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

By Alfred L. Gardner and John P. O'Neill

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. aratahomasi* Peterson and Tamsitt, 1969). Recently (1969) we reevaluated the taxonomic status of *Corvina bidens* Thomas, 1915, basing our study on newly collected material from Perú. In that paper we recognized *bidens* as a species of *Sturnira*, retaining *Corvina* 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 *Corvina* 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 Starnia; 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 Starnia, 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 epibald 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 Starnia nana, LSUMZ 15683. A, E, and F ×3; B, C, and D ×6.
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 (M²-M³), 5.8.

Comparisons.—The weakened or incomplete zygoma, 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 glads also aids in differentiating S. nana and S. bidens from most other Sturnina. 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 45.3 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 occipital outline of the second upper premolar due to the greater height of the main cup and increased anterior-posterior labial development of the crown (occlusal outline transversely ovoid in S. bidens); larger last upper molar (size of M², relative to size of M³, 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 Sturnina). The distance across first upper molars is greater in S. nana, whereas the distance across second upper molars is greater in S. bidens.

Remarks.—Sturnina 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 Corvina. Now, however, missing or reduced and probably functionless outer incisors may be considered characteristic of Corvina. Selected measurements of the five known specimens of S. nana are presented with measurements of eleven S. bidens from Peru in Table 1. All dimensions of the S. nana specimens and eleven S. bidens from Peru.

Table 1. Selected Measurements in Millimeters of Five S. nana and Eleven S. bidens from Peru.

<table>
<thead>
<tr>
<th>Character</th>
<th>S. nana Mean (Range)</th>
<th>S. bidens Mean (Range)</th>
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</thead>
<tbody>
<tr>
<td>Forearm</td>
<td>35.0 (34.2-35.7)</td>
<td>42.1 (39.8-43.3)</td>
</tr>
<tr>
<td>Greatest length of skull</td>
<td>19.0 (18.9-19.3)</td>
<td>21.5 (20.8-22.3)</td>
</tr>
<tr>
<td>Condylebasal length</td>
<td>17.0 (16.9-17.2)</td>
<td>19.1 (18.7-19.7)</td>
</tr>
<tr>
<td>Interorbital breadth</td>
<td>4.7 (4.6-4.9)</td>
<td>5.4 (5.0-5.8)</td>
</tr>
<tr>
<td>Zygomatic breadth</td>
<td>10.2 (10.0-10.4)</td>
<td>11.9 (11.6-12.5)</td>
</tr>
<tr>
<td>Breadth of brain case</td>
<td>8.6 (8.5-8.7)</td>
<td>9.8 (9.5-10.0)</td>
</tr>
<tr>
<td>Palatal length</td>
<td>8.4 (8.4-8.6)</td>
<td>9.1 (8.5-9.9)</td>
</tr>
<tr>
<td>Maxillary tooth row</td>
<td>5.0 (5.0-5.1)</td>
<td>6.1 (5.8-6.4)</td>
</tr>
<tr>
<td>Mandibular tooth row</td>
<td>5.6 (5.4-5.9)</td>
<td>6.8 (6.6-7.0)</td>
</tr>
<tr>
<td>Breadth across molars</td>
<td>5.9 (5.8-6.0)</td>
<td>6.8 (6.7-6.9)</td>
</tr>
</tbody>
</table>

The mean and range are given for each character for S. nana and S. bidens. Greatest length of skull, condylebasal length, and palatal length include the incisors. The measurement breadth across molars was taken across M²-M³ for S. nana and across M²-M³ 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 Carpinch, 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 1966. 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 Yuraccaycu (12°45'S, 75°48'W), ca. 2,600 meters, Departamento de Ayacucho. The Vilcabamba male (AMNH 214349), collected in July 1967, and two of the Yuraccaycu females (LSUMZ 15646 and 15647), taken on 22 July 1970, are fluid-preserved specimens with skulls removed. The third Yuraccaycu S. bidens (LSUMZ 15682), netted on 21 July 1970, is preserved as a skin with skull. The Yuraccaycu 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 Carpinh. Yuraccaya 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 Rhinopple. 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 blade-like 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 acquisition or consumption that could be responsible for the morphological tendencies shared by these species.

The type locality, Huanhuachay, is a clearing along the Andean mule trail connecting Hacienda Lusiana 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 Lusiana and continues in a southwesterly direction into the mountains. Huanhuachay is above the Rio 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.

Acknowledgments

O'Neill was accompanying John W. Terborgh and John S. Weske on a trip connected with their continuing studies of the flora and fauna of the Apurímac valley of Peru when the type specimen was collected. Gratitude is expressed to them, as well as to José Parodi V., owner of Hacienda Lusiana, the main base of their operations in the valley. We especially appreciate the efforts of Karl F. Koopman of the American Museum of Natural History, who facilitated examination of the AMNH specimens and commented on the original manuscript. Financial support for the field work was gratefully received from the Bradley Pink Fund and through the Louisiana State University Museum of Zoology from John S. McElhenny of Baton Rouge, Louisiana.

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