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Glossophaga mexicana.

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Glossophaga mexicana Webster and Jones, 1980

Mexican Long-tongued Bat

Glossophaga mexicana Webster and Jones, 1980:6. Type locality Río Guamól, 34 mi S (by Hwy 190) La Ventosa Jct., Oaxaca, México.

CONTENT AND CONTEXT. Order Chiroptera, Suborder Microchiroptera, Family Phyllostomidae, Subfamily Glossophaginae. The genus *Glossophaga* contains five species, a key to which is given in Webster and Jones (1984*b*). Two subspecies of *Glossophaga mexicana* currently are recognized (Webster and Jones 1984*a*):

G. m. brevirostris Webster and Jones, 1984*a*:2. Type locality 6 mi W Yautepec, 4,500 ft, Morelos, México.

G. M. mexicana Webster and Jones, 1980, see above.

DIAGNOSIS. *Glossophaga mexicana* (Fig. 1) can be distinguished from its congeners by the following suite of characters (Webster and Jones, 1980): upper incisors noticeably procumbent, I1 bulkier than I2; P4 relatively narrow, posterolingual cingular shelf not noticeably expanded; parastyle of M1 reduced; parastyle of M2 directed labially from paracone, forming a well-developed notch between the parastyle and mesostyle; metastyle and fourth commissure of M1 and M2 elongate; lower incisors reduced in size, subcircular in occlusal view, with small gaps between the teeth, i1 usually smaller than i2 in bulk; premaxillae noticeably elongate; pterygoid "wings" absent or greatly reduced; presphenoid ridge flattened subterminally; and mandibular symphyseal ridge reduced (Fig. 2). As compared with sympatric species of *Glossophaga* in southern México, the Mexican long-tongued bat is large in measurements that reflect cranial length, but medium-sized in measurements of the wing and cranial breadth.

GENERAL CHARACTERS. The tongue of *G. mexicana* is protrusible to at least twice its normal length and the rostrum is elongate; the tail is 6 to 8 mm in length and completely enclosed in the uropatagium. The pelage is distinctly bicolored, the individual hairs having pale bases and darker tips. In addition, the hair of the venter is conspicuously frosted, particularly in specimens of *G. m. mexicana*. The dorsal pelage is Rood's Brown to Clove Brown in color (capitalized terms from Ridgway, 1912), whereas that of the venter is Pale Drab Gray to Avellaneous (Webster, 1983); these colors, in general, are pale to medium brown above and pale gray to tan below.

Like other members of the genus, females generally average larger than males in measurements of cranial length, and males average larger than females in those of cranial breadth; however, females were significantly ($P < 0.05$) larger in only one (length of maxillary toothrow) and males were significantly larger in only two (zygomatic breadth and breadth of braincase) of 16 external and cranial measurements (Webster, 1983). Throughout the range of the species, males and nonparous females averaged (extremes in parentheses) 8.4 (7.3 to 9.2) and 8.6 (7.8 to 9.7) g, respectively (Webster, 1983).

Specimens of *G. m. brevirostris* are distinguished from those of *G. m. mexicana* by their smaller size overall (especially in dimensions of the rostrum), more fragile zygomata, deeper basisphenoid pits, less noticeably procumbent upper incisors, and a wider P4 owing to an expanded posterolingual cingular shelf (Webster and Jones, 1984*a*). Average external and cranial measurements (mm, extremes in parentheses) for 35 males, followed by those for 22 females, of *G. m. mexicana* from eastern Oaxaca and western Chiapas (Webster and Jones, 1984*a*) are: length of forearm, 34.4 (32.0 to 36.5), 34.8 (33.6 to 35.8); greatest length of skull (including incisors), 21.9 (21.1 to 22.7 in 33 males), 22.1 (21.3 to 22.6); condylobasal length, 20.4 (19.6 to 21.5 in 33 males), 20.6 (19.9 to 21.2); zygomatic breadth, 9.6 (9.1 to 10.1 in 29 males), 9.5 (9.0 to 9.7 in 16 females); interorbital breadth, 4.2 (3.8 to 4.5 in 34 males), 4.2 (3.8 to 4.3); and width across molars, 5.7 (5.4 to 6.0 in 34 males), 5.7 (5.5 to 6.0). The same measurements for six males, followed by those for six females, of *G. m. brevirostris* from Michoacán, Morelos, and Puebla (Webster and Jones, 1984*a*) are: 33.9 (32.5 to 35.8 in five males), 34.0 (32.9 to 35.6); 21.4 (20.7 to 21.9), 21.4 (20.9 to 21.7); 19.8 (19.2 to 20.2), 19.9 (19.4 to 20.4 in five females); 9.3 (9.0 to 9.5 in four males), 9.2 (8.6 to 9.5 in four females); 4.1 (4.0 to 4.3), 4.1 (4.0 to 4.3); and 5.6 (5.6 to 5.7), 5.6 (5.4 to 5.8 in five females).

DISTRIBUTION. *Glossophaga mexicana* is known from the Mexican states of Michoacán, Morelos, Puebla, Guerrero, Oaxaca, and Chiapas (Fig. 3). Its elevational range is from sea level to about 1,500 m, although most specimens have come from below 300 m. No fossils are known.

FORM. The hair morphology of *G. mexicana* is similar to that of its congeners (Webster, 1983). The scales of each subscapular hair are smooth, imbricate, and petal-shaped. Two scales surround the shaft at any specific height; the distal portion of each flares outward from the shaft except midway between the tip and base of each hair where the scales cling to the shaft. There is a dearth of information on other aspects of the morphology in this species.

REPRODUCTION. The Mexican long-tongued bat is monotocous, but the extent of the reproductive season is not known. A female taken in March was pregnant, and another obtained in May was lactating. Other females collected in February, March, April, May, and August evinced no reproductive activity. Testis length averaged 4.0 mm in four males taken in June and measured 8 by 6 mm in one male collected in July.

ECOLOGY. *Glossophaga mexicana* has been taken in the relatively arid pine-oak forests of the Sierra Volcanica Transversal and Sierra Madre del Sur, and xeric thorn-scrub forests in the

FIG. 1. Photograph of a live *Glossophaga mexicana* from Chiapas, México.

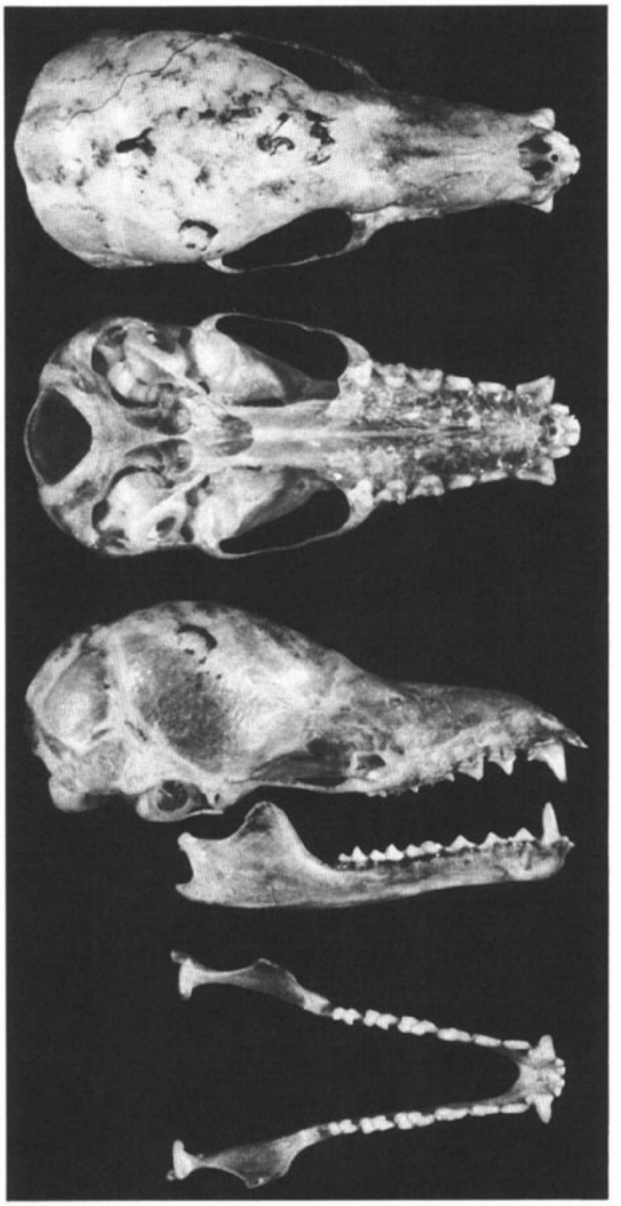

FIG. 2. Dorsal, ventral, and lateral views of cranium and dorsal and lateral views of lower jaw of the holotype of *Glossophaga mexicana* (Museum of Southwestern Biology, University of New Mexico, 27563, adult female). Greatest length of skull is 22.0 mm.

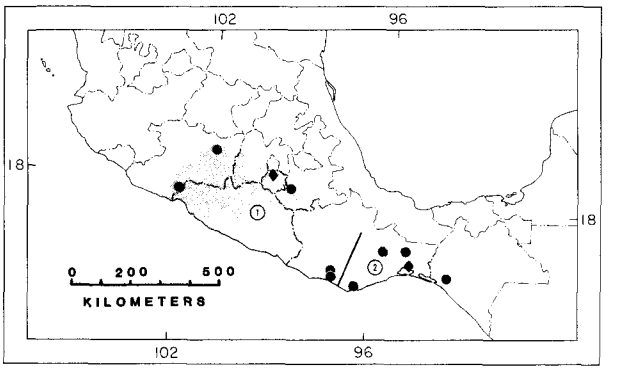

FIG. 3. Geographic distribution of *Glossophaga mexicana* in southern México. Marginal localities (circles) of *G. m. brevirostris* (1) and *G. m. mexicana* (2), from left to right, are (Webster, 1983): 18 km N El Infernillo, Michoacán; 12 mi S Tzitzio, 1,050 m, Michoacán; 8 mi SE Izucar de Matamoros, 4,100 ft, Puebla; 0.5 mi SE San Gabriel Mixtepec, Oaxaca; Puerto Escondido to San Pedro Mixtepec, Oaxaca; 1 mi E Puerto Angel, Oaxaca; Zacatepec, Mazatlán, Oaxaca; Mogoñé, Oaxaca; 15 mi ESE Tonalá, Chiapas. Type localities (diamonds) also are shown.

Isthmus of Tehuantepec. Specimens have been collected from roosts in caves, hollow trees, road culverts, wells, and walls of buildings, or taken in mist nets set over rivers and creeks (Webster and Jones, 1980). Webster (1983) collected specimens of *G. mexicana* in mist nets set over the Río Ocuilapa in a habitat characterized as having a broken upper canopy of broad-leaved trees and a dense lower canopy of other woody vegetation; there was a scant amount of shrub and ground vegetation. The surrounding rocky slopes supported mesquite (*Prosopis*), grasses, and cacti (*Mamillaria* and *Opuntia*).

Other species of bats taken with *G. mexicana* over the Río Ocuilapa in Chiapas (Webster, 1983) included *Saccopteryx bilineata, Noctilio leporinus, Pteronotus parnellii, Micronycteris megalotis, Lonchorhina aurita, Glossophaga commissarisi, G. leachii, G. soricina, Carollia subrufa, Sturnira lilium, S. ludovici, Artibeus intermedius, A. jamaicensis, A. phaeotis, Desmodus rotundus, Eptesicus furinalis,* and *Molossus* sp. Those also taken with *G. mexicana* at Cañon de Zopilote in Guerrero (Winkelmann, 1962) included *Balaniopteryx plicata, Macrotus waterhousii, Musonycteris harrisoni, Desmodus rotundus,* and *Lasiurus intermedius.*

GENETICS. The standard karyotype of *G. mexicana* appears identical to those of other members of the genus (Baker, 1979:143, pl. 23), having a diploid number of 32 and a fundamental number of 60 (Webster, 1983). The autosomes are biarmed and range in size from large to small, the X-chromosome is a medium-sized metacentric, and the Y-chromosome is a minute acrocentric.

A biochemical comparison of 17 loci by Webster (1983) among the five species of *Glossophaga* found only one locus (albumin) fixed for different alleles between *G. mexicana* and the other species; genically *G. mexicana* most closely resembles *G. longirostris,* then, in descending order, *G. leachii, G. commissarisi,* and *G. soricina.*

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