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New Report of Occurrence of Greater False Vampire Bat *Megaderma lyra* (Geoffroy, 1810) (Megadermatidae: Chiroptera) in Gondia District, Maharashtra, India

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ABSTRACT

Bats are the most diverse group of small mammals, having great economic and ecological benefits. Bat is an important keystone species in the ecosystem, plays a vital role in maintaining ecosystem balance. In the present survey, a colony of *Megaderma lyra* were observed, total of 149 in roosting in a dark, wooden roofed room of old dilapidated house at Arjuni-Morgaon town in Gondia district of Maharashtra state. The said bats were primarily identified through its unique facial features such as -erect and elongated nose-leaf, large ears that joined above the forehead and no tail. A specimen was captured carefully with help of hand net; some external morphological parameters were examined and thereafter the animal was rescued in a good condition at the same habitat. As bats are now becoming threatened, their conservation is of major importance; understanding its role in the sustenance of ecosystem; present survey was undertaken. Through the findings of this piece of work, its essential morphological parameters of this bat are examined and the new report of occurrence is discussed.

Key words:Bat, Chiroptera, Megadermatidae, *Megaderma lyra*, occurrence, Morphology.

INTRODUCTION

Chiroptera (Bats) are nocturnal organism; usually roosted in caves, rock crevices, foliage and various manmade structures in daytime. They are known for their considerable influence on ecosystem health and human economics; controlling insect pest population, helps in pollination, seed dispersal of many economically and ecologically significant plants. Relatively they have been less studied, primarily due to difficulty in direct observations (Findley 1993). Chiroptera (Bats), the group of small mammals is among the 29 extant mammalian orders (Wilson & Reeder 2005), most specious order of mammals (Eick et al. 2005); more than 1300 species, constitutes over 20% of all mammalian species and is second to Rodentia in species richness (Simmons 2005a). Bats

are cosmopolitan in distribution, devoid of Arctic, Antarctic and certain oceanic islands (Simmons 2005a & 2005b). Etienne Geoffroy, French naturalist studied the bats species and gave first scientific description in India. Now in India, according to Talmale & Pradhan (2009), Chiroptera (Bats) includes eight families, 39 genera, 117 species, and 100 subspecies. In this context the diversity of bat fauna in Maharashtra state is elevated; it show 08 families, 23 genera and 41 species. Order Chiroptera comprises 31% of the overall mammalian species reported from Maharashtra state (Pradhan & Talmale 2012). The members of family Megadermatidae are confined to the old world tropics (Bates & Harrison 1997). This family is represented in India by two species *Megaderma lyra* and *Megaderma spasma*, roosted in caves, temples, forts, old ruined buildings, houses, underground tunnels and shallow

soapstone mines (Brosset 1962; Khajuria 1980). Gondia district is situated at North-eastern part of Maharashtra state, which harbors prosperous biodiversity. The survey was carried out from 2008 and documented bat species by (Bhandarkar & Paliwal 2013a; 2013b; 2014; 2017; 2018; Paliwal et al. 2019; Paliwal & Bhandarkar 2018; 2019). Greater false vampire bat; *Megaderma lyra*, (Geoffroy 1810) is widely distributed ranging from Afghanistan to Southern China, South to Pakistan, India, Srilanka and Malaysia (Bates & Harrison 1997). In India, this species was reported from Assam (Boro et al. 2018; Nagaland (Shrivastava et al. 2000); Madhya Pradesh (Talmale 2017); Meghalaya (Saikia et al. 2018); Kerala (Madhavan 2000) and Maharashtra (Pradhan & Talmale 2008; 2012). In Maharashtra, it occurs in many protected areas, but deficient of species level

occurrence report of this bat. In the present paper, new report of occurrence of Greater false vampire bat; *Megaderma lyra*, (Geoffroy 1810) for the first time in Gondia district are discussed with reference to their morphological parameters.

MATERIAL AND METHODS

Field surveys were carried out to explore bat fauna from various habitats in district Gondia. The specimen (n=1) was captured with the help of hand net from the old dilapidated house in Arjuni/Morgaon town (20°48'55.6"N 80°01'44.6"E). The specimen primarily identified through their unique facial features, some external body parameters were examined, measured with the help of standard literature and thereafter the specimen was rescued at the same habitat.



Fig. 1. The dilapidated house in Arujni-Morgaon town of Gondia district

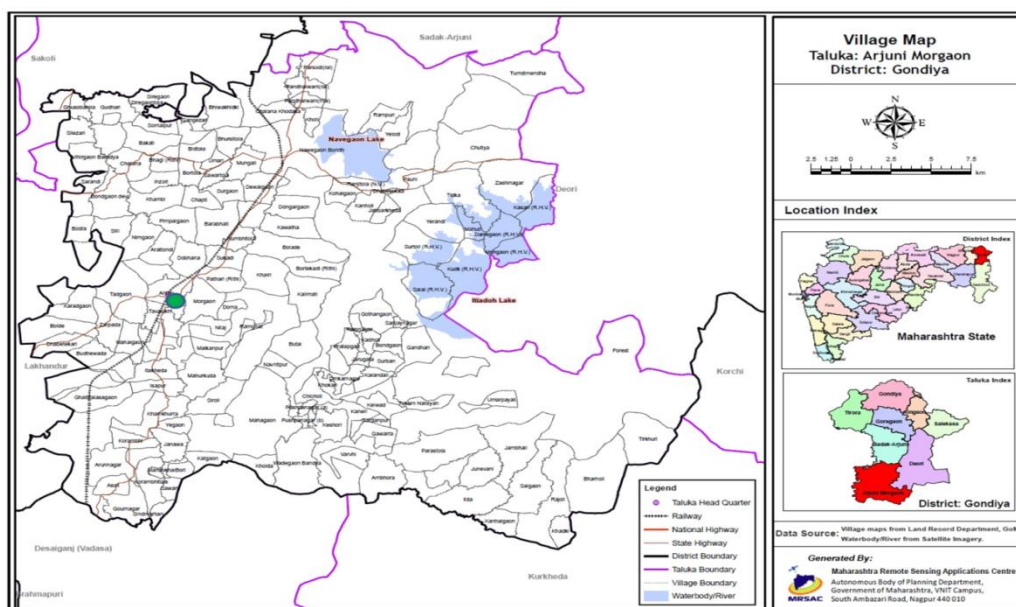


Fig. 2 Map of Arjuni-Morgaon Taluka showing the location of Bat sighting (Green spot)

RESULTS AND DISCUSSION

A colony of 149 of *Megaderma lyra*, (Geoffroy, 1810) bats (Fig. 3) was observed roosting in a dark wooden roofed room of old dilapidated house (Figure 1) at Arjuni/Morgaon town (Fig. 2) in Gondia district of Maharashtra state. Out of these (n = 1) was captured; their morphological features were examined and

recorded. An external morphological measurement is applied for identification of species in most parts of the world (Hill & Smith 1985, Vaughan et al. 2000, Jacobs et al. 2006). It is still a highly reliable technique in most instances. Use of morphological measurements as an identification keys are authentic tools to identify different chiropteran species (Daniel 2009; Srinivasulu et al. 2010).



Fig 3. *Megaderma lyra*, (Geoffroy, 1810) (left) and a part of colony (right)

Greater False Vampire Bat: *Megaderma lyra*, (E. Geoffroy 1810) is a species from family Megadermatidae; also known as Indian false Vampire Bat. Assessment information of IUCN Red List Category is 'Least Concern'. This species is carnivorous but not the blood sucking; its diet includes large insects, fish, reptiles, small birds and other bats. These bats live in old, unused, dilapidated houses in colony. The first scientific document from India is by Etienne Geoffroy from Madras area (Geoffroy 1810). **Morphological Characters:** The Forearm length-61.0, Head body length-72.0, tail length-absent, Hind foot length-17.0, Ear length-33.5 (rounded, joined by membrane over the forehead), Gular sac-rudimentary, Noseleaf-12.0 (sides straight, longitudinal fold present, base rounded horizontal), Tragus- divided by a deep notch into two parts, Wing span-419.0. The captured bat specimen was having fine, soft, silky, moderately long and grey hairs on dorsal side, the ventral surface was paler and hairs of the throat have white tips. The forehead and cheeks were hairy. The specimens had naked nose leaf which was vertical and straight, sided with a ridge having two furrows in the middle and a simple rounded horizontal base. Large, oval and medially joined ears with border of white hairs on their anterior margins were observed. The species tragus is divided by a deep notch into two parts. The tragus is a key feature in many bat species, as a piece of skin in front of the ear canal; it plays an important role in directing sounds into the ear for prey location and navigation via echolocation.

Distribution in Maharashtra: According to various published reports are available on miscellaneous

aspects of *Megaderma lyra*, (Geoffroy 1810) bat in Maharashtra including distribution report. Bhalavani-Mangalvedha, Pothare-Karmala, Osmanabad, Supe, Daund, Baramati, Piliv-Sangola, Bhalavani-Pandharpur, Indapur and Kurbavi-Malshiras, (Gaikwad et al. 2012). Maval, Junnar, Panshet, Mulshi, Haveli, Chinchani, Khandala-Satara, Bhimashankar, Bhor, Rajewadi- Satara; Karjat and Mahad (Korad 2005; Gaikwad 2007; Korad et al. 2010a); Samewada village, Lakhani, Sindewahi and Parul village near Mahableshwar (Talmale 2007); Pipariya and Ranidohin Pench National Park (Pradhan 2004); Vijaydurg (Bates & Harrison 1997); Sanjay Gandhi National Park (Yazdani et al. 1992); Bandra (Gopalakrishna & Badwaik 1989); Devikop, Ratnagiri, Nashik and Nagpur (Sinha, 1980); Kanheri, Borivali, Powai lake, Ellora, Aurngabad; Ajanta and Aurngabad (Brosset 1962b); Pune (McCann 1934); RamaneWadi, Khed (Wroughton 1916); Belapur and Chichpalli (Wroughton & Ryley 1913); Ghodasgaon (Wroughton 1912a; Brosset 1962b).

New Occurrence: The *Megaderma lyra* bat was documented for the first time during the study on ectoparasites of bats (Zade et al. 2012); and the diversity of mammals (Paliwal 2013) located in rocky cave crevices in Navegaon National Park, Gondia district, Maharashtra. The present document is to produce the new report of occurrence of *Megaderma lyra* bat colony in dilapidated house in the town of Arjuni-Morgaon in Gondia district along with their examined morphological characteristics.

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