

Eumops maurus. By Troy L. Best, John L. Hunt, Lisa A. McWilliams, and Kevin G. Smith

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Eumops maurus (Thomas, 1901)

Thomas' Mastiff Bat

Molossus maurus Thomas, 1901:141. Type locality "Kanuku Mountains, about 59°W. and 37°N., Alt. 240 feet, British Guiana."

Eumops geijskesi Husson, 1962:246. Type locality "Suriname, exact locality unknown."

CONTEXT AND CONTENT. Order Chiroptera, suborder Microchiroptera, family Molossidae. The genus *Eumops* contains 8 species; *E. auripendulus*, *E. bonariensis*, *E. dabbenei*, *E. glaucinus*, *E. hansae*, *E. maurus*, *E. perotis*, and *E. underwoodi* (Freeman 1981; Koopman 1993, 1994). *E. maurus* is monotypic (Eger 1977; Koopman 1994).

DIAGNOSIS. *Eumops maurus* is slightly larger than *E. hansae*, is medium in all jaw proportions, has less than one-half posterior commissure present on M3, and has no P3 (Freeman 1981). However, specimens of *E. maurus* from Surinam have P3 (Eger 1977; Freeman 1981). The most conspicuous external feature of *E. maurus* is a narrow band (5 mm wide) of entirely white hairs along ventrolateral sides of body and proximal part of mesopatagium between humerus and femur (Eger 1977; Sánchez H. et al. 1992).

GENERAL CHARACTERS. Pelage of Thomas' mastiff bat is dark chocolate brown dorsally and ventrally (Eger 1977; Sánchez H. et al. 1992). Hairs on dorsum are bicolored, with a narrow whitish basal band. Hairs on ventrum are paler than those of dorsum, and are paler at base than along shaft (Carter and Dolan 1978).

Ears are medium in size and their inner bases are close together. Inner lobe of ear is thickened and flattened externally. Outer and inner edges are straight, at about right angles to each other, and tip is broadly rounded. A small convexity is at the outer base just before the deep antitragal notch. Antitragus is long, deep, and can be described as triangular with a rounded upper angle. Tragus is small and narrow (Thomas 1901).

Skull (Fig. 1) is similar to that of other *Eumops*. Basisphenoid pits are oval and moderately well developed. The small anterior upper premaxillary is absent in some individuals (Eger 1977).

Average of external and cranial measurements (in mm) of 1 male and 2 females, respectively, of *E. maurus* were: length of forearm, 53.0, 51.9; greatest length of cranium, 21.7, 20.7; condyloincisive length, 20.1, 19.1; zygomatic breadth, 12.4, 12.4; mastoid width, 10.5, 10.8; height of braincase, 7.7, 7.2; length of upper maxillary tooththrow, 8.2, 8.3; postorbital constriction, 4.0, 4.1 (Eger 1977). Measurements (in mm) of a male from Venezuela were: length of body, 177; length of ear, 22; length of forearm, 53.8; length of 3rd metacarpal, 54.2; length of 4th metacarpal, 51.3; greatest length of cranium, 21.3; condylobasal length, 19.9; postorbital constriction, 4.0; zygomatic breadth, 12.1; breadth of braincase, 10.2; rostral breadth, 6.6; mastoid breadth, 10.9; distance across upper molars, 8.7; length of maxillary tooththrow, 8.2; length of mandibular tooththrow, 9.2 (Sánchez H. et al. 1992). External measurements (in mm) for 2 males and 1 female (in parentheses) from Surinam, were: length of forearm, 51.9, 52.8 (51.0); length of metacarpal of 3rd digit, 48.0, 53.5 (53.0); length of 1st phalanx of 3rd digit, 20.0, 24.0 (23.0); length of 2nd phalanx of 3rd digit, 15.0, 20.0 (20.0); length of 3rd phalanx of 3rd digit, 5.0, 5.5 (7.0); length of metacarpal of 4th digit, 45.0, 51.0 (49.0); length of 1st phalanx of 4th digit, 15.0, 20.0 (15.0); length of 2nd phalanx of 4th digit, 5.0, 5.5 (6.5); length of metacarpal of 5th digit, 26.0, 30.5 (28.0); length of 1st phalanx of 5th digit, 13.0, 15.5 (15.0); length of 2nd phalanx of 5th digit, 4.0, 5.0 (5.0); length of tibia, 18.5, 17.0 (18.5); length of tail, 42, 40 (40); length of calcar, 17.0, 18.0 (16.0). Length of foot for the 1st male was 11.0 mm. Cranial measurements for 2

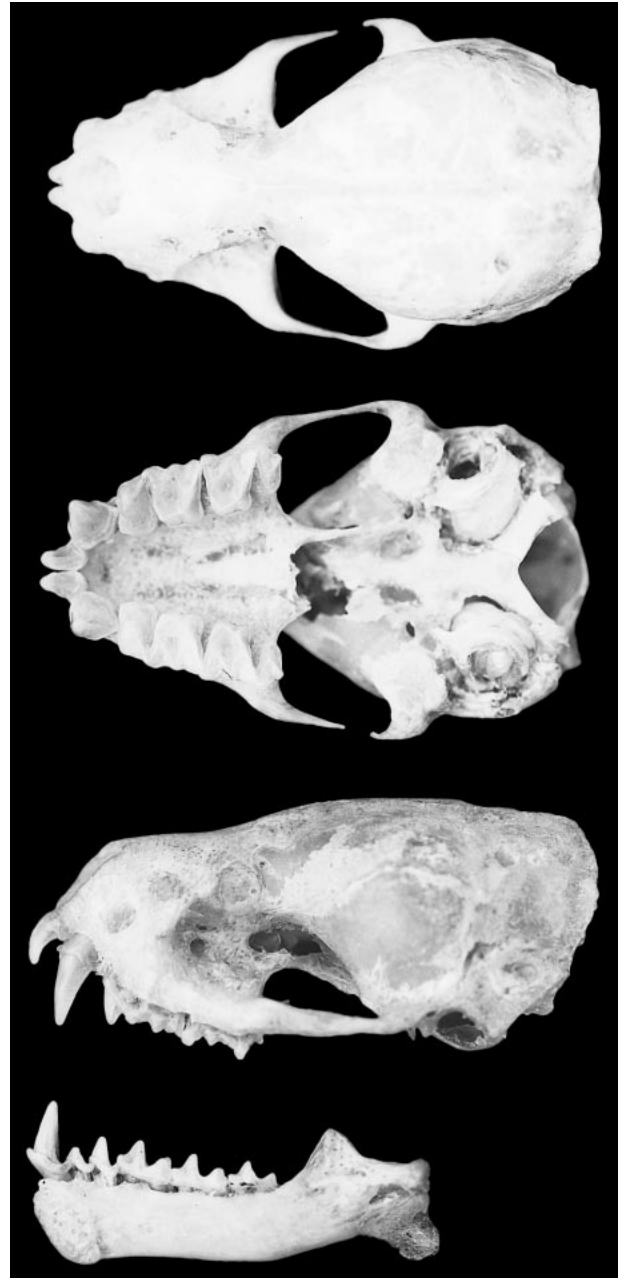


FIG. 1. Dorsal, ventral, and lateral views of cranium and lateral view of mandible of *Eumops maurus* from Surinam (female, Rijksmuseum van Natuurlijke Historie 12943). Greatest length of cranium is 20.1 mm (Husson 1962). Photographs generously provided by C. Smeenk of the Rijksmuseum van Natuurlijke Historie, Leiden, The Netherlands.

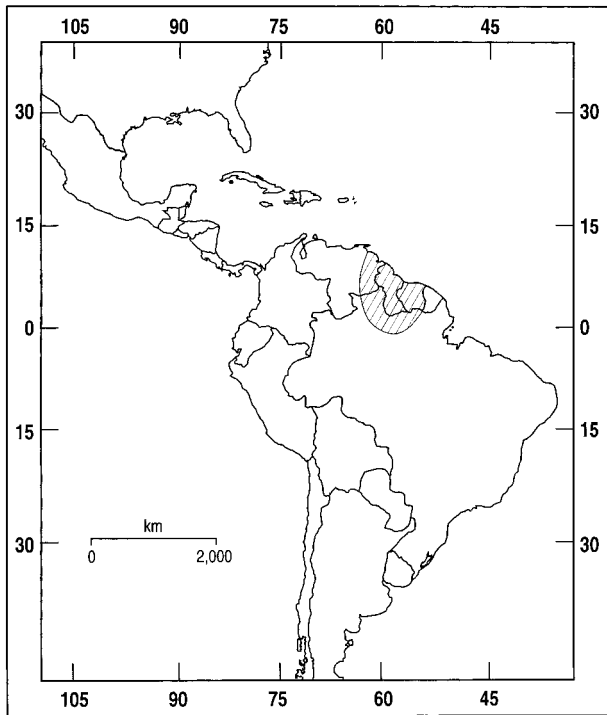


FIG. 2. Distribution of *Eumops maurus* in South America (Eger 1977; Eisenberg 1989; Koopman 1982, 1993, 1994; Sánchez H. et al. 1992).

females from Surinam were: greatest length of cranium, 20.1, 20.1; length from condyle to front of canine, 18.6, 18.7; basal length of cranium, 16.7, 17.3; palatal length, 8.8, 8.6; zygomatic breadth, 12.5, 12.3; breadth of braincase, 10.3, 10.3; height of braincase, 7.2, 7.0; mastoidal breadth, 10.8, 10.9; postorbital constriction, 4.1, 4.1; width across molars, 8.9, 9.0; width across cingula of canines, 5.0, 4.7; length of upper toothrow, 8.4, 8.2; length of lower toothrow, 9.1, 9.1; length of mandible, 14.5, 14.6 (Husson 1962).

DISTRIBUTION. In South America, Thomas' mastiff bat occurs in the northern Amazon Basin (Koopman 1982). *E. maurus* is known only from Brazil, Venezuela, Guyana, and Surinam (Fig. 2; Eger 1977; Koopman 1994; Sánchez H. et al. 1992). In Venezuela, it was present at an elevation of 40 m (Sánchez H. et al. 1992). No fossils are known.

FORM AND FUNCTION. Pelage of Thomas' mastiff bat consists of soft hairs that are ca. 6–8 mm long on back (Carter and Dolan 1978; Husson 1962; Thomas 1901). Ventral surface of uropatagium is hairless. In basal part of mesopatagium, along sides of body is a narrow longitudinal area, ca. 5 mm wide, covered by hair. This area is sharply set off from pelage of body because hairs here are white to whitish in color. This area of white pelage extends between proximal one-half of humerus and proximal part of femur. Anteriorly, pelage extends to forehead and basal parts of ears, so that ca. one-half of outer side of ears is hairless. Laterally, pelage extends onto wing membranes up to a line connecting proximal one-half of humerus and knee. Posteriorly, pelage covers about one-third of uropatagium (Husson 1962, 1978).

Ears are large (ca. 15 mm from meatus to end of pinna—Carter and Dolan 1978) and rounded; when laid forward, they reach smooth margin of upper lip (Husson 1962, 1978). Lips have microscopic, superficial wrinkles (Freeman 1981). Inner margins of ears are united on forehead for only a short distance. Tragus is small, linear, and rounded above, with a broad base. Height of tragus is ca. 2 mm; medially, it is >1 mm long. The half-cordate antitragus is ca. 7 mm long and 3 mm high (Husson 1962, 1978).

Wing tips are narrow; average relative length of 2nd phalanx is 7.8% of total length of 4th digit (Freeman 1981). Wing membranes, attached from ankles, are pale brownish and slightly darker on dorsal than on ventral surface, except for narrow areas where wings are hairless (Husson 1962, 1978).

Free end of tail is equal to or somewhat longer than proximal part, which is enclosed in interfemoral membrane. Calcar is ca. 3 times as long as free border of uropatagium (Husson 1962).

The low, but sharply defined, sagittal crest runs from middle of orbital region to basioccipital, where it joins lambdoidal crest (Husson 1962); occiput is visible from above (Carter and Dolan 1978). Supraorbital edges are rounded. Basisphenoid pits are separated by a broad ridge (Carter and Dolan 1978; Freeman 1981). Palate ends ca. 1 mm behind the level of the posterior molar. Angles of the lower jaw are slender and not abnormally expanded laterally (Thomas 1901).

Dental formula is $i\ 1/2$, $c\ 1/1$, $p\ 1-2/2$, $m\ 3/3$, total 28–30 (Eger 1977; Eisenberg 1989; Mares et al. 1989). P3 is minute and crowded toward labial side of toothrow (Carter and Dolan 1978). Slender shafts of forward-projecting upper incisors are about one-half as high as those of canines. Upper incisors are in contact with each other in the middle, their tips diverge, and bases of incisors touch those of canines. P3 is crowded out of the toothrow by canine and large P4, which are in contact with each other. The 4 lower incisors are subequal, bifid, and placed close together, with the 2 inner placed before and slightly below the outer so that cutting edges are below those of outer incisors. Outer incisors are much shorter than cingulum of canines (Husson 1962, 1978).

A distinct, but relatively small, gular sac is present in males (Husson 1962; Thomas 1901). This sac is rudimentary or absent in females (Husson 1962).

ONTOGENY AND REPRODUCTION. In Venezuela, a young female Thomas' mastiff bat with no ossified phalangeal epiphyses was present in July (Sánchez H. et al. 1992).

ECOLOGY AND BEHAVIOR. In Venezuela, a female was present in a 15-year-old pine (*Pinus caribaea*) plantation. Original vegetation at this locality corresponds to grass (*Trachipogon*) savannas, in association with swamps dominated by the palm *Mauritia flexuosa*, gallery forests, and swampy evergreen forests. In Venezuela, associated species include *Rhynchonycteris naso*, *Saccolpteryx bilineata*, *Micronycteris megalotis*, *Carollia perspicillata*, *Sturnira lilium*, *Tonatia brasiliense*, *Mimon crenulatum*, *Phyllostomus discolor*, *Artibeus*, *Myotis nigricans*, *Myotis riparius*, *Molossus molossus*, and *Nyctinomops laticaudatus* (Sánchez H. et al. 1992). Nothing is known regarding genetics of *E. maurus*.

REMARKS. *Eumops* is from the Greek prefix *eu* meaning good or true and the Malayan *mops* meaning bat. The specific epithet *maurus* probably is from the Greek *mauros* meaning dark or obscure (Jaeger 1955).

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LITERATURE CITED

- CARTER, D. C., AND P. G. DOLAN. 1978. Catalogue of type specimens of Neotropical bats in selected European museums. Special Publications, The Museum, Texas Tech University 15:1–136.
- EGER, J. L. 1977. Systematics of the genus *Eumops* (Chiroptera: Molossidae). Life Sciences Contributions, Royal Ontario Museum 110:1–69.
- EISENBERG, J. F. 1989. Mammals of the Neotropics. The northern Neotropics: Panama, Colombia, Venezuela, Guyana, Suriname, French Guiana. The University of Chicago Press, Illinois 1:1–449.
- FREEMAN, P. W. 1981. A multivariate study of the family Molossidae (Mammalia, Chiroptera): morphology, ecology, evolution. Fieldiana: Zoology, New Series 7:1–173.
- HUSSON, A. M. 1962. The bats of Suriname. Zoologische Verhandlungen 58:1–282.
- HUSSON, A. M. 1978. The mammals of Suriname. Zoologische Monographien van het Rijksmuseum van Natuurlijke Historie 2:1–569.

- JAEGER, E. C. 1955. A source-book of biological names and terms. Third edition. Charles C Thomas Publisher, Springfield, Illinois.
- KOOPMAN, K. F. 1982. Biogeography of the bats of South America. Pp. 273–302 in Mammalian biology in South America (M. A. Mares and H. H. Genoways, eds.). The Pymatuning Symposia in Ecology, Special Publication Series, Pymatuning Laboratory of Ecology, University of Pittsburgh 6:1–539.
- KOOPMAN, K. F. 1993. Order Chiroptera. Pp. 137–241 in Mammal species of the world: a taxonomic and geographic reference (D. E. Wilson and D. M. Reeder, eds.). Smithsonian Institution Press, Washington, D.C.
- KOOPMAN, K. F. 1994. Chiroptera: systematics. Handbook of zoology: a natural history of the phyla of the animal kingdom. VIII. Mammalia. Walter de Gruyter, New York.
- MARES, M. A., R. A. OJEDA, AND R. M. BARQUEZ. 1989. Guide to the mammals of Salta Province, Argentina. University of Oklahoma Press, Norman.
- SÁNCHEZ H., J., J. OCHOA G., AND A. OSPINO. 1992. First record of *Eumops maurus* (Chiroptera: Molossidae) for Venezuela. Mammalia 56:151–152.
- THOMAS, O. 1901. On a collection of mammals from the Kanuku Mountains, British Guiana. The Annals and Magazine of Natural History, Series 7, 8:139–154.
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