

PROCEEDINGS
OF THE
BIOLOGICAL SOCIETY OF WASHINGTON

THREE NEW BATS FROM THE ISLAND OF
CURAÇAO.*

BY GERRIT S. MILLER, JR.

Mr. Leon J. Guthrie, United States Weather Observer at Willemstad, Curaçao, West Indies, has obtained for the United States National Museum a small collection of bats preserved in formalin. Though representing only a fraction of the probable bat fauna of the island, the three species taken are of special interest, as all are new, while one is a member of a genus not hitherto detected outside of Mexico.

Myotis nesopolus sp. nov.

Type adult male (skin and skull from specimen in formalin) No. 101,-849, United States National Museum, collected near Willemstad, Curaçao, West Indies, November 4, 1899.†

Character.—Similar to *Myotis nigricans* (Wied) from Colombia, but paler in color, and slightly smaller.

Color.—Dorsal surface intermediate between the raw umber and Prouts brown of Ridgway (Nomenclature of Colors, Pl. III, Nos. 11 and 14), the bases of the hairs just perceptibly darker. Ventral surface ochraceous buff, the basal half of the hairs slaty black.

Skull.—The skull exactly resembles that of *Myotis nigricans* from Santa Marta, Colombia and Chiapas, Mexico.

Measurements.—External measurements of type: total length, 70; tail vertebrae, 36; tibia, 15; foot, 5.6; forearm, 31; thumb, 4; longest finger,

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†“Caught by Mr. L. B. Smith in an attic in Punda.” Collector’s note.

55; ear from meatus, 11.6; ear from crown, 10; width of ear, 10; tragus, 6.8. Cranial measurements of type: greatest length, 13; basal length, 12; basilar length (median), 10; zygomatic breadth, 8; interorbital breadth, 3.2; mastoid breadth, 7; occipital depth, 5; mandible, 9; maxillary toothrow (exclusive of incisors), 5; mandibular toothrow (exclusive of incisors), 5.4.

Specimens examined.—One, the type.

Remarks.—*Myotis nesopolus* is readily distinguishable from *M. nigricans* by its much lighter color, especially on the underparts. Its color suggests that of dull specimens of *M. californicus* though the latter may always be recognized by the conspicuously bicolor fur of the back.

Glossophaga elongata sp. nov.

Type adult female (skin and skull from specimen in formalin) No. 101,871 United States National Museum, collected at Willemstad, Curaçao, West Indies, December 4, 1899.

Characters.—In appearance similar to *Glossophaga longirostris* Miller* from the Santa Marta Mountains, Colombia, but paler in color. Skull narrower and relatively much more elongate than that of the Columbian species. Incisors well developed, nearly double as large as in *G. soricina*,† the upper very strongly projecting forward.

Ears.—The ears are moderately long, laid forward they extend about half way from eye to tip of muzzle. Anterior border of conch strongly convex at base, then very gently convex to rather broadly rounded tip. Posterior border straight to middle, then slightly and evenly convex to faint notch marking boundary of very narrow and rudimentary unthickened antitragus. The posterior border terminates slightly in front of anterior border and 6 mm. behind angle of mouth. Both surfaces of ear smooth, the inner, however, with six or seven small but distinct cross ridges near posterior border, and a few inconspicuous scattered hairs. Tragus upright, acutely pointed, sometimes deeply notched at tip. Anterior border perceptibly thickened, nearly straight, slightly convex above. Point acute. Posterior border irregularly convex, occasionally so narrowly and deeply notched above that the tip appears bifid. Opposite anterior base there is a broad shallow notch, and below this the posterior border is more abruptly convex to base.

Muzzle and chin.—Lower, oval, portion of noseleaf small and very indistinctly outlined, but not peculiar in form. Terminal, erect, portion well developed, its width nearly equal to outer border. Tip rather bluntly rounded. Outer border slightly concave. Chin divided by a rather broad and shallow V-shaped groove, the edges of which are irregularly tuberculate.

Membranes.—The membranes are ample and somewhat thin, their surfaces rough. Width of uropatagium equal to length of tibia. Pro-

*Proc. Acad. Nat. Sci., Philadelphia, 1898, p. 330.

†In the type and only known specimen of *G. longirostris* the incisors are absent and their alveoli nearly resorbed.

patagium including metacarpal of thumb. The membranes are practically naked throughout.

Feet.—The foot is long and strong, about two thirds length of tibia. Toes essentially equal in length and distinctly longer than metatarsals. Claws large, nearly one half as long as rest of foot. Calcar distinct, 5 mm. in length, its extreme tip projecting beyond membrane.

Tail.—The tail is very short, about equal to calcar, its tip forming a minute projection on upper side of membrane.*

Fur and color.—The fur is very soft, but rather loose in texture. Length at middle of back about 5 mm. It is closely confined to body, reaching membranes in a very narrow line only. On humerus it extends about to middle both above and below. That of head covers basal third of outer surface of ears.

Color of dorsal surface hair brown irregularly lightened by appearance at surface of the pale drab which occupies the basal two thirds of the fur. This drab is paler than the ecru drab of Ridgway, but is distinctly tinged with yellowish brown. Underparts pale Isabella color, fading to ecru drab on flanks and washed with hair brown on chin, throat and chest, the hairs everywhere pale drab at base. Ears, feet and membranes dark brown.

Skull.—The skull of *Glossophaga elongata* is narrower and more elongate than that of *G. longirostris* and the braincase is smaller and less elevated above the faceline. The braincase rises above dorsal surface of rostrum at an angle of about 20° in *G. elongata* and *G. soricina*, but of scarcely 12° in *G. longirostris*. Rostrum slightly longer than in *G. longirostris*, and distinctly shallower when viewed from the side, its dorsal surface much more flattened, especially between orbits. Anterior nares narrower and more elongate. Rudimentary vertical process of zygoma as in *G. longirostris* and smaller than in *G. soricina*. Bony palate behind plain of last molar even narrower than in *G. longirostris*. Base of braincase as in *G. longirostris*, though the audital bullæ are slightly smaller.

Teeth.—The teeth are as in *Glossophaga longirostris*, except that the incisors, absent in the Colombian species, are well developed, and relatively larger than in *G. soricina*. The upper incisors project so nearly horizontally that when skull is viewed from directly above the entire anterior face is visible.

Measurements.—External measurements of type: total length, 65; tail vertebra, 5; tibia, 15.8; foot, 11.4; calcar, 5.4; forearm, 40; thumb, 10; longest finger, 78; ear from meatus, 14.6; ear from crown, 9.6; width of ear, 11; height of noseleaf above edge of lip, 5.4; height of noseleaf behind, 3; greatest width of noseleaf, 4.

Cranial measurements of type: greatest length, 24.4; basal length, 22.2; basilar length, 20.4; zygomatic breadth, 9.8; interorbital breadth

*In the original description of *Glossophaga longirostris* the tail is stated, on the authority of the collector (no trace of it can be seen in the dry specimen) to be 18 mm. in length. This measurement without doubt refers to width of uropatagium.

(behind prominences), 5; mastoid breadth, 9.6; breadth of braincase above roots of zygomata, 9; depth of rostrum between orbits, 3; mandible, 16.2; upper tooththrow (exclusive of incisors), 8.8; lower tooththrow (exclusive of incisors), 9.

Remarks.—*Glossophaga elongata* differs conspicuously from *G. longirostris* in its paler color, particularly on the ventral surface. The cranial characters are equally distinctive. In one specimen (No. 101,855) the third upper molar is absent on both sides.

Leptonycteris curasœ sp. nov.

Type adult male (in alcohol) No. 101,851 United States National Museum, collected at Curaçao, West Indies.

Characters.—Closely related to the Mexican *Leptonycteris nivalis* (Sausure) but color darker, and interfemoral membrane narrower and less hairy. *Upper incisors equally spaced* and more projecting than in the Mexican species. Second lower premolar slightly but distinctly crescentic.

Ears.—The ears are broad and short, laid forward they extend to anterior canthus of eye. Anterior border of conch nearly straight and almost horizontal through proximal 5 mm., then very abruptly convex. Beyond this convexity it is again straight for about 5 mm. below rather narrowly rounded tip. The two straight areas are nearly perpendicular to each other. Posterior border slightly concave below tip, then moderately convex to faintly marked notch at upper edge of antitragus. Antitragus small and ill defined, its substance distinctly thickened. The slightly concave anterior border terminates abruptly a little in advance of anterior base of ear, and 7 mm. behind angle of mouth. Outer surface of ear smooth and naked except at extreme base, where it is covered with fur similar to that of head. Inner surface slightly papillose and sprinkled with inconspicuous hairs. Four or five very indistinct cross ridges on inner surface of conch near middle of posterior border. Tragus upright, much thickened along anterior border. Anterior border straight to slight subterminal concavity. Point blunt. Posterior border irregular, but without distinct projections. Through anterior base the width of tragus is equal to one half anterior border.

Muzzle and chin.—Noseleaf diamond shaped, the lower portion bounded by the oblique nostrils, the upper and slightly larger portion erect and free. Lips below and at sides of nostrils tumid, this swollen area extending back on each side immediately behind noseleaf nearly to median line and separated posteriorly from noseleaf by a distinct, broadly V-shaped groove.

Chin divided by a deep groove, narrow below, wide above, its edges irregularly tuberculate.

Membranes.—The membranes are thick rough and leathery; the wings and propatagium broad and ample; the uropatagium greatly reduced (only 4 mm. wide at middle). Propatagium extending as a broad fold along forearm to include metacarpal of thumb. The membranes are essentially naked.

Feet.—The feet are large and strong, about two thirds length of tibia. Toes essentially equal in length, slightly longer than metacarpals, armed with large strong claws, the latter equal to about one third of rest of foot. Calcar distinct, 6 mm. in length.

Fur and color.—The fur is short, dense and velvety, that on middle of back about 4 mm. in length. It is closely confined to body, reaching membranes in a very narrow line only. On humerus it extends over proximal half both above and below. Dorsal surface of forearm densely but inconspicuously furred. Under surface of forearm and of propatagium and both sides of uropatagium scantily haired.

Color after three months immersion in formalin hair brown with a faint bluish cast, slightly paler on ventral surface, the hairs everywhere ecru drab at base. Ears and membranes dark brown.

Skull.—The skull is slightly larger than that of *Leptonycteris nivalis*, and the rostrum is a little deeper, but otherwise I can detect no cranial characters to separate the two species.

Teeth.—Upper incisors large and evenly spaced, not in two pairs separated by a distinct median gap as in *L. nivalis*. These teeth project so strongly forward that the entire anterior face is visible when skull is viewed directly from above. Maxillary teeth essentially as in *L. nivalis*. Lower incisors larger than in *L. nivalis* the lateral pairs less widely separated. Second lower premolar distinctly crescentic when viewed from its apex, the concavity directed inward. In *L. nivalis* this tooth is straight. Mandibular molars not peculiar.

Measurements.—External measurements of type: head and body, 70 (75)*; tibia, 20 (22); foot, 15 (14.6); foot without claws, 12.8 (12); calcar, 6 (6); forearm, 53 (55); thumb, 10 (11); longest finger, 96 (98); ear from meatus, 15.6 (16); ear from crown, 11.6 (12.8); width of ear, 12 (11); tragus, 6 (6.2); height of noseleaf posteriorly, 3 (3); greatest width of noseleaf, 3.4 (4).

Cranial measurements of type: greatest length, 26 (27); basal length, 25 (25.6); basilar length, 22.4 (23.6); zygomatic breadth, 11 (11); interorbital breadth, 5 (5); mastoid breadth, 10.6 (10.8); breadth of braincase above roots of zygomata, 10 (10); greatest depth of braincase, 8 (8); depth of rostrum between orbits, 3.2 (4); mandible, 17.4 (17.4); upper toothrow (exclusive of incisors), 9 (8.6); lower toothrow (exclusive of incisors), 9.9 (9).

Remarks.—The most prominent character of this species is the regular spacing of the upper incisors. The color is darker than that of the Mexican animal, in which the peculiar bluish cast is quite absent. In *L. nivalis* the legs and interfemoral membrane are noticeably sprinkled with hairs 5 mm. in length which produce a distinctly shaggy appearance. These hairs are reduced to an inconspicuous pubescence in *L. curasoe*.

*Measurements in parenthesis are those of an adult male *Leptonycteris nivalis* from Colima, Mexico.