ecological benefits. The specimen (n =1) of Taphozous longimanus was captured from an old dilapidated house on 9th June 2016 during a survey at Arjuni/Morgaon town in Gondia District of Maharashtra. External morphological parameters were examined and there after specimen were rescued at the same habitat. Bat is a very important keystone member in the ecosystem, play a vital role in maintaining ecobalance. Bats are threatened because of variety of reasons. Conservation of bats is essential; understanding its vital role in the ecosystem the present study was undertaken .

K E Y W O R D S

Morphological Characters | Taphozous | Measurements | Identification

C I T A T I O N

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Introduction

India has an incredible diversity of bats. Bats are the most diverse geographically dispersed kind of mammals. By virtue of their ability to fly, bats have mobility and they are dispersed over every corner of the planet. All bats belong to the order Chiroptera. Hand wing forms a basis for classifying bats as separate order of mammals. Among mammals, the entire order of Chiroptera is one of the best suited animals to study the behavioral ecology. The chiropteran diversity of India is comparable to any other region of the world with similar climatic conditions & topography. The bat fauna of the country is very diverse & is represented by 110 species, 33 genera and 08 families (Bates and Harrison, 1997). Genus Taphozous is a Sac-winged bat, commonly called a Tom bat in the family Emballonuridae. It is represented by eight different species. It is listed as LC (Least Concern) by IUCN. This species is found in varied habitats from arid area to humid zones. There are 2 breeding seasons one in mid January and other is in May (Bates and Harrison, 1997).Taphozous longimanus roosts in diverse habitat viz. large dense trees, caves, tunnels, hollows in walls of wells, old dilapidated houses and mines, under tiles of roof of houses, under bridges, hollows of tree trunks, walls of old temples and animal shades etc. (Madhavan, 2000; Patil, 2006). External morphology is commonly used to identify as well as to investigate flight and foraging behavior typically relying on simple length & area measurements.

Material and methods

The study was conducted on 9th of June 2016 in Arjuni/Morgaon town in district Gondia to find out roosts of bat species and note their morphological characters. The specimen (n=1) was captured with the help of hand net from the old dilapidated house. Species was identified on the basis of external morphology. The external morphological parameters were made with the help of digital caliper (Mitutyo 0-200 mm model 500-197 -20) and released the specimen from where it is collected.

Observations and Result

Sr. No.	External Characters	Measurements (in mm)
1	Forearm length	56.84
2	Head Body length	80.09
3	Tail length	20.44
4	Hind foot length	11.48
5	Ear length	16.00
6	Chin	Naked
7	Gular Sac	Rudimentary
8	Wings attached to	Ankles
9	Posterior back & lower abdomen	Hairy
10	III metacarpal length	Long (95.8)
11	Radio-metacarpal pouch	Absent

Table: Diagnostic morphological measurements of genus *Taphozous longimanus* (Hardwicke, 1825)

Discussion and Conclusion

Total of 11 parameters of Taphozous longimanus were examined, Forearm length was 56.84 mm, Head Body length 80.09, Tail length 11.48, Ear length 16.00, Chin was observed naked, Gular pouch was rudimentary and therefore the specimen was recognized as female. Winges were found attached to ankles, posterior back & lower abdomen was hairy, III metacarpal length was 95.8 & radio-metacarpal pouch was absent. Bat biologists in most parts of the world use external morphological measurements (Hill and Smith, 1985, Vaughan et al., 2000, Jacobs et al., 2006) is still a highly reliable technique in most instances. Use of morphological measurements as a identification keys are authentic tools to identify different chiropteran species (Daniel, 2009); Srinivasulu *et al*., 2010). Survey & monitoring of bats is not only important for assessing how bats behave in

response to a range of threats in their environment but also enable an understanding of changing state of biodiversity in general. It is not easy to assess the condition of natural environment and how it changes over time. The high sensitivity of bats to temperature changes and habitat deterioration make bats excellent indicators of environmental change. Habitats and their constituent parts play an important role in regulating local and global climate patterns. If bats that usually visit a place do not visit the area any more or show some peculiar behavior due to some particular change in the ecosystem, then the same change will affect other living beings of the ecosystem also, that's why bas are bio-indicators.

Fig: 1. Tom bat at old dilapidated house.

Fig: 2. Diagnosis of Morphological Characters.

It is necessary to know which species of bats dwell in a particular habitat and their role in the ecosystem. Hence this particular study of Taphozous longimanus bat may be helpful to predict the different functions they perform in maintaining eco balance

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