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Short communication

First distributional record of Greater false vampire bat (*Lyroderma lyra* Geoffroy, 1810) from the Dhubri district of Assam, Northeast India

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Abstract

Bats are found all over the world except Arctic and Antarctic regions and a few isolated oceanic islands. Northeast India has 28 genera and 62 species and subspecies of bats. The state of Assam has a total of 39 different bat species under 16 genera. On 12.04.2017, one male Greater false vampire bat *Lyroderma lyra* Geoffroy, 1810 (former '*Megaderma lyra*') was collected from a classroom near the old Zoology Department (Latitude: N 26^0 1′ 28.1136″; Longitude: E 89^0 58′ 9.9912″) of B. N. College campus of Dhubri district of western Assam which lies in the Brahmaputra valley of Assam, India (South Asia). It comes under the family 'Megadermatidae' which is an ancient family of carnivorous bats. An individual was a robust one with a forearm length of 66.2 mm and 93 gms of body mass. Some of the other important morphometric measurements recorded were as Length of the ear (E)-30mm, Length of head and body (HB)- 82 mm, Length of the penis (*p*)-9mm, Height of noseleaf (nslf)-9.5mm, Wing span (wsp)-423mm and the length of the tragus (*Tr*)-16mm respectively. The structure of the ears was found to be large ovals joined medially to the forehead region. The tragus of each ear was slender and distinctly bifid. The noseleaf was found to be erected and elongated. Previously the species was reported from the Tinsukia district of Upper Assam followed by the Kamrup and Goalpara districts of the Lower Brahmaputra Valley of Assam. The current place of occurrence, i.e., the 'Dhubri district' has been established as a new distributional record for the species from the western part of Assam of Northeast India, a global biodiversity hotspot.

Keywords: Greater false vampire bat, *Megaderma lyra*, *Lyroderma lyra*, *New* record, Dhubri

Introduction

Bats are known to occur all over the world except in the Arctic and Antarctic regions and a few isolated oceanic islands (Mickleburgh et al., 2002). From the evolutionary point of view, bats are the only flying mammals which can perform true flight like our birds. The status of chiropterans as per the IUCN Red Data Book listed as threatened species in 2004, South Asia recorded 123 species of bats and almost all of them reside in India. They account for one–fourth of India's mammal fauna and more than one-tenth of the world's bat species (Mistry, 2003). Kurup (1968), has reported about 15 genera and 45 species from the seven sister states of Northeast India, a global biodiversity hotspot. Later, Sinha (1999) reported about 28 genera and 62 species and subspecies from this region of India. Bat research is yet to gain proper momentum in Assam including other parts of Northeast Indian states. State-wise detailed and continuous bat diversity-related studies are the need for our region to know the exact status of bat diversity in the area. On the basis of a recent review report (Ali, 2022), the state of Assam has a total of 39 different bat species under 16 genera. Out of those, five species are recorded as fruit bat species which fall under the Suborder-Megachiroptera and 34 numbers of insectivorous and carnivorous species are included under the Suborder-Microchiroptera. Out of those, *P. giganteus* of Family–Pteropodidae has been recognised as the largest fruit bat species of Assam (Ali, 2013). Old World fruit bats (Megachiropterans) are restricted to the Old World tropics and subtropics and are almost exclusively phytophagous, whereas microbats are cosmopolitan and insectivorous (Marshall, 1983). From Assam, we have records of two species of False Vampire bats such as *Megaderma spasma* (Lesser False Vampire bat) and *Megaderma lyra* (Indian or Greater False Vampire bat) from different parts of Assam of Brahmaputra valley (Bates and Harrison, 1997). However, for confusion in naming and identification delay, the current distribution of the *Megaderma lyra* (new name *Lyroderma lyra*) could not be included in my last review report done for the bat species of Assam (Ali, 2022). A current research article has been reporting about a new distributional record for the *Lyroderma lyra* (Greater or Indian False Vampire bat) from the Assam counterpart of Northeast India. As per the new taxonomical assessment report of IUCN, the former *Megaderma lyra* (Greater or Indian False Vampire bat) has been renamed as *Lyroderma lyra* Geoffroy, 1810 (Srinivasulu and Srinivasulu, 2020). For the rest of the discussion, the species will be portrayed with its new biological name.

Materials and methods

The study area of the collected species falls in the Dhubri districts of the lower reach of the Brahmaputra Valley of Assam. The Brahmaputra or Assam valley is an alluvial plain, about 750 km long and 80 km wide enclosed by hills on all sides, except in the west (Rao, 1974). The specimen was collected when it came out from its roosting site in the daytime into the open space of a classroom with the help of a hand net. For morphometric measurements, the works of Bates and Harrison (1997) and Sinha (1999) were consulted. Habitat (Fig. 1) was studied identified, studied and reported following the works of Ali (2013, 2020 and 2021). A vernier digital caliper was used to record and report some of the important morphometric measurements since the species was collected from a new distributional area of Assam. Nikon DSLR camera was used for capturing photographs of the species from a different angle to correctly identify the species by matching with the already reported specimens of the state of Assam and also with the specimens identified from other parts of the Indian subcontinent.

Figure 1. Aerial overview of the bat habitat of B. N. College Campus, Dhubri (Assam)

Results and discussion

One live specimen of a male Greater false vampire bat ('*Lyroderma lyra*' former '*Megaderma lyra*') was collected on 12.04.2017 at around 12.30 PM from an 'Assam type house' classroom

(Latitude: N 26^0 1′ 28.1136″; Longitude: E 89^0 58′ 9.9912″) of B. N. College campus, Dhubri district of Assam, India (South Asia). It is also commonly known as the Indian False Vampire bat. Generally, all kinds of False vampire bats fall under the chiropteran family called 'Megadermatidae' of Suborder-Microchiroptera. Originally, the classroom from which the species was collected was assigned to the Biology department. It was a "Half-walled Assam type house" with a rooftop fitted with Tin-sheets which had a ceiling made up of bamboo materials plastered with mixtures of sand and cement (Fig. 2). The existence of some kind of Microchiropteran bat species was previously known to me since the area was always having a strong odour coming out from their concentrated urine which regularly falls in the ceiling and also from bat droppings which were regularly seen by me on the floor of that classroom and in the verandah. The ceiling of the verandah was completely made up of bamboo materials. But I never disturbed them for identification and another experimental purpose, so that they didn't leave their day to roost. On the day of the collection of the bat species, there was a predatory attack on the bat roost inside the ceiling by a wildcat (*Felis* sp.; Local name in Assamese "Hapa") and out of fear one individual somehow came inside the classroom from the hiding place. Then it started flying aimlessly around the classroom and it suddenly fell down on the floor. Then it was captured with a hand net available in the zoology department. During the morphological investigation, it was found that the bat was badly injured most probably because of interspecific fighting with the predatory species. After morphometric investigation, I tried to release the specimen, however, the bat could not fly and might be for internal injury. Then I decided to keep it in my custody under a wire cage and tried to observe its health condition providing every possible health care with some insect food items along with water. Unfortunately, the specimen could not be saved and it died after two days of constant care at my residence.

Figure 2. Current view of the original roosting habitat of the collected *Lyroderma lyra*

The specimen of *Lyroderma lyra* was found to be a robust bat species with forearm length of 66.2 mm (Fig. 3A). Body mass was recorded at 93 gms. Some of the important morphometric measurements which are characteristic of the species are shown in the Table-1. The pelage of the bat species was fine, soft and moderately long. The upper surface of the body coat was found to be mouse grey-coloured. However the coat colour of the ventral surface was noticed as paler (Fig. 3B). Its ears are large ovals and joined medially to the forehead. The membranes and ears are grayish black and semi-translucent as described by Bates and Harrison (1997). The ears were covered with a fringe of white hairs on their inner margins (Fig. 3D). The tragus of each ear is slender and distinctly bifid. The posterior process of tragus is taller than the anterior part (Fig. 3D). The face is covered with white-brown hairs in the forehead and upper cheeks regions. However, the snout region has been found to be naked which has been also reported by Bates and Harrison (1997) in the specimens of *Megaderma lyra* of the Indian subcontinent (Fig. 3C). The noseleaf of the specimen was erected and elongated (Fig. 3D). The figure is clearly showing the presence of longitudinal ridge and a simple rounded horizontal base in the noseleaf area. There was no tail found in the species which is one of the characteristics of the bat species of the Megadermatidae family (Bates and Harrison, 1997). It was recorded as the new distributional data from Assam of Northeast India (South Asia) for the species. Previously Sinha (1999) reported the distribution of the species from the Guijan area of the Tinsukia district of the Upper Brahmaputra valley of Assam. Sinha (1999) also explained the distribution of the species from Kamrup and Goalpara

districts of Lower Brahmaputra Valley of Assam in his book "Contribution to the Knowledge of Bats (Mammalia: Chiroptera) of North East Hills, India" respectively. Hinton & Lindsay (1926) reported it from the Polahbari area of the Kamrup district of Assam which was also mentioned by Bates and Harrison (1997) in their publication. However there was no specimen reported yet from the Dhubri area, the westernmost part of Assam which shared its border on the north with Kockrajhar district; in its south, South Salmara Mankachar district and Meghalaya state; while West Bengal and Bangladesh (South Asian country) is on the west boundary. In its east lie the Goalpara district of Assam.

Table 1. Some external morphometric measurements of the collected specimen

Sl. No.	**Morphometric characters**	**Measurements**
1.	Length of ear (E)	30 mm
2.	Length of forearm(*f*)	66.2 mm
3.	Length of foot including claws (*ft*)	13 mm
4.	Length of head and body (HB)	82 mm
5.	Length of penis (*p*)	9 mm
6.	Length of tibia (*t*)	18 mm
7.	Height ofnoseleaf (nslf)	9.5 mm
8.	Length of tragus (*Tr*)	16 mm
9.	Wing span (wsp)	423 mm
10.	Width of wings (ww)	72 mm
11.	Body mass or weight (wt)	93 gms

3A. Forearm length

3B. Ventral side with a wing span

3C. Snout and Coat colour

3D. Noseleaf, tragus and Ear

Figure 3. (A, B, C, D) shows some morphological characteristics of *Lyroderma lyra* Geoffroy, 1810

Conclusion

The current information has enhanced the range of distribution of the *Lyroderma lyra* (former *Megaderma lyra* Geoffroy, 1810) from eastern Assam's Tinsukia district to the extreme westernmost part of Brahmaputra valley of Assam (Dhubri district) which is relay a good sign for

the bat community of northeast India. With this new distributional record, it can be predicted that the greater false bat may be found throughout the length of the Brahmaputra valley of Assam. It also confirmed that the habitat of Brahmaputra Valley is suitable for the chiropteran species with special reference to the Indian false vampire bat.

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References

Ali, A. (2013). Indian Flying Fox of Assam. Omni Scriptum GmbH & Co. KG, Germany. Scholar's Press.

Ali, A. (2020). First distributional record of short-nosed fruit bat *Cynopterus sphinx* (Vahl, 1797) (Chiroptera: Pteropodidae) from Dhubri district of Assam, Northeast India. International Journal of Applied Research, 6(10), 554-556.DOI:https://doi.org/10.22271/allresearch.2020.v6.i10i.7391

Ali, A. (2021). Status of Avifauna with special reference to Migratory Birds in the B. N. College campus of Dhubri district of Assam, Northeast India. Journal of chemical, biological and physical sciences, Vol. 11, No. 4; 568-580. DOI: 10.24214/jcbps.B.11.4.56880

Ali, A. (2022). Species diversity of bats (Mammalia: Chiroptera) in Assam, Northeast India. Journal of Wildlife and Biodiversity. Volume 6 (3): 115-125. DOI: https://doi.org/10.5281/zenodo.6603976

Bates, P. J. J. and D. Harrison (1997). Bats of Indian sub–continent. Sevenoaks, U.K., 258 pp. Harrison Zoological Museum Press.

Hinton, M. A. C. and LindsayH. M. (1926). Report No. 41: Assam and Mishmi Hills. Bombay Natural History Society's Mammal Survey of India, Burma and Ceylon. Journal of Bombay Natural History Society. 31: 383-403.

Kurup, G.U. (1968). Mammals of Assam and adjoining area. 2. A distributional list. Proceedings of the Zoological Society of Calcutta 21, 79-99.

Marshall, A.G. (1983). Bats, Flowers and Fruits: evolutionary relationships in the Old World. Biological Journal of Linnaean Society 20, 115 – 135.

Mickleburgh, S.P. , A.M.Hutson and P.A.Racey (2002). A review of the global conservation status of bats. Oryx, Vol. 36(1), 18 – 34.

Mistry, S. (2003). Protecting the bats of India. BATS, Vol. 21(2).

Rao, A.S. (1974). The vegetation and phytogeography of Assam - Burma, Monographical Biological, Vol. 23, 204 – 244.

Sinha, Y.P. (1999). Contribution to the knowledge of Bats (Mammalia: Chiroptera) of North East Hills, India. Records of the Zoological Survey of India. Occasional Paper No. 174, Kolkota, 52pp, Zoological Survey of India Press.

Srinivasulu, C. and B. Srinivasulu (2020).*Lyroderma lyra*. IUCN Red List of Threatened species.DOI:10.2305/IUCN.UK.2020-2.RLTS.T12938A22021835.en.