



Record of Lesser false vampire bat *Megaderma spasma* (Linnaeus, 1758) in Vansda National Park, Gujarat, India

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Abstract:

Present sighting Lesser false vampire bat *Megaderma spasma* (Linnaeus, 1758) from forest of Sadad Devi, Vansda National Park (VNP), Gujarat is the first report from the park and third records from Gujarat State, after the records of forest of Gir National Park and Sanctuary and Ratanmahal Wildlife Sanctuary. The VNP mammalian fauna is rich and diversified. This observation is an addition to the 28 mammalian species recorded from VNP.

Key Words Bat, Chiroptera, Gujarat, Protect Area, Mammals, Megadermatidae, Megaderma

Introduction:

The insectivores and fructivorous, both the groups of bats play an important role by contributing to a wide range of ecosystem services (Kunz et al. 2011). Owing to the ecological importance of the bats, it is very important to understand their species diversity, ecological services and threats before implementation of effective conservation measures for both bats and their habitats. Bats are often treated as bio-indicators to assess the biodiversity potential and environmental impacts (Fenton et al. 1992; Jones et al. 2009; Pedersen et al. 2012). Bats belong to the order Chiroptera, which constitutes of the only mammals to have evolved with the mechanism of true flight. Bats constitute the second largest order of mammals, after rodents and are characterised by their capability of true and sustained flight. There are about 1386 species of bats recognised from two suborders: Yinpterochiroptera and Yangochiroptera (Burgin et al. 2018). The Indian bat fauna is rich and more diversified, there are 123 species of bats belonging to five families (Pteropodidae, Rhinopomatidae, Rhinolophidae, Hipposideridae and Megadermatidae) of the suborder Yinpterochiroptera, and three families (Emballonuridae, Miniopteride and Vespertilionidae) of the suborder Yangochiroptera (Talmale & Pradhan 2009; Srinivasulu & Srinivasulu 2012).

The bat fauna of Gujarat is poorly explored and less studies in the compare other groups of mammals. The literature surveys show the it studied by Ryley (1914), Wroughton (1918a, b),



Ellerman & Morrison Scott (1951), Brosset (1962a, b,c), Sinha (1970, 1975, 1980), Devkar et al. (2013) and Shah & Srinivasulu (2020), who summed up the presence of 22 species of bats. However recent publication shows there were 26 species of bats listed from Gujarat (Chakraborty & Agrawal, 2000; Singh 2013), however, Lesser false vampire bat *Megaderma spasma* (Linnaeus, 1758) is not listed from the state. Alam (2010) and Devkar & Upadhyay (2015) recorded its presence from Gir National Park and Sanctuary, Saurashtra and Ratanmahal Wildlife Sanctuary, Central Gujarat, respectively.

Species Description- *Megaderma spasma* (Figure 1) is a one of member of family: Megadermatidae and it is easily distinguished from other families of microchiroperans on the base of their appearance, especially a tragus which is bifurcate (the tragus is the pointed structure inside the ear). Its fur is deeper grey. Ears are large and oval shaped jointed at the



Figure 1: A typical identical face of Lesser false vampire bat *Megaderma spasma* (Photo Credit: Raju Vyas).

base with no white inner margin. The nose leaf is short compared to *Megadermalyra* and has broad convex flaps on the sides with longitudinal ridge present and base of the nose leaf is heart shaped. Tail is absent in the species (Prater1971, Menon 2014). Lesser False Vampire inhabits mainly primary or mature secondary forest. Its roosts include hollow trees and manmade structures such as

road culverts. Roosting groups may comprise up to 5-10 individuals closely packed together.

Species Distribution- This species is widely distributed in south Asian region from Philippines to Brunei Darussalam stretching across Indonesia, Malaysia, Myanmar, Cambodia, Singapore, Sri Lanka, Bangladesh and India (Csorba *et al.* 2011). It is widely distributed in India, including Andaman & Nicobar Islands, Andhra Pradesh, Assam, Goa, Karnataka, Kerala, Maharashtra, Meghalaya, Mizoram, Tamil Nadu, West Bengal (Molur *et al.* 2002), Gujarat (Alam 2010; Devkar & Upadhyay 2015) and Odisha (Debata *et al.* 2013, 2017).

Study Area:

Vansda National Park (VNP) (20051'16"-21021'22"N & 73020'30"-73031'20"E) is the one of four National Parks of Gujarat located in the northern end of Western Ghats, in Vansda sub-district of Navsari District, Gujarat. It is a hilly terrain with hills of moderate altitudes from



110-360m as an extension of the Sahyadri hill Range. Once it was a game forest for the ex-ruled of Vansda State, and after 1986 the forest area of 23.99km² was declared as National Park under the Wildlife (Protection) Act, 1972 by the Government of Gujarat. The forest of VNP is of southern Indian tropical moist deciduous forest type and further classified as southern moist mixed deciduous forest, bamboo break and tropical riverine forest (Champion & Seth, 1968).

The Park has supported a very rich and diverse flora and fauna. A total of 440 species of flowering plants are recorded, of which 108 species are trees, 51 shrubs, 64 climbers, 202 herbs and 25 grasses (Singh *et al.*, 2000). The literature survey shows the park also harbours many higher vertebrates, including amphibians (13 species), reptiles (41 species), birds (114 species) and mammals (28 species) (Singh *et al.* 2000). The Vansda National Park were explored in second week of June 2021 to study the bats, along with prepared update list on inhabiting mammalian species at the park.



Figure 2: The forest habitat of Sadad Devi, Vansda National Park, Gujarat India.

(Photo Credit: Raju Vyas)

Observation:

On 7th June 2021, we come across a number few small sizes of insectivorous bats in the flight



Figure 3: The Lesser false vampire bat *Megaderma spasma* roosting in a small cluster of closely packed together 7 individuals at a watch-tower, Vansda National Park, Gujarat India.

(Photo Credit: Kartik Upadhyay).

in evening from forest blocks Sadad Devi, VNP. It is absolutely difficult to watch and proper identification in dusk light, but flight and foraging habit of the bats were found interesting.

On 8th June 2021, at noon time we were in the middle of VNP, on forest block of Bharadi and Sadd Devi (Figure2). It is usual practice to explore man-made structures like water tanks, abundant staff



rooms and watch-towers for the searching of snakes and lizards, especially geckos. We were show a small number of bats roosted at height of around seven meters under the roof of a watch-tower (20°46'45.86"N; 73°28'20.14"E) in a small cluster of closely packed together 2-7 individuals (Figure 3). The floors were covered with dry excreta and old droppings. However, the overall situation of this watch-tower along with condition of floors indicated the presence of bats.

On the next day (9th June 2021), we visited the same location for observation and further confirmation of the bats. There were a total of 19 individual bats in three different clusters and some of them were in pairs. A cluster of four bats, including two of them were observed with awarded a baby on the breast (Figure 4). The size of both the baby was probably two or three weeks old, which suggest pre-monsoon (May-June) as breeding season for the species. We were able to take a few pictures of the bats.



Figure 4: The cluster of four lesser false vampire bat (*Megaderma spasma*), two female were with a baby on breast, Vansda National Park, Gujarat India. (Photo Credit: Raju Vyas)

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Result and Discussions:

The unidentified bats roost at abundant staff rooms and watch-towers and its pictures were examined with help of literatures (Prater 1971; Srinivasulu et al. 2010). It was identified as Lesser false vampire bats *Megaderma spasma* and latter it was confirmed by the bat expert.

The literatures show six species of bats were residing in the park (Singh et al. 2000; Vyas & Upadhyay 2014) in which the Lesser false vampire bat *Megaderma spasma* was not listed. Thus, the sighting record of *Megaderma spasma* from VNP can be the first report from the protected area and third records from the Gujarat State (Alam 2010) and a man-made structure of overhead water tank at Ratanmahal Wildlife Sanctuary (Devkar & Upadhyay 2015). However, present records and literatures (Singh et al. 2000; Vyas & Upadhyay 2014; Patel et al. 2020; Kazi et al. 2021) show VNP mammalian fauna is very rich and more



diversified and the record of this species of bat will be the addition of one more species of mammals in the park.

Acknowledgements:

The authors are thankful to the State Forest Department, Gujarat, especially the Deputy Conservator of Forest and Range Forest Officer (wildlife), Vansda National Park, Navsari, Gujarat for permission, logistic and support. Special thanks Mr. Rariq Ahmed Shah (Wildlife Biology and Taxonomy Lab, Department of Zoology, University College of Science, Osmania University, Hyderabad, Telangana 500007, India) for identification and the confirmation of the bat species. Thanks to Kunal Trivedi, Nature Club, Surat for accompanying in the fieldtrip.

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Suggested citation:

Vyas R. and Upadhyay K. (2021). Record of Lesser false vampire bat *Megaderma spasma* (Linnaeus, 1758) and Update List of Mammals of Vansda National Park, Gujarat, India, Prithivya, An Official Newsletter of WCB Research Foundation and WCB Research Lab. Vol 1(3) 13-19.

