

PROCEEDINGS
OF THE
BIOLOGICAL SOCIETY OF WASHINGTON

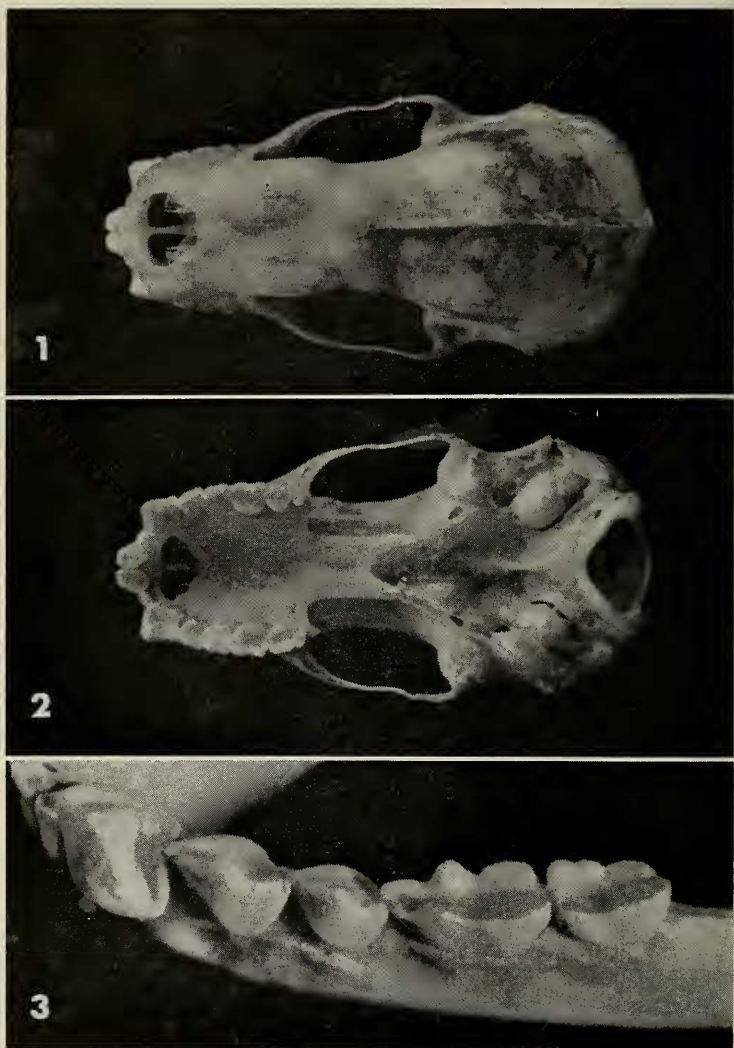
NEW SPECIES OF *STURNIRA* (CHIROPTERA: PHYL-
LOSTOMIDAE) FROM THE ISLANDS OF GUADELOUPE
AND SAINT VINCENT, LESSER ANTILLES

BY LUIS DE LA TORRE AND ALBERT SCHWARTZ

*University of Illinois and Field Museum of Natural History,
Chicago, Illinois, and 10,000 SW 84th Street, Miami, Florida*
33143

Although the bat fauna of the continental islands of the Caribbean has received much attention in the past, the fauna of the oceanic islands of the Lesser Antillean chain has remained poorly known. Guadeloupe and St. Vincent, for example, were discovered in 1493 and 1498 respectively but the first specimens of *Sturnira* from these islands have just been collected. Until recently, only three specimens of *Sturnira* were known from the entire Lesser Antilles—two from Dominica collected in 1906 and one from Martinique taken in 1925. Yet, the Lesser Antilles are of unique biological interest. Since their fauna shares some genera with the fauna of the American mainland, these islands offer an ideal laboratory-like situation for studying evolution in small populations isolated from a large, widespread, and probably parental population.

During the last six years the junior author and his co-workers have been studying mainly the herpetological fauna of the West Indies. However, incidental to these studies this field group has succeeded in making a collection of the bats inhabiting some of the Lesser Antilles. The *Sturnira* from these islands are of great interest since in dental and cranial morphology, at least, they differ significantly from the continental species. The relatively high degree of morphological differentiation that has occurred in different directions in Dominica, Guadeloupe, and St. Vincent offers a unique example of the effect of insular isolation in this characteristically continental genus of phyl-



FIGS. 1-3. *Sturnira thomasi*, USNM 361883 ♂, holotype: 1, dorsal view of skull ($\times 2.7$); 2, ventral view of skull ($\times 2.7$); 3, lateral view of left mandibular tooth row ($\times 10.5$).

lostomids. The distinct species *S. angeli*, which occurs in Dominica and Martinique, has been previously described (de la Torre, 1966). Two additional species, one from Guadeloupe and the other from St. Vincent, are described in this paper.

We wish to acknowledge with grateful thanks the valuable and interested assistance rendered by Ronald F. Klinikowski, Dennis R. Paulson, and Richard Thomas, in the course of these studies on the fauna of the West Indies.

The method employed in photographing the mandibular dentitions in this and in the paper cited above has been described elsewhere (de la Torre and Dysart, 1966).

***Sturnira thomasi*, new species**

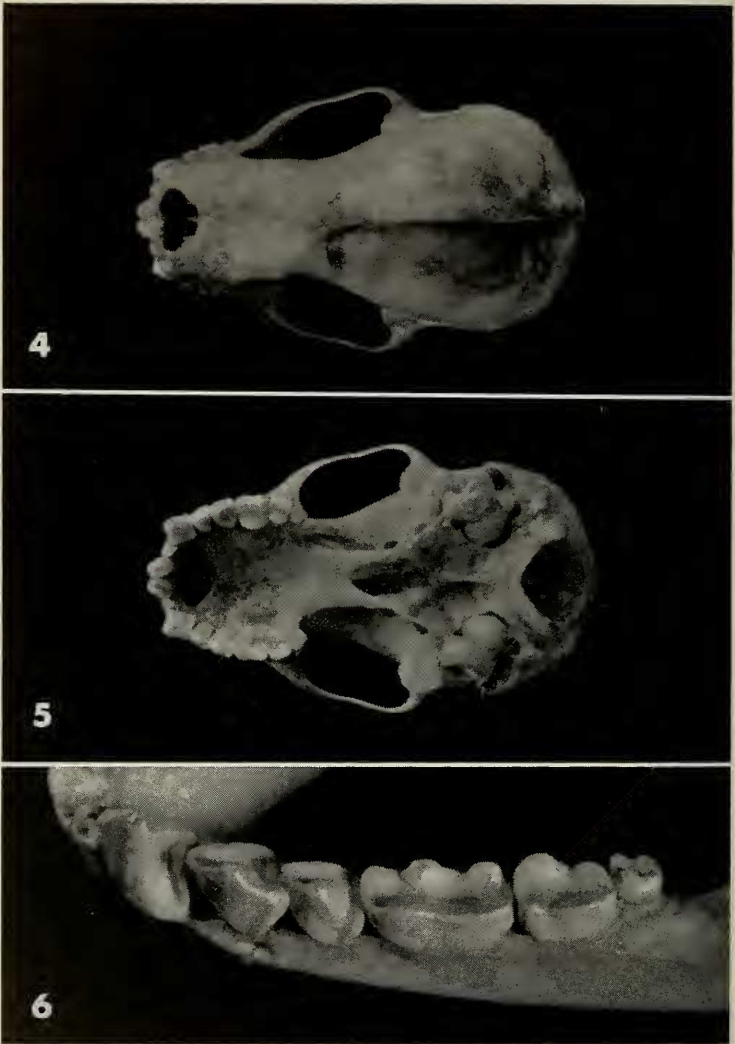
Figs. 1-3

Holotype: Adult male, skin and skull no. 361883, United States National Museum, from Sofaia, 1200 ft, Guadeloupe, French Leeward Islands, Lesser Antilles, collected by R. Thomas, 26 January 1963, original no. ASFS 5413.

Distribution: Known only from the island of Guadeloupe.

Diagnosis: A species of *Sturnira* of relatively large size; skull long and narrow; upper tooth rows very long (7.7 mm), practically parallel to each other; lower middle incisors (I_1) trilobed; M_1 with distinct paraconid, metaconid and entoconid; M_3 absent.

Description: Color of dorsum dark golden brown; basal band of hair narrow ($\frac{1}{2}$ mm) and white, epibasal band ($2\frac{1}{2}$ mm) pale grayish-brown, subterminal band (3 mm) yellowish-buff, terminal band (2 mm) dark yellowish-brown. Underparts yellowish-buff with thick, silky hair; base of hair white, subterminal band ($2\frac{1}{2}$ mm) grayish-brown, terminal band (3 mm) yellowish-brown. Posterior edge and ventral part of interfemoral membrane heavily furred; tibia and foot sparsely haired. Skull long with small, narrow braincase: rostrum long and tubular; frontal sinuses large; part of frontal bone housing sinus inflated, bulging conspicuously dorsally and laterally. Upper middle incisors (I^1) broad and strongly developed; upper premolars with lingual cingulum well developed, occlusal surface therefore large; anterior-posterior length of P^2 , M^1 , and M^2 relatively long in comparison with their width; labial cusps of M^1 and M^2 forming sharp cutting edge; protocone and metacone of M^1 widely separated, interconnecting commissure shallow; M^3 small and not occluding with lower teeth. Lower middle incisors (I_1) trilobed, lateral incisors (I_2) bilobed; premolars and molars relatively large; paraconid of M_1 low but well developed, extending anteriorly as a low ledge; metaconid and entoconid well developed, interconnecting commissure deeply notched; M_2 with anterior lingual cusp probably representing partially fused paraconid and protoconid (as occurs occasionally in *S. lilium*); M_3 absent.



FIGS. 4-6. *Sturnira paulsoni*, USNM 361882 ♀, holotype: 1, dorsal view of skull ($\times 2.7$); 2, ventral view of skull ($\times 2.7$); 3, lateral view of left mandibular tooth row ($\times 10.5$).

Comparisons: The dorsal view of the skull of *S. thomasi* bears a superficial resemblance to that of *S. mordax* Goodwin from Costa Rica. However, examination of the lower dentition will immediately differentiate the two (lingual cusps of M_1 and M_2 well developed in *S. thomasi* but greatly reduced in *S. mordax*). The length of the upper tooth row (7.7 mm) will distinguish *S. thomasi* from all other species with the exception of the giant *S. magna* de la Torre from Perú (upper tooth row, 7.3–7.9 mm). The highly cuspidate molars and the smaller size of *S. thomasi* (forearm, 48.1; skull, 26.2) will easily differentiate this species from the larger *S. magna* (forearm, 57.4; skull, 28.7). The long, narrow skull, long maxillary tooth rows, cuspidate molars, and presence of only two mandibular molars will distinguish *S. thomasi* from all other species.

Remarks: *S. thomasi* is the only species of *Sturnira* lacking the M_3 . Although reduction in the number of teeth is usually associated with a shortening of the anterior part of the skull, this is not the case in *S. thomasi*. As described above, it has a long rostrum and long tooth rows. The mandible is long and space seems available for a third molar in spite of the relatively large size of M_1 and M_2 . Additional specimens will be necessary before one may discount the possibility of this representing an anomalous absence of the M_3 .

The holotype was the only specimen taken in a net set in a deep ravine at Sofaïa. At this location the torrential, boulder-strewn Rivière Salée has a width of about twelve feet and cuts through an area of extremely dense forest with no adjacent cultivated areas whatsoever.

This unique species is named in honor of its collector, Richard Thomas.

Measurements: Measurements of holotype (in mm): forearm, 48.1; metacarpal III, 46.2, phalanx 1, 17.7, phalanx 2, 23.3; metacarpal IV, 45.9, phalanx 1, 15.0; metacarpal V, 48.3, phalanx 1, 10.6; greatest skull length, 26.2; condylobasal length, 24.7; zygomatic breadth, 12.7; mastoid breadth, 12.1; palatal length, 11.6; interorbital constriction, 6.3; post-orbital constriction, 6.0; maxillary tooth row, 7.7; maxillary width, 8.2; mandible, 16.8; mandibular tooth row, 7.8. Collector's field measurements are as follows: forearm, 47; head and body, 80; foot, 16; ear, 18; tragus, 6.

Specimens examined: The holotype is the only known specimen.

***Sturnira paulsoni*, new species**

Figs. 4–6

Holotype: Adult female, skin and skull no. 361882, United States National Museum, from Lowrt, 1000 ft, St. Andrew Parish, Saint Vincent, British Windward Islands, Lesser Antilles, collected by D. R. Paulson, 30 December 1961, original no. ASFS 5333.

Distribution: Known only from the island of St. Vincent.

Diagnosis: A species of *Sturnira* of small size; skull small, narrow, and delicate; braincase high but narrow; rostrum relatively long; M^1 with widely separated protocone and paracone, interconnecting commissure

shallow; M_1 with paraconid, metaconid, and entoconid in linear sequence one behind the other; paraconid (of M_1) therefore displaced much more lingually than in all other species of *Sturuira*; metaconid and entoconid (of M_1) relatively low and rounded, not ridge-like as in *S. lilium*; entoconid of M_2 about a third the size of metaconid; lower incisors trilobed.

Description: Color of dorsum pale grayish-brown; basal band of hair white and narrow ($\frac{1}{2}$ mm), epibasal band (2 mm) dull grayish-brown, subterminal band (3 mm) pale buff, terminal band ($1\frac{1}{2}$ mm) dark grayish-brown. Underparts dark yellowish-buff with long, thick, silky hair; base of hair white, subterminal band (3 mm) dark yellowish-brown, terminal band ($3\frac{1}{2}$ mm) yellowish-buff. Hind limbs, posterior edge and ventral part of interfemoral membrane heavily furred. Skull small, delicate, and narrow; rostrum relatively long; braincase as seen from posterior aspect, high and narrow; upper tooth rows arching symmetrically as in *S. lilium*; M^1 relatively large, with widely separated protocone and paracone; protocone-paracone commissure of M^1 shallow, not deep as in *S. lilium*. Lower incisors trilobed, with lateral lobes better developed than median lobe; labial cusps of lower molars relatively low and rounded, not forming a high, sharp ridge as in *S. lilium* (occlusal surface, therefore, flatter and more horizontal than in *S. lilium*); M_1 long and rectangular, paraconid relatively high and displaced medially (its main axis coinciding with longitudinal axis of metaconid and entoconid); entoconid of M_1 relatively small, least developed of lingual cusps; metaconid of M_2 very large, about three times size of entoconid.

Comparisons: The morphology of the molars will distinguish *S. paulsoni* from all known species. It is closer in morphology to *S. lilium*. However, the details of M^1 , M_1 , and M_2 as described above will distinguish *S. paulsoni* from *S. lilium*.

Remarks: The holotype was trapped in a net across a 20-foot wide mountain stream, a tributary of the Dalaway River, at Lowrt in an area adjacent to rain forest. Presumably the immediate area had been originally forested, but cultivation has opened up the region along the river. The forest now stands about 100 feet from the bank of the river. No other bats were taken in the net at this particular locality, although at night *Artibeus* were seen foraging in fruit trees near the net and along the river. A sandpiper, *Actitis macularia*, was caught in the bottom of the net on the same night that *S. paulsoni* was taken. Apparently it too had been foraging along the stream and had flown into the net.

S. paulsoni is named in honor of its collector, Dennis R. Paulson, whose efforts and interest are responsible for the finding of this species.

Measurements: Measurements of holotype (in mm): forearm, 41.0; metacarpal III, 40.0, phalanx 1, 14.8, phalanx 2, 18.0; metacarpal IV, 39.8, phalanx 1, 12.3; metacarpal V, 41.1, phalanx 1, 8.7; greatest skull length, 22.1; condylobasal length, 19.8; zygomatic breadth, 12.7; mastoid breadth, 11.2; palatal length, 9.6; interorbital constriction, 5.7; postorbital constriction, 5.7; maxillary tooth row, 6.5; maxillary width, 7.8; man-

dible, 14.1; mandibular tooth row, 7.1. Collector's field measurements are as follows: forearm, 42; head and body, 64; foot, 11; ear, 16; tragus, 6.

Specimens examined: The holotype is the only specimen known.

LITERATURE CITED

- DE LA TORRE, LUIS. 1966. New bats of the genus *Sturnira* (Phyllostomidae) from the Amazonian lowlands of Perú and the Windward Islands, West Indies. Proc. Biol. Soc. Wash., 79(36): 267-272.
- DE LA TORRE, LUIS AND MARGARET P. DYSART. 1966. A method for photographing teeth of small mammals. J. Mammal., 47(3): 515-518.