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Glossophaga leachii.

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Glossophaga É. Geoffroy St.-Hilaire, 1818

Glossophaga É. Geoffroy St.-Hilaire, 1818:418. Type species *Vespertilio soricinus* Pallas.

Phyllophora Gray, 1838:489. Type species *Phyllophora nigra* Gray (=*Glossophaga amplexicaudata* Spix, a synonym of *Glossophaga soricina*).

Nicon Gray, 1847:15. Type species *N*[*icon*]. *caudifer* Gray (=*Monophyllus leachii* Gray).

CONTEXT AND CONTENT. Order Chiroptera, Suborder Microchiroptera, Family Phyllostomidae, Subfamily Glossophaginae. The genus *Glossophaga* contains five species (Webster and Jones, 1980); a key (from Webster, 1983) to the species in the genus follows.

1 Lower incisors large, usually in contact, forming a complete arc between canines; upper incisors greatly procumbent 2
Lower incisors reduced in size, separated by distinct gaps; upper incisors noticeably procumbent only in *G. mexicana* 3

2 (1) Inner upper incisor larger than outer in bulk; pterygoid "wings" present and well developed; mandibular symphyseal ridge prominent; parastyle of M1 well developed ..... *G. soricina*
Inner upper incisor subequal to outer in bulk; pterygoid "wings" absent or poorly developed; mandibular symphyseal ridge reduced; parastyle of M1 reduced ..... *G. longirostris*.

3 (1) Upper incisors procumbent, inner pair larger than outer in bulk; anterior border of premaxillae elongate ..... *G. mexicana*
Upper incisors not procumbent, inner pair subequal to or smaller than outer in bulk; anterior border of premaxillae evenly rounded between canines 4

4 (3) Lower incisors small, peg-like; presphenoid ridge flattened subterminally; pterygoid "wings" absent ..... *G. commissarisi*
Lower incisors moderately large; presphenoid ridge complete; pterygoid "wings" present ..... *G. leachii*

Glossophaga leachii (Gray, 1844)

Gray's Long-tongued Bat

Monophyllus leachii Gray, 1844:18. Type locality Realejo, Chinandega, Nicaragua.

N[*icon*]. *caudifer* Gray, 1847:15. A "renaming of *leachii* wrongly supposed to be identical with the *Glossophaga caudifer* of Geoffroy" (Miller, 1913:419).

Glossophaga morenoi Martínez and Villa-R., 1938:347. Type locality Xiutepec (Jiutepec), Morelos, México.

Glossophaga soricina alticola Davis, 1944:377. Type locality 13 km NE Tlaxcala, 7,800 ft, Tlaxcala, México.

Glossophaga leachii Webster and Jones, 1980:4; first use of current name combination.

CONTEXT AND CONTENT. Context noted in the generic account above. *Glossophaga leachii* is considered to be monotypic (Jones and Carter, 1976; Webster, 1983).

DIAGNOSIS. Members of the genus *Glossophaga* can be distinguished from other glossophagines by dental formula (i 2/2, c 1/1, p 2/3, m 3/3, total 34), complete zygoma, or relatively primitive teeth. The first upper incisors are not spatulate; the robust premolars and molars are usually in contact in *Glossophaga*, whereas in some glossophagines the postcanine teeth have distinct gaps between them. *Glossophaga* most closely resembles *Monophyllus* but is smaller in most external and cranial dimensions, particularly the length of the tibia. Also, in *Glossophaga* the hypocone is absent on M1 and M2 (hypoconal basin of M1 and M2 expanded in *Monophyllus*), the interfemoral membrane extends to the ankles (membrane reduced in width in *Monophyllus*), and the tail is enclosed in the uropatagium (tip of tail free and extending well beyond the uropatagium in *Monophyllus*).

As compared with other species of the genus, *G. leachii* is relatively small in measurements of cranial length and breadth (particularly interorbital breadth), but large in measurements reflecting size of braincase. In external measurements, it is the largest member of the genus on the mainland of Central America (larger congeners are distributed elsewhere in the Neotropics). In addition, the upper incisors are not noticeably procumbent, and I2 is equal to, or larger than, I1 in bulk. The cingular shelf of P4 is expanded posterolingually; the parastyle and mesostyle of M1 are reduced or absent; the metastyle and metacrista of M1 are elongate; the mesostyle of M2 is absent. The lower incisors are subtriangular in occlusal view, and reduced in size, the inner pair sometimes smaller than the outer; usually they are arranged in pairs, with a relatively large space between the left and right pairs and a smaller space between the teeth in each pair.

GENERAL CHARACTERS. *Glossophaga leachii* (Fig. 1) resembles other long-tongued bats in that the rostrum is elongate and the tongue is extremely protrusible, and is covered anteriorly

FIGURE 1. Photograph of live *Glossophaga leachii* from near Tonalá, Chiapas, México.

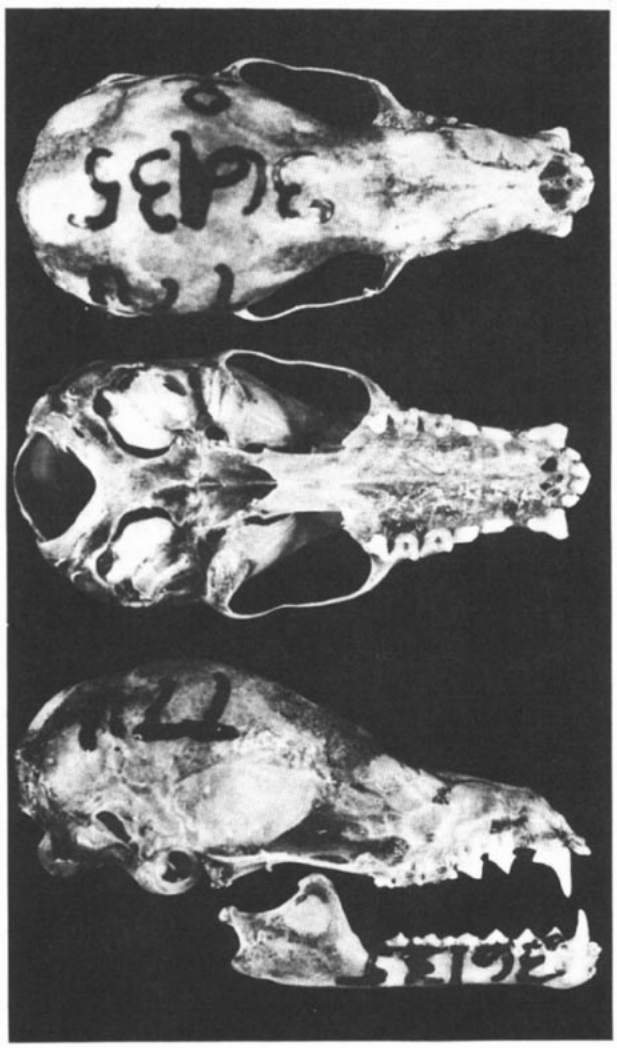

FIGURE 2. Dorsal, ventral, and lateral views of skull and lateral view of lower jaw of *Glossophaga leachii* (TTU 36127, adult male, from near Tonalá, Chiapas, México). Greatest length of skull is 20.8 mm.

and labially by numerous papillae. The skull (Fig. 2) is characterized as follows: the premaxillae are evenly rounded between the canines and not noticeably elongate; pterygoid "wings" are present; the presphenoid ridge is high and complete throughout; the braincase is domed, and the slope of the rostrum is relatively abrupt; and the mandibular symphyseal ridge is well developed. The pelage of *G. leachii* is cinnamon brown to olive brown dorsally, and avellaneous to drab ventrally (Webster, 1983).

Webster (1983) found females of *G. leachii* to be significantly ($P < 0.05$) larger than males in three of 16 external and cranial measurements. Average and extreme external and cranial measurements (mm) for 16 males followed by those for six females, all from near Teloloapan, Guerrero, are (Webster, 1983): length of forearm, 36.6 (35.4 to 38.0), 37.3 (36.5 to 38.2); greatest length of skull (including incisors), 20.4 (20.1 to 20.7), 20.6 (20.2 to 21.3); condylobasal length, 18.8 (17.8 to 19.3), 19.1 (18.7 to 19.7); zygomatic breadth, 9.5 (9.1 to 9.8), 9.5 (9.3 to 9.7); breadth of braincase, 8.7 (8.4 to 9.0), 8.6 (8.3 to 8.8); width across molars, 5.7 (5.4 to 5.9), 5.7 (5.6 to 5.9).

DISTRIBUTION. *Glossophaga leachii* is distributed from western México (Colima and Jalisco) and the interior Mexican highlands (Morelos and Tlaxcala) southeastward along the Pacific versant and associated highlands at least to Cartago and San José, Costa Rica (Fig. 3), and is known from near sea level to approximately 2,380 m in elevation.

FORM. The morphology of the hair in *G. leachii* is like that

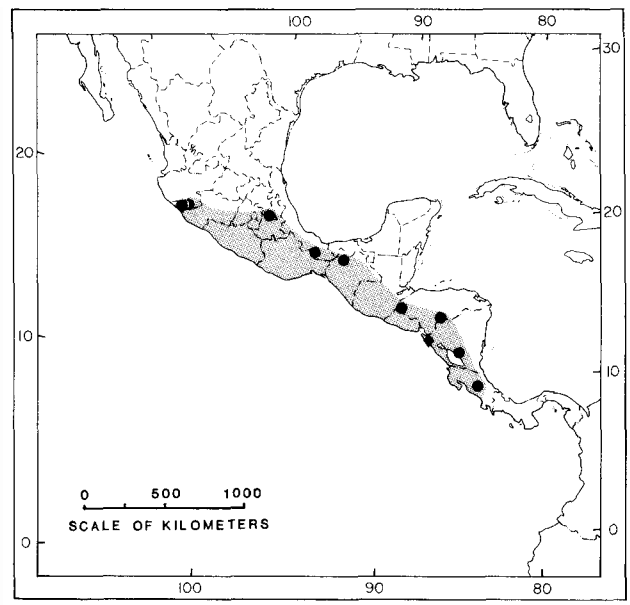

FIGURE 3. Geographic distribution of *Glossophaga leachii* in Middle America. Marginal records (circles), from left to right, are (Webster, 1983): Comala, Colima, México; 10 mi NNE Pihuamo, 3,500 ft, Jalisco, México; 13 km NE Tlaxcala, 7,800 ft, Tlaxcala, México; Achotal, Veracruz, México; 5 km ESE Pichucalco, 200 ft, Chiapas, México; 4 km N Nueva Ocotepeque, 480 m, Ocotepeque, Honduras; Chichicaste, 480 m, El Paraíso, Honduras; Hato Grande, 13 km S, 8 km W Juigalpa, 60 m, Chontales, Nicaragua; and Tres Ríos, 400 ft, Cartago, Costa Rica. The type locality (diamond) also is shown.

of its congeners (Webster, 1983). The scales are petal-shaped, smooth, imbricate, and two scales surround the shaft of the hair at any given height. Except in the shield region where the scales cling to the shaft, the distal portion of each scale flares outward from the shaft, especially in the basal part of the hair. The scales in *G. leachii*, however, are shorter than those of the other four species of the genus.

REPRODUCTION. Pregnant females, each with a single fetus, were collected in February, April, June, July, August, September, and November, and lactating females were taken in the months of February, March, June, and November (Webster, 1983).

ECOLOGY. *Glossophaga leachii* is known from the relatively xeric Pacific slopes in dry tropical, tropical deciduous, and pine-oak communities, with marginal records barely extending into the more mesic tropical evergreen forests of the interior. Specimens have been captured by hand or shot from daytime roosts (caves, buildings, and culverts); others have been taken in mist nets set across streams or in fields of cultivated plants.

Davis and Russell (1952, 1954) took one *Choeronycteris mexicana* from the same cave in Morelos that was occupied by many *Glossophaga leachii*. Specimens of *G. leachii* also have been collected at localities with *G. commissarisi*, *G. mexicana*, and *G. soricina* (Dickerman et al., 1981; Webster, 1983). Webb and Loomis (1977) reported on a trombiculid mite (*Hooperella vesperuginis*) that parasitizes *G. leachii*. Otherwise, little is known of the ecology or natural history of Gray's long-tongued bat.

GENETICS. Baker (1967) reported the karyotype of *G. leachii* to have a diploid number of 32 and a fundamental number of 60. All autosomes are biarmed (metacentric to approaching subtelocentric) and range in size from small to large; the X-chromosome is a medium-sized metacentric and the Y is a minute acrocentric (Baker, 1979).

Webster (1983) found specimens of *G. leachii*, *G. longirostris*, and *G. mexicana* to more closely resemble each other biochemically than any resembled *G. commissarisi* and *G. soricina*. However, he found only two fixed allele differences among the five species of *Glossophaga*, one (albumin) for *G. mexicana* and another (peptidase-1) for *G. soricina*.

REMARKS. The taxonomic history of *G. leachii* has been a tortuous one. Webster and Jones (1980) recently concluded that *Monophyllus leachii* Gray, 1844, long regarded as a subspecies of *G. soricina*, actually represents what was known previously as *Glossophaga alticola* Davis, 1944; furthermore, they synonomized *Glossophaga morenoi* Martínez and Villa-R., 1938, with *G. leachii* following Villa-R. (1953, 1964, 1967).

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