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A New Subspecies of the Fruit-eating Bat, *Sturnira ludovici*, from Western Mexico

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The fruit-eating bats of the genus *Sturnira* are represented on the North American mainland by two species, *S. lilium* and *S. ludovici*. The former, in most areas the smaller of the two, is widely distributed in México and Central America and is common in many places. On the other hand, *S. ludovici*, described by Anthony (1924:8) from near Gualea, Ecuador, generally has been regarded as rare; insofar as we can determine only 20 specimens of the species have been recorded previously from North America (Costa Rica, Honduras, and México).

In 1961 (M. Raymond Lee) and 1962 (Percy L. Clifton), field representatives of the Museum of Natural History collected mammals in western México. Among the bats obtained by them were 23 specimens of *S. ludovici*, which represent an heretofore undetected subspecies that is named and described below.

Sturnira ludovici occidentalis, new subspecies

Holotype.—Adult female, skin and skull, no. 92798 Museum of Natural History, The University of Kansas, from Plumosas, 2500 feet elevation, Sinaloa; obtained on August 31, 1962, by Percy L. Clifton (original no. 2939).

Distribution.—Western México; known certainly from southwestern Durango south to southern Jalisco (see Fig. 1).

Diagnosis.—Size small both externally and cranially (forearm in adults 40.4-44.1 mm., greatest length of skull 21.7-22.9); rostrum short and abruptly elevated; skull relatively broad; dorsal pelage drab brownish over-all, usually lacking epaulets (pale yellowish brown when present); ventral pelage brownish gray.

Comparisons.—From *Sturnira ludovici ludovici*, the only other subspecies of the species, *S. l. occidentalis* differs in averaging smaller in most external and cranial dimensions (in some measurements the upper size limits of *occidentalis* barely overlap the lower limits in specimens of *ludovici* examined), in having a relatively broader skull with a shorter, more abruptly elevated rostrum, and in being paler both dorsally and ventrally.

From *Sturnira lilium parvidens*, with which it is sympatric, *S. l. occidentalis* usually (but not always) differs in being brownish (rather than yellowish to yellowish orange) dorsally and in lacking epaulets, and differs in the following cranial features: first upper incisors simple (rather than weakly bifid in unworn condition), larger, and more nearly straight when viewed from the front; second upper incisors reduced; lower incisors bilobate rather than trilobate; lingual cusps on m1 and m2 greatly reduced; M2 usually turned inward from M1 at distinct angle. The two species have approximately the same external and cranial dimensions in western México.

Measurements (in millimeters).—External measurements of the holotype are as follows: total length, 58; length of hind foot, 15; length of ear, 18; forearm (average of both), 42.5. Corresponding average and extreme measurements of 11 adults from 4 km. N Durazno, Jalisco, followed by those of eight adults from 17 km. SE Talpa, Jalisco, are: 61.9 (59-65), 60.9 (57-68); 14.1 (12-15), 13.0 (13); 16.1 (15-18), 16.0 (15-17); 42.2 (40.4-43.8), 42.9 (41.6-44.1); weight in grams, 16.8 (15-19, six specimens only), 19.2 (16.3-22.5).

Cranial measurements of the holotype additional to those given in Table 1 are: condyloincisive length, 19.7; breadth across upper canines, 5.5; length of mandibular tooth-row (c-m3), 6.7.

Remarks.—The pattern of geographic variation in size in *Sturnira ludovici* resembles that in many other species of tropical bats in North America in that individuals from the northern parts of the range are smaller than those from the south. Mexican specimens herein assigned to *S. l. ludovici* average somewhat smaller than specimens from Central America and the northern part of South America (but are within the currently understood size limits of that subspecies) and average paler as well. Additional material is needed from central and eastern México before the limits of distribution of the two subspecies of *ludovici* can be determined accurately.

All specimens examined of the new subspecies were trapped in mist nets. The holotype was captured in a net stretched across an old road among large fruit trees situated along a small river (a tributary of the Río del Baluarte). Tropical deciduous vegetation grew in the narrow valley of the river but the adjacent hills supported oak. A specimen of *Artibeus jamaicensis jamaicensis* was netted along with the holotype and on the previous night, August 30, one individual each of *Glossophaga soricina leachii* and *Sturnira*

TABLE 1.—SOME MEASUREMENTS OF ADULTS OF TWO SUBSPECIES OF STURNIRA LUDOVICI.

Number of specimens averaged, or catalogue number, and sex	Length of forearm	Greatest length of skull	Zygomatic breadth	Mastoid breadth	Interorbital constriction	Length of maxillary tooth-row	Breadth across upper molars
<i>Sturnira ludovici occidentalis</i> , holotype							
92798 KU, ♀	42.5	22.0	12.5	11.4	5.3	6.1	7.5
½ mi. W Revolcaderos, Durango							
5698 MSU, ♀	43.7	22.6	13.1	11.9	6.0	6.3	7.8
5699 MSU, ♀	42.3	22.2	12.7	11.3	5.6	5.9	7.5
17 km. SE Talpa, Jalisco							
Average 8 (4♂, 4♀)	42.9	22.5	12.9	11.5	5.9	6.2	7.7
Minimum	41.6	21.7	12.6	10.9	5.7	6.0	7.5
Maximum	44.1	22.9	13.5	11.8	6.3	6.4	7.9
20 km. WNW Purificación, Jalisco							
92811 KU, ♂	42.0	22.6	13.2	12.0	6.0	6.2	7.7
4 km. N Durazno, Jalisco							
Average 11 (1♂, 10♀)	42.4	22.5	13.0	11.4	5.8	6.2	7.7
Minimum	40.4	21.8	12.6	10.8	5.3	5.8	7.5
Maximum	43.8	22.9	13.4	11.8	6.1	6.3	8.0
<i>Sturnira ludovici ludovici</i> , 10 mi. SW Villa Juárez, Puebla							
67399 KU, ♀	44.2	24.0	13.3	11.8	5.9	6.4	8.1
67400 KU, ♀	42.9	23.2	13.7	11.9	6.0	6.3	8.1
11 km. W Quiroga, Michoacán							
95703 UMMZ, ♂	.....	23.5	13.5	11.6	5.9	6.2	7.6
95704 UMMZ, ♀	.....	23.0	12.8	11.0	5.7	6.3	8.0
Vista Hermosa, Oaxaca							
91635 KU, ♀	45.1	23.9	13.4	11.8	6.0	6.5	8.0
91636 KU, ♀	46.0	23.6	13.1	11.9	5.7	6.7	8.0
La Cruz Grande, La Paz, Honduras							
126791 AMNH, ♀	44.0	23.6	13.5	11.8	6.1	6.3	8.1
126811 AMNH, ♀*	45.5	24.6	13.2	12.0	6.3	7.2	8.2
Sierra Negra, Sierra de Perijá, Colombia (after Hershkovitz, 1949)							
Minimum (2♂, 2♀)	44.2	22.9	13.2	.....	6.2	6.5	.....
Maximum	46.0	24.2	13.8	.....	6.7	7.0	.....
near Gualea, Ecuador							
67328 AMNH, ♂**	.....	25.0	14.0	12.4	6.3	.....	8.4
67329 AMNH, ♂	45.3	24.9	13.9	12.2	6.1	7.0	8.4

* Holotype of *Sturnira hondurensis* (measurements after Goodwin, 1940:2).** Holotype of *Sturnira ludovici ludovici* (measurements after Anthony, 1924:9).

lilium parvidens were taken in the same net. Baker and Greer (1962:69) also reported the two species of *Sturnira* as netted together 6 mi. S Pueblo Nuevo in adjacent Durango.

Other specimens of *S. l. occidentalis* were taken under the following circumstances: 17 km. SE Talpa, Jalisco (night of November 3-4, 1962)—nine individuals netted over the Río Mascota in "pine-oak zone" along with representatives of *S. l. parvidens*, *Artibeus toltecus*, *Chiroderma salvini*, *Eptesicus fuscus miradorensis*, *Lasiurus borealis teliotis*, and *Rhogeessa gracilis*; 20 km. WNW Purificación, Jalisco (night of November 20-21, 1962)—two specimens captured in a mist net stretched beneath branches of a fig tree at the edge of the Río Jicote in which *Glossophaga commissarisi*, *S. l. parvidens*, *Artibeus turpis nanus*, and *Artibeus lituratus palmarum* also were taken; 4 km. N Durazno, Jalisco (nights of November 21-22 and 22-23, 1961)—11 specimens, of which 10 were females, netted in company with *G. s. leachii*, *S. l. parvidens*, *A. j. jamaicensis*, *A. toltecus*, *Centurio senex*, and *L. b. teliotis* over a stream in a small canyon that supported "fairly dense stands of very tall deciduous trees." Five of the 10 females from 4 km. N Durazno were pregnant; each contained a single embryo. Crown-rump length of the embryos averaged 26.8 (24-30) mm. No gross reproductive activity was evident in other females of *S. l. occidentalis* collected.

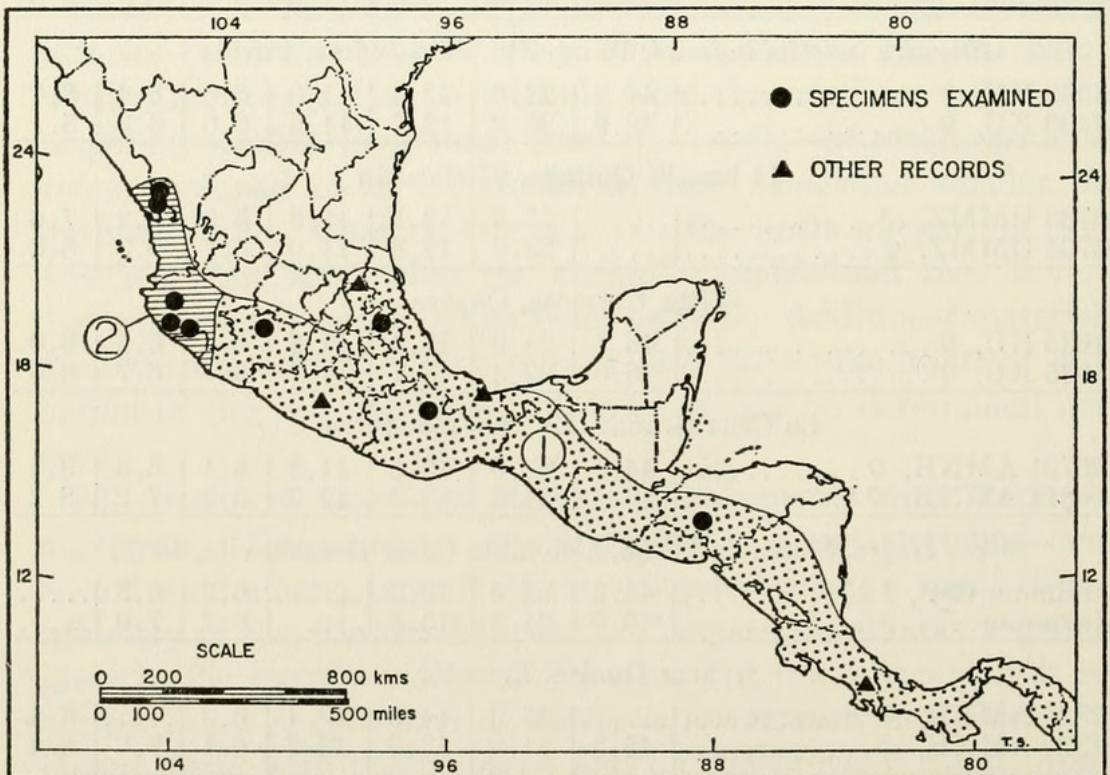


FIG. 1. Distribution of *Sturnira ludovici* in North America. 1. *S. l. ludovici*. 2. *S. l. occidentalis*.

Specimens examined.—A total of 26, arranged from north to south, as follows: DURANGO: $\frac{1}{2}$ mi. W Revolcaderos, 6600 ft., 2 (MSU); 6 mi. S Pueblo Nuevo, 3000 ft., 1 (MSU). SINALOA: Plumasas, 2500 ft., 1 (the holotype). JALISCO: 17 km. SE Talpa, 5200 ft., 9; 20 km. WNW Purificación, 1400 ft., 2; 4 km. N. Durazno, 11.

Specimens of *S. l. ludovici* used in comparisons included a paratype (AMNH) from near Gualea, Ecuador, a specimen from Mindo, Ecuador, two specimens from La Cruz Grande, La Paz, Honduras (AMNH—paratypes of "*Sturnira hondurensis*"), and the following from México: 10 mi. SW Villa Juárez, 4850 ft., Puebla, 2; 11 km. W Quiroga, about 7000 ft., Michoacán, 2 (UMMZ); and Vista Hermosa, 1500 meters, Oaxaca, 5.

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