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A NEW SPECIES OF *STURNIRA* (CHIROPTERA:
PHYLLOSTOMIDAE) FROM PERU

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Six species of the Neotropical stenodermine bat genus *Sturnira* have been described as new during the past 11 years (*S. tilda* de la Torre, 1959; *S. magna* and *S. angeli* de la Torre, 1966; *S. thomasi* and *S. paulsoni* de la Torre and Schwartz, 1966; *S. aratathomasi* Peterson and Tamsitt, 1969). Recently (1969) we reevaluated the taxonomic status of *Corvira bidens* Thomas, 1915, basing our study on newly collected material from Perú. In that paper we recognized *bidens* as a species of *Sturnira*, retaining *Corvira* as a subgenus with *S. bidens* as its only known representative. Since then, another undescribed species of *Sturnira* has been discovered by O'Neill during continuing biological investigations in Perú sponsored by the Louisiana State University Museum of Zoology. This new species, the smallest *Sturnira* yet known, is included in the subgenus *Corvira* with its closest ally *S. bidens*.

STURNIRA NANA new species

Holotype.—Adult female (skin with skull), Louisiana State University Museum of Zoology No. 15683, collected 14 July 1970 by John P. O'Neill, original field number 3628.

Paratypes.—An adult female, American Museum of Natural History (AMNH) No. 219138, collected between 19 and 22 August 1968 and three adult males, AMNH Nos. 219171, 219172, and 219173, collected 14 July 1970 (labels indicate 12 to 18 July). All were taken at the type locality

by J. W. Terborgh and J. S. Weske and are preserved in alcohol with skulls removed.

Type locality.—Huanhuachayo (12°44'S, 73°47'W), ca. 1,660 meters, Departamento de Ayacucho, Perú.

Distribution.—Known only from the type locality.

Diagnosis.—Smallest of known *Sturnira*; shoulder glands absent; legs, feet, and dorsal portions of interfemoral membrane sparsely haired; nose leaf long and narrow; skull small with narrow rostrum and complete or incomplete zygomatic arches; upper incisors broad and in contact at tips; second upper premolar with well-developed main cusp and prominent posterior cuspule; lower inner incisors broad and trilobed; lower outer incisors simple minute spicules or absent.

Description.—Smallest of known species of *Sturnira*, forearm 34.2 to 35.7 mm; color of dorsum dark grayish brown, the individual hairs with four color bands (a very narrow white basal band, a brown epibasal band approximately one-half length of hair, a light silvery-brown subterminal band approximately one-fourth length of hair, and a narrow brown terminal band); venter slightly lighter in color than dorsum because the hairs lack a brown terminal band; dense hair of forearm restricted to a narrow patch on upper surface; legs, feet, and upper surface of the rudimentary interfemoral membrane thinly haired; ventral surface of interfemoral membrane, its free edge, and outer margin of portions of wing membrane adjoining the legs, densely haired; no indication of shoulder glands; nose leaf long and narrow; skull relatively long with a narrow sloping rostrum (Figure 1, A and F); zygomatic arches complete or incomplete; palate depressed along the midline into a narrow groove (about one-third width of palate) that extends posteriorly from the incisive foramina; upper tooth rows arched symmetrically; upper inner incisors broad, in contact at tips (Figure 1B), and with small but prominent postero-internal basal cusps; upper outer incisors small, not in contact with inner incisors or with canines; upper molars and premolars not in contact with each other; upper premolars and first upper molars subtriangular in occlusal outline with rounded internal angles; second upper premolar with a well-developed high main cusp and a prominent posterior cuspule; third upper molar small, the crown area approximately one-half that of the second upper molar; inner lower incisors tricuspid, each with an accessory small, but well-defined, median lingual cusp (Figure 1D); outer lower incisors, when present, simple minute spicules (both present in the holotype, although broken on left side, and present on the left side only in AMNH

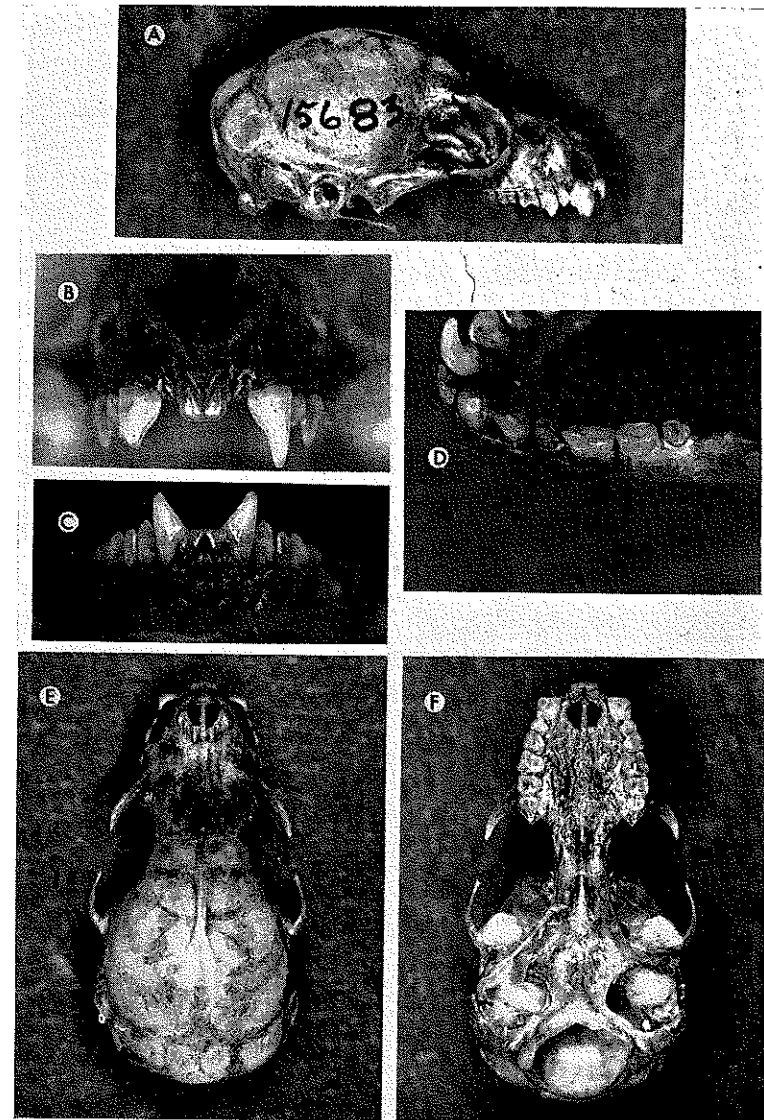


FIGURE 1. Skull and holotype of *Sturnira nana*, LSUMZ 15683. A, E, and F $\times 3$; B, C, and D $\times 6$.

219171 and 219173); lower premolars and molars not in contact with each other; first lower molar short; lower jaw slender; coronoid process short; angular process straight, not turned outward as in other species examined.

Measurements.—Measurements in millimeters of the holotype: total length, 51; hind foot, 10; ear, 13; forearm, 34.2; metacarpal II, 27.8; metacarpal III, 34.0; metacarpal IV, 33.5; metacarpal V, 35.1; greatest length of skull, 18.9; condylobasal length (including incisors), 17.0; interorbital breadth, 4.7; postorbital breadth, 4.6; zygomatic breadth, 10.0; breadth of brain case, 8.7; palatal length (including incisors), 8.4; length of maxillary tooth row, 5.0; length of mandible, 12.0; length of mandibular tooth row, 5.5; breadth across canines, 4.1; breadth across molars (M^1 - M^1), 5.8.

Comparisons.—The weakened or incomplete zygomata, the narrow and sloping rostrum, the reduced or missing outer lower incisors, and the weaker and separated premolars and molars are the cranial and dental features shared by *S. nana* and *S. bidens* that serve to distinguish both species from other members of the genus. The absence of shoulder glands also aids in differentiating *S. nana* and *S. bidens* from most other *Sturnira*. On the other hand, *S. nana* can be separated readily from *S. bidens* by the following features: smaller size (forearm 34.2 to 35.7 mm versus 39.8 to 43.3 mm); the sparsely haired legs, feet, and upper surface of the uropatagium; the broad, blade-like upper incisors. Additional features of *S. nana* useful for separating the two species include: longer and narrower nose leaf; less inflation of the supraorbital region; a broad shallow groove extending posteriorly along the palate from the incisive foramina (palate evenly domed in *S. bidens*); triangular occlusal outline of the second upper premolar due to the greater height of the main cusp and increased anterior-posterior labial development of the crown (occlusal outline transversely ovoid in *S. bidens*); larger last upper molar (size of M^3 , relative to size of M^2 , approximately twice that in *S. bidens*); reduced metaconid and entoconid of first and second lower molars; straighter angular process of dentary (conspicuously turned outward in other *Sturnira*). The distance across first upper molars is greater in *S. nana*, whereas the distance across second upper molars is greater in *S. bidens*.

Remarks.—*Sturnira nana* is more closely related to *S. bidens* than to other known members of the genus. The most obvious difference between them, other than that of size, is the retention of the outer lower incisors by some *S. nana* (see Figure 1C). Earlier (1969), while offering an assessment of the taxonomic status of *S. bidens*, we considered a single lower incisor on

each side to be one of the primary features characterizing the subgenus *Corvira*. Now, however, missing or reduced and probably functionless outer incisors may be considered characteristic of *Corvira*. Selected measurements of the five known specimens of *S. nana* are presented with measurements of eleven *S. bidens* from Perú in Table 1. All dimensions of the *S. nana* speci-

TABLE 1. SELECTED MEASUREMENTS IN MILLIMETERS OF FIVE *S. NANA* AND ELEVEN *S. BIDENS* FROM PERU.

Character	<i>S. nana</i> Mean (Range)	<i>S. bidens</i> Mean (Range)
Forearm	35.0 (34.2-35.7)	42.1 (39.8-43.3)
Greatest length of skull	19.0 (18.9-19.3)	21.5 (20.8-22.3)
Condylobasal length	17.0 (16.9-17.2)	19.1 (18.7-19.7)
Interorbital breadth	4.7 (4.6- 4.9)	5.4 (5.0- 5.8)
Zygomatic breadth	10.2 (10.0-10.4)	11.9 (11.6-12.3)
Breadth of brain case	8.6 (8.5- 8.7)	9.8 (9.5-10.0)
Palatal length	8.4 (8.4- 8.6)	9.1 (8.5- 9.9)
Maxillary tooth row	5.0 (5.0- 5.1)	6.1 (5.8- 6.4)
Mandibular tooth row	5.6 (5.4- 5.9)	6.8 (6.6- 7.0)
Breadth across molars	5.9 (5.8- 6.0)	6.8 (6.7- 6.9)

The mean and range are given for each character for *S. nana* and *S. bidens*. Greatest length of skull, condylobasal length, and palatal length include the incisors. The measurement breadth across molars was taken across M^1 - M^1 for *S. nana* and across M^2 - M^2 on *S. bidens*.

mens are consistently smaller than the smallest measurements for equivalent characters of *S. bidens*. Seven of the *S. bidens* are from the eastern slope of the Cordillera Carpish, Departamento de Huánuco, and six of these were the basis for our paper evaluating the status of the species. The seventh specimen, AMNH 216114, is an adult female preserved in alcohol with skull removed, collected on 3 August 1968. Additional *S. bidens* are also known from Perú: an adult male from the west side of the Cordillera Vilcabamba, ca. 2,700 meters, Departamento de Cuzco, and three adult females collected at Yuraccyacu (12°45'S, 73°48'W), ca. 2,600 meters, Departamento de Ayacucho. The Vilcabamba male (AMNH 214349), collected in July 1967, and two of the Yuraccyacu females (LSUMZ 15646 and 15647), taken on 22 July 1970, are fluid-preserved specimens with skulls removed. The third Yuraccyacu *S. bidens* (LSUMZ 15682), netted on 21 July 1970, is preserved as a skin with skull. The Yuraccyacu and Cordillera Vilcabamba localities are the second and third known places of occurrence of *S. bidens*

in Perú and are more than 400 kilometers to the south-southeast of the Cordillera Carpish. Yuraccyacu is in the same geographic region as the type locality of *S. nana*, though at a much higher elevation.

S. nana displays a series of morphological features shared to some extent by *Corollia castanea* and species of the genus *Rhinophylla*. These similarities include small body and overall weakening and occasional reduction of dentition concomitant with the development of broad incisors and sometimes high-crowned or bladelike premolars. Presumably, this structural convergence reflects basic similarities in food habits. Although these bats probably are frugivorous, we are still ignorant of the actual types and kinds of foods eaten and of any behavioral peculiarities in food acquirement or consumption that could be responsible for the morphological tendencies shared by these species.

The type locality, Huanhuachayo, is a clearing along the Andean mule trail connecting Hacienda Luisiana and nearby communities along the Río Apurímac with the mountain town of Tambo. The trail begins at Capricho on the Río Santa Rosa at the end of a road nearly five kilometers southwest of Hacienda Luisiana and continues in a southwesterly direction into the mountains. Huanhuachayo is above the Río Santa Rosa at approximately 1,660 meters elevation. The holotype was one of several bats captured in mist nets placed in the forest bordering the clearing.

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LITERATURE CITED

- DE LA TORRE, L.
1959. A new species of bat of the genus *Sturnira* (Phyllostomidae) from the Island of Trinidad, West Indies. Nat. Hist. Miscellanea, no. 166, 6 pp.
1966. New bats of the genus *Sturnira* (Phyllostomidae) from the Amazonian lowlands of Perú and the Windward Islands, West Indies. Proc. Biol. Soc. Washington, 79: 267-272.

DE LA TORRE, L., AND A. SCHWARTZ

1966. New species of *Sturnira* (Chiroptera:Phyllostomidae) from the islands of Guadeloupe and Saint Vincent, Lesser Antilles. Proc. Biol. Soc. Washington, 79: 297-304.

GARDNER, A. L., AND J. P. O'NEILL

1969. The taxonomic status of *Sturnira bidens* (Chiroptera:Phyllostomidae) with notes on its karyotype and life history. Occas. Papers Mus. Zool. Louisiana State Univ., no. 38, 8 pp.

PETERSON, R. L., AND J. R. TAMSITT

1969. A new species of bat of the genus *Sturnira* (family Phyllostomatidae) from northwestern South America. Life Sci. Occas. Papers, Royal Ontario Mus., no. 14, 12 pp.