SHORT COMMUNICATION

Range extension for Thomas' Mastiff bat *Eumops maurus* (Chiroptera: Molossidae) in northern, central and southeastern Brazil

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ABSTRACT. Thomas' Mastiff bat, *Eumops maurus* (Thomas, 1901) is known from northern South America in Ecuador, Venezuela and Guiana and so it probably occurs in Brazil, yet it has not been reported. Here, we present the first record for *E. maurus* in Brazil. Captures were from the Brazilian states of Tocantins and Goiás (northern and midwestern Cerrado region of the country), and São Paulo (southeastern Brazil, Atlantic Forest). In the first two locations, all bats were roosting in palm leaves while in the later location, a single animal was found alive in a 15th-storey apartment in the city of São Paulo. This bat inhabits savannas with swamps dominated by the palm *Mauritia flexuosa* (buriti) and gallery forests. This record is the first of *E. maurus* in an urban area. Brazilian specimens are apparently larger than those from northern South America.
KEY WORDS. Geographic distribution; insectivorous bat.

RESUMO. **Distribuição geográfica de Thomas' Mastiff *Eumops maurus* (Chiroptera: Molossidae) na região norte, central e sudoeste do Brasil.** *Eumops maurus* (Thomas, 1901) tem sua ocorrência no norte da América do Sul, no Equador, na Venezuela e na Guiana. O presente estudo descreve a primeira ocorrência de *E. maurus* para o Brasil, com capturas recentes de espécimes nos estados de Tocantins e Goiás (regiões Norte e Centro-Oeste do país), domínio de Cerrado, e no estado de São Paulo, região sudeste, inserido no domínio da Mata Atlântica. Nos dois primeiros casos, os espécimes estavam no interior de folhas de palmeiras, e último, o indivíduo foi encontrado vivo dentro do quarto de um apartamento na cidade de São Paulo. Dados bibliográficos revelam que esta espécie habita regiões abertas, associada às áreas periodicamente alagadas (no cerrado, veredas) dominadas por palmeiras da espécie *Mauritia flexuosa* (buriti) e matas de galeria. Este trabalho ressalta o primeiro registro desse morcego em local urbanizado. Os espécimes brasileiros apresentam dimensões corpóreas maiores que os espécimes provenientes na região norte da América do Sul.
PALAVRAS-CHAVE. Extensão geográfica; morcegos insetívoros.

Eumops (Miller, 1906) is widely distributed in the neotropics, the Antilles, and in the United States in Florida, Arizona and California. *Eumops* comprises 10 species: *E. auripendulus* (Shaw, 1800), *E. bonariensis* (Peters, 1874), *E. dabbenei* (Thomas, 1914), *E. glaucinus* (Wagner, 1843), *E. hansae* Sanborn, 1932, *E. maurus*, *E. patagonicus* (Thomas, 1924), *E. perotis* (Schinz, 1821), and *E. trumbulli* (Thomas, 1901). Two of these are very rare in collections and data are few for most of the species (Eger 1977, Koopman 1994, Reid 1997, Eisenberg & Redford 1999, Simmons 2005).

This genus comprises insectivorous bats with high and fast flight, commonly found in open habitats or above the forest canopy. Urban occurrence of these bats is noteworthy and is probably due to shelter and year-round food supplies (urban street lights attracting several insects) (Silva *et al*. 1996), as well as destruction of natural habitats nearby. Molossids are commonly associated with human structures in Brazil (Taddei 1983, Bredt & Uieda 1996, Sodré 2003). The most abundant species in metropolitan areas are *E. auripendulus*, *E. glaucinus*, *E. perotis*, and *E. bonariensis*. Similarly with most bats in urban areas, *Eumops* finds shelter in the roofs of building with roosts six or more meters above the ground (Nowak 1991). In São Paulo, these high-flying bats frequently enter high-rise apartments, often to the fifth floor. Due to high-flying habits molossids are usually hard to catch

with nets used at the ground level. Thus, the best method is finding roosts, with colonies of dozens to millions of individuals.

Eumops maurus was described by Thomas (1901) with an adult male specimen from Kanaku Mountains, Guiana. Subsequently, the species was recorded in Suriname by Husson (1962), with no precise location, under the name *Eumops geijskesi*, a junior synonym of *E. maurus* (Eger 1977). The description by Husson (1962) agrees with *E. maurus* of Thomas (1901), except the white lateral line on the belly, lacking in the original description but in the holotype. *E. maurus* was later recorded in Venezuela (Sánchez *et al*. 1992), and Ecuador (Reid *et al*. 2000; Fig. 1). The presence of the species was suggested for northern Brazil (Best *et al*. 2001) but with no reliable records exist.

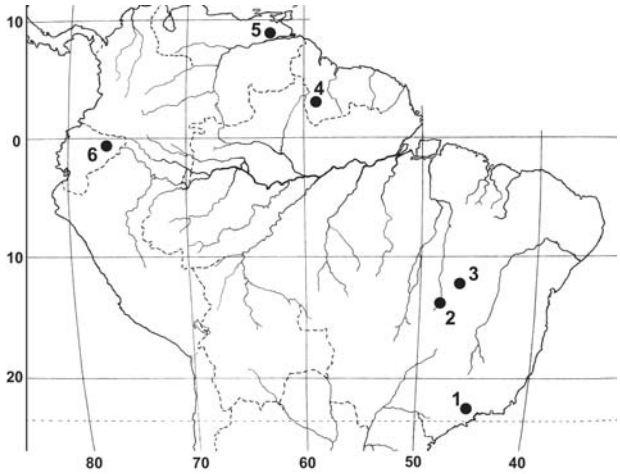

Figure 1. Geographic distribution of *E. maurus* with new Brazilian records (localities 1-3). Brazil: (1) São Paulo, State of São Paulo; (2) Corumbá Hydroelectric Plant IV, state of Goiás; (3) Peixe/Angical Hydroelectric Plant, State of Tocantins; (4) Kanaku mountains, Guiana; (5) Uverito, State of Monagas, Venezuela; (6) Pompeya Sur, Napo Province, Ecuador. In addition, there are two specimens from Suriname with imprecise capture local (Eger 1977).

We record here the first definite Brazilian occurrence of *Eumops maurus* at three different locations. The first individuals were captured at roosts of palm leaves at two locations in midwestern and northern Brazil. Eight specimens from Corumbá Hydroelectric Plant IV, in the state of Goiás, were hand-captured in 18 of February (n = 2) and 20 of February (n = 6) 2005 in leaves of *Syagrus oleracea* (Mart.) Besc (locally known as gueroba). Four specimens were hand-captured at the Peixe/Angical Hydroelectric Plant, in the state of Tocantins (Fig. 2) in leaves of *Mauritia flexuosa* Linnaeus (locally known as *buriti*). Both locations are in the Cerrado, a savannah phytophysionomy in central Brazil. Twelve specimens were captured, and measurements of the external morphological features of all specimens and cranial measurements of only two females sacrified are found in table I.

Figure 2. Individual adult female of the Thomas' Mastiff bat, *Eumops maurus*, collected in palm tree, Tocantins, Brazil. Photo: M.M. Guimarães.

Specimens are deposited at Universidade Católica de Goiás (UCG).

The last record of *E. maurus* is from a specimen from São Paulo (23°32'S, 46°37'W, 760 m elevation), Atlantic Forest, in southeastern Brazil. São Paulo is the most populous city in South America and one of the five greatest metropolitan areas of the world (Ibge 2000). The Center for Zoonosis Control (CCZ), Secretary of Health, often attends to bat reports and was called on 25 April 2005 due to a bat. An adult female (15 g) was captured alive on the fifteenth floor. The specimen was sacrificed to take a brain tissue sample to test for rabies. This specimen is now preserved in fluid with extracted skull and available for study (CCZ 761/05). External and cranial measurements of Brazilian specimens are compared with the holotype and one specimen from Ecuador in table I.

Identification of the specimens was based on diagnostic traits of the species (Thomas 1901, Eger 1977, Reid *et al*. 2000), including: 1) similar chocolate brown pelage on dorsal and ventral regions; 2) a large (5 mm) and long (20 mm) white lateral stripe on the belly. The skull of specimen CCZ 761/05 from São Paulo resembles *E. auripendulus* in general shape with narrowed rostrum, extended opisthocranium, a flat braincase and rostrum in outline. The skull of CCZ 761/05, however, differs somewhat from other *E. maurus* (ROM 106326 – Royal Ontario Museum, Toronto – and BMNH 1.6.4.34 – British Museum, London) because the latter have a slightly curved braincase in outline. Also, corporal dimensions of *E. maurus* from Brazil are slightly larger than those northern South America (Tab. I). However, CCZ 761/05 is not *E. auripendulus* due the blackish pelage and general shape of skull of the latter as mentioned above, and because dimensions of *E. a. major*, the subspecies that occurs in the Atlantic Forest, are much larger (forearm 59.0-66.0 mm and skull length 25.0-30.0 mm) and no specimen of *E. auripendulus* has a white ventral stripe. Thus, we have primarily considered these differences recorded in skull of specimen CCZ 761/05 as variation within *E. maurus*, but further

Table I. Measurements (mm) of *E. maurus* in South America. [1] Specimen from São Paulo; [2] Specimens from states of Tocantins and Goiás, biome Cerrado; for external biometry twelve specimens were analyzed and the skull dimensions were obtained of two specimens (UCG 1068 and 1069); [3] specimen from Ecuador (Reid *et al.* 2000); [4] specimen from Venezuela (Sanchez *et al.* 1992); [5] specimen from Guiana (holotype).

Character/specimen	CCZ[1] 761/05	Cerrado[2] (N = 7)	ROM 106326[3]	EBRG 16124[4]	Cerrado[2] (N = 5)	BMNH 1.6.4.34[5]
Sex	Female	Female	Female	Female	Male	Male
Head + body	–	69.6 (2.6)	69.00	–	73 (7.2)	63.0
		67.7-76.4			62.8-81.0	
Tail	–	47.4 (2.3)	42.00	–	47.0 (3.5)	50.5
		44.0-51.4			43.3-52.1	
Forearm length	56.10	55.3 (2,2)	52.00	53.8	57.6 (2.1)	54.0
		52.7-59.1			54.9-60.8	
Length of ears	–	22.4 (1.2)	21.00	22.0	21.4 (3.1)	–
		20.1-24.3			17.8-25.1	
Length of tragus	–	3.6 (0.4)	2.00	–	3.4 (0.3)	–
		3.0-4.2			3.2-3.8	
Greatest length of skull	22.80	22.6-22.7	20.79	21.3	–	21.6
Condyloincisive length	21.82	21.6-21.7	19.15	19.9	–	20.2
Palatal length	10.90	10.3-10.6	9.09	–	–	12.3
Zigomatic breadth	13.05	13.2	12.02	12.1	–	–
Post-orbital constriction	3.91	4.0-4.1	3.86	4.0	–	5.3
Upper canine-molar lenght	8.99	9.0	8.11	8.2	–	8.2
Width across upper molars	9.10	9.2	8.27	8.7	–	8.9
Length of mandibule	16.90	17.1-17.2	14.90	–	–	15.0
Inner canine-molar length	9.57	9.6-9.7	8.39	9.2	–	8.6

studies based on larger samples are needed.

Behavior and ecology of *E. maurus* are poorly known. It inhabits savannas, often in association with swamps dominated by the palm *Mauritia flexuosa*, gallery forests and swampy evergreen forest (Best *et al*. 2001), similar to that of central Brazil. The individual captured in urban São Paulo is enigmatic and might be a recent range expansion in response to urbanization. If so, it may become associated with buildings as have other members of the genus. The occurrences here are extensions of its known range by 3,000 km and the first records for both Cerrado and Atlantic Forests (Fig. 1).

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