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EXTERNAL CHARACTERS OF THE BATS OF THE
SUBFAMILY GLOSSOPHAGINAE

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Although there is great general similarity in the external appearance of many of the genera of bats in the subfamily Glossophaginae, careful study indicates that external characters exist by which fresh or alcoholic material may be generically determined without examination of the skulls.

The proportionate length of the bones in the wings is the most obvious character. This is supplemented by the presence or absence of a tail, the size of the noseleaf and ears and, in some cases, the presence or absence of lower incisors.

All genera but one have been examined. Of two genera but one specimen each has been available and, although this is not adequate, certain characters are indicated that more material will no doubt clearly establish.

I am indebted to the late Dr. Glover M. Allen of the Museum of Comparative Zoology for the loan of a specimen of *Hylonycteris* and to Dr. H. E. Anthony of the American Museum of Natural History for specimens of the genus *Choeroniscus*. The drawings of the wings were made by Mr. John Erker.

Subfamily **Glossophaginae**

Characterized by an elongated rostrum, small ears, a well-developed but small noseleaf, a very short tail or none at all, small or medium size, and the proportions of the metacarpals, in which the third is the longest, the fourth intermediate, and the fifth the shortest.

The genera fall roughly into two groups, distinguished as follows:

I. First phalanx of third finger *more* than one-third the length of the metacarpal; second phalanx of third finger *less* than one

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and one-half times the length of the first phalanx: *Platalina*, *Choeronycteris*, *Glossophaga*, *Choeroniscus*, *Scleronycteris*, *Lichonycteris*, *Hylonycteris*.

II. First phalanx of third finger *less* than one-third the length of the metacarpal: *Anoura*, *Lonchoglossa*, *Leptonycteris*, *Lionycteris*, *Lonchophylla*, *Monophyllus*.

The genera of the second group separate into two divisions with the following characters:

(a) Second phalanx of third finger *more* than one and one-half times the length of the first phalanx: *Anoura*, *Lonchoglossa*, *Lionycteris*, and the larger species and individuals of *Lonchophylla* and *Leptonycteris*.

(b) Second phalanx of third finger *usually less* than one and one-half times the length of the first phalanx: Smaller species and individuals of *Lonchophylla* and *Leptonycteris*. Always less in *Monophyllus*, in which the first phalanx of the fourth finger is *shorter* than the first phalanx of the fifth finger.

KEY TO GENERA OF GLOSSOPHAGINAE BASED ON EXTERNAL CHARACTERS

- First phalanx of third finger *more* than one-third the length of the metacarpal.
 Second phalanx of third finger *less* than one and one-half times the length of the first phalanx.
- Larger, forearm 43.7–48.7.
 Forearm 48.3–48.7, lower incisors present.
 Central and southern Peru.....*Platalina*.
- Forearm 43.7–45.8, no lower incisors.
 Arizona to Guatemala.....*Choeronycteris*.
- Smaller, forearm 32.4–40.
 Fur of back bicolored.
 Lower incisors present, ears and noseleaf larger.
 Central Mexico to Brazil.....*Glossophaga*.
- No lower incisors, ears and noseleaf smaller.
 Guatemala to Peru and the Guianas.....*Choeroniscus*.
 Ega, Amazonas, Brazil.....*Scleronycteris*.
- Fur of back tricolored.
 Ears and noseleaf shorter, wings to base of outer toe, forearm hairy.
 Nicaragua, Costa Rica, Dutch Guiana, and Brazil.....*Lichonycteris*.
 Ears and noseleaf longer, wings to ankles, forearm less hairy.
 Southern Mexico and Costa Rica.....*Hylonycteris*.
- First phalanx of third finger *less* than one-third the length of the metacarpal.
 Second phalanx of third finger *more* than one and one-half times the length of the first phalanx.
- No lower incisors.
 Tail absent, forearm 40–47.....*Anoura*.
 Tail present, but hidden, forearm 34.3–38.1.....*Lonchoglossa*.

- Lower incisors present.
- Tail absent, forearm 47.7–56.6.....*Leptonycteris*.
- Tail present, about half the length of the membrane.
- Noseleaf low, broad, with median line; forearm 34.9–36.....*Lionycteris*.
- Noseleaf high, without median line; forearm 38–42.8.....*Lonchophylla*.
- Second phalanx of third finger *usually less* than one and one-half times the length of the first phalanx.
- Tail absent, forearm 46.4–51.4.....*Leptonycteris*.
- Tail present, about half the length of the membrane, forearm 30–36.7.
Lonchophylla.
- Tail present, longer than membrane.
West Indies.....*Monophyllus*.

SYNOPSIS OF THE GENERA

Genus *Platalina*

Characters.—Forearm 48.3–48.7 mm.; lower incisors present. First phalanx of fifth finger *longer* than one-fourth the length of the metacarpal. Noseleaf somewhat diamond-shaped, upper half triangular, sides converging in lower half, projection on each side at the widest part. Tragus well developed, a small projection at top of inner edge and very concave at top of outer edge.

Dental formula.— $I \frac{2}{2} \frac{-2}{-2}$, $C \frac{1}{1} \frac{-1}{-1}$, $Pm \frac{2}{3} \frac{-2}{-3}$, $M \frac{3}{3} \frac{-3}{-3} = 34$

Species.—*P. genovensium*; central and southern Peru.

Genus *Choeronycteris*

Characters.—Forearm 43.7–45.8 mm.; no lower incisors. First phalanx of fifth finger *shorter* than one-fourth the length of the metacarpal. Noseleaf triangular and tragus rounded, with very fine serrations on its outer edge. The teeth are lighter and more widely spaced than those of *Platalina*.

Dental formula.— $I \frac{2}{0} \frac{-2}{-0}$, $C \frac{1}{1} \frac{-1}{-1}$, $Pm \frac{2}{3} \frac{-2}{-3}$, $M \frac{3}{3} \frac{-3}{-3} = 30$

Species.—*C. mexicana*; southern Arizona south through Mexico to Guatemala.

Genus *Glossophaga*

Characters.—Forearm 32.4–40 mm.; lower incisors present. Fur of back bicolored; forearm bare. Noseleaf and ears larger than in other genera of same bodily size.

Dental formula.— $I \frac{2}{2} \frac{-2}{-2}$, $C \frac{1}{1} \frac{-1}{-1}$, $Pm \frac{2}{3} \frac{-2}{-3}$, $M \frac{3}{3} \frac{-3}{-3} = 34$

Species.—*G. soricina* and subspecies; central Mexico south to southern Peru, Paraguay and Brazil, and Jamaica in the West Indies. *G. longirostris* and *elongata*; southern Lesser Antilles, Curaçao, coasts of Colombia and Venezuela.

Genus *Choeroniscus*

Characters.—Forearm 34.1–35.2 mm.; no lower incisors. Fur of back bicolored; noseleaf and ears smaller than in *Glossophaga*.

Dental formula.— $I \frac{2}{0}-\frac{2}{0}$, $C \frac{1}{1}-\frac{1}{1}$, $Pm \frac{2}{3}-\frac{2}{3}$, $M \frac{3}{3}-\frac{3}{3}=30$

Species.—*C. minor*; Dutch Guiana. *C. inca*; Peru. *C. intermedia*; Trinidad and British Guiana. *C. godmani*; Guatemala.

Genus *Scleronycteris*

Characters.—Forearm 35; no lower incisors. Fur of back bicolored. None examined but from available measurements and description appears to belong in this group.

Dental formula.— $I \frac{2}{0}-\frac{2}{0}$, $C \frac{1}{1}-\frac{1}{1}$, $Pm \frac{2}{3}-\frac{2}{3}$, $M \frac{3}{3}-\frac{3}{3}=30$

Species.—*S. ega*; Ega, Amazonas, Brazil.

Genus *Lichonycteris*

Characters.—Forearm 33.5 mm.; no lower incisors. Fur of back tricolored; base of forearm well-haired; wing attached at base of outer toe. First phalanx of fifth finger more than one-fourth the length of the metacarpal. One specimen examined.

Dental formula.— $I \frac{2}{0}-\frac{2}{0}$, $C \frac{1}{1}-\frac{1}{1}$, $Pm \frac{2}{3}-\frac{2}{3}$, $M \frac{2}{2}-\frac{2}{2}=26$

Species.—*L. obscura*; Nicaragua, Costa Rica and Dutch Guiana. *L. degener*; Para, Brazil.

Genus *Hylonycteris*

Characters.—Forearm 33.5 mm.; no lower incisors. Fur of back tricolored; base of forearm partly haired; wing attached at base of ankle. First phalanx of fifth finger less than one-fourth the length of the metacarpal. One specimen examined.

Dental formula.— $I \frac{2}{0}-\frac{2}{0}$, $C \frac{1}{1}-\frac{1}{1}$, $Pm \frac{2}{3}-\frac{2}{3}$, $M \frac{3}{3}-\frac{3}{3}=30$

Species.—*H. underwoodi*; Costa Rica and southern Mexico.

Genus *Anoura*

Characters.—Forearm 40–47 mm.; no lower incisors; tail absent. First phalanx of fifth finger less than one-fourth the length of the metacarpal.

Dental formula.— $I \frac{2}{0}-\frac{2}{0}$, $C \frac{1}{1}-\frac{1}{1}$, $Pm \frac{3}{3}-\frac{3}{3}$, $M \frac{3}{3}-\frac{3}{3}=32$

Species and subspecies.—*A. geoffroyi geoffroyi*; Brazil, Bolivia, Venezuela, and Trinidad. *A. g. peruana*; Andes of Peru, Ecuador, and Colombia. *A. g. lasiopyga*; Mexico, Guatemala, and El Salvador.

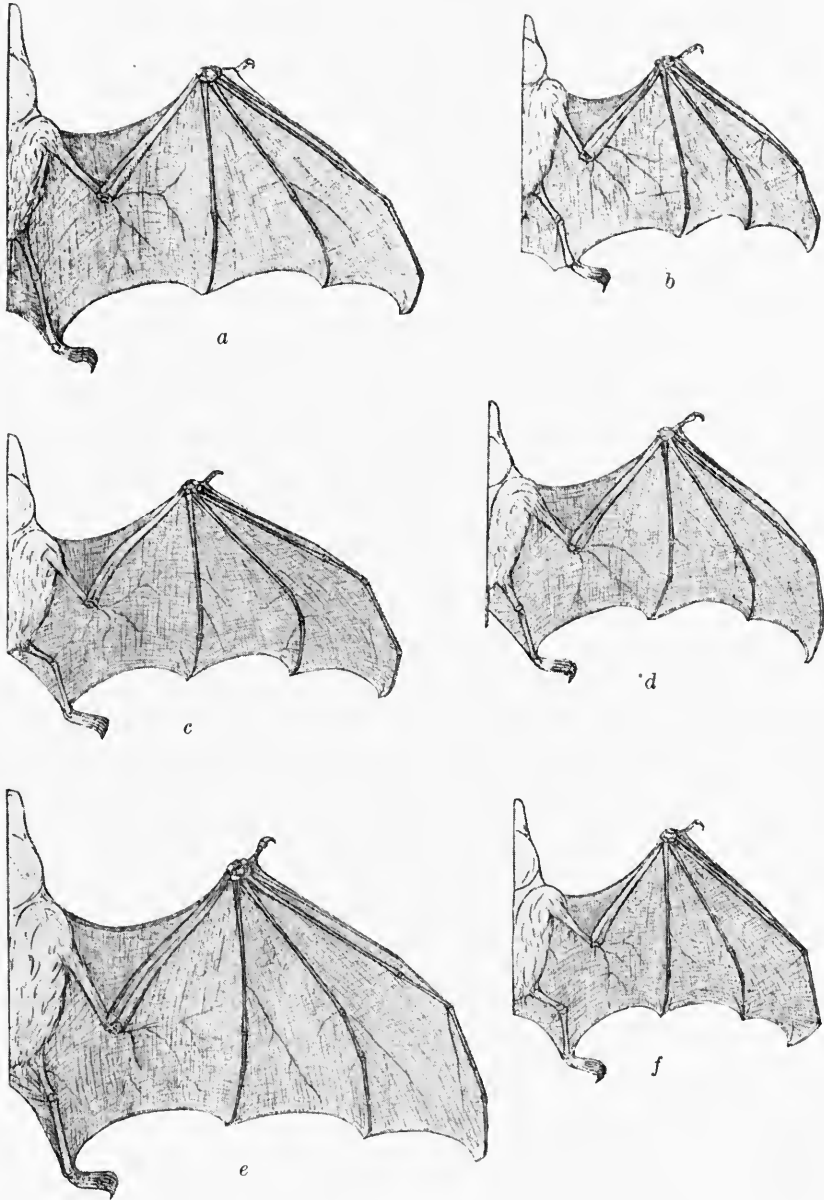


FIG. 25. Wings of a, *Choeronycteris mexicana*; b, *Glossophaga s. leachi*; c, *Anoura geoffroyi*; d, *Monophyllus cubanus*; e, *Leptonycteris nivalis*; f, *Lonchoglossa caudifera*. All about $\times \frac{1}{2}$.

Genus *Lonchoglossa*

Characters.—Forearm 34.3–38.1 mm.; no lower incisors; tail very short and hidden in base of membrane.

Dental formula.— $I \frac{2}{0} \frac{-2}{0}$, $C \frac{1}{1} \frac{-1}{1}$, $Pm \frac{3}{3} \frac{-3}{3}$, $M \frac{3}{3} \frac{-3}{3} = 32$

Species and subspecies.—*L. caudifera*; Colombia and Venezuela to central Brazil. *L. c. aequatoris*; Ecuador and western Peru.

Genus *Lionycteris*

Characters.—Forearm 34.9–36 mm.; lower incisors present; tail present, about half the length of membrane. Noseleaf low, very broad, sides almost convex, with a well-marked median line.

Dental formula.— $I \frac{2}{2} \frac{-2}{2}$, $C \frac{1}{1} \frac{-1}{1}$, $Pm \frac{2}{2} \frac{-2}{2}$, $M \frac{3}{3} \frac{-3}{3} = 34$

Species.—*L. spurrelli*; western Colombia and southern British Guiana.

Genus *Lonchophylla*

Characters.—Lower incisors present; tail present, about half the length of membrane. Noseleaf high and narrow; no median line.

First division: Forearm 38–42.8 mm. *L. robusta*; Panama and Colombia. *L. hesperia*; Zorritos, Peru.

Second division: Forearm 30–36.7 mm. *L. mordax*; Bolivia, Brazil. *L. thomasi*; Venezuela. *L. concava*; Panama.

Dental formula.— $I \frac{2}{2} \frac{-2}{2}$, $C \frac{1}{1} \frac{-1}{1}$, $Pm \frac{2}{2} \frac{-2}{2}$, $M \frac{3}{3} \frac{-3}{3} = 34$

Remarks.—The only genus that might be confused with *Lonchophylla* is *Lionycteris*, but size will separate the larger forms from it, and the shape of the noseleaf and the shorter second phalanx of the third finger will separate the smaller forms. *L. robusta* and *mordax* are the only species that have been examined.

Genus *Leptonycteris*

Characters.—Forearm 46.4–56.6 mm.; lower incisors present; tail absent. The largest member of the subfamily. The larger specimens coming from Texas and eastern Mexico belong to the first division, while those from Arizona, western Mexico, Guatemala, and Curaçao belong in the second division. Intermediates are known from the states of Jalisco and Michoacan.

Dental formula.— $I \frac{2}{2} \frac{-2}{2}$, $C \frac{1}{1} \frac{-1}{1}$, $Pm \frac{2}{2} \frac{-2}{2}$, $M \frac{2}{2} \frac{-2}{2} = 30$

Species.—*L. nivalis*; southern Arizona and Texas through Mexico to Guatemala. *L. curasoae*; Curaçao and Aruba Islands, Dutch West Indies.

Genus *Monophyllus*

Characters.—Forearm 36–42 mm.; lower incisors present; tail comparatively long, free beyond the edge of the membrane for about half its length.

Dental formula.— $I_{\frac{2}{2}}^{-\frac{2}{2}}$, $C_{\frac{1}{1}}^{-\frac{1}{1}}$, $Pm_{\frac{3}{3}}^{-\frac{3}{3}}$, $M_{\frac{3}{3}}^{-\frac{3}{3}}=34$

Species.—Confined to the West Indies. *M. redmani*; Jamaica. *M. cubanus*; Cuba. *M. c. ferreus*; Haiti. *M. portoricensis* and *M. frater*; Porto Rico. *M. plethodon*; Barbados. *M. luciae*; Santa Lucia. *M. clinedaphus*; locality unknown.

Remarks.—*M. cubanus* is the only species that has been examined.

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