

Sturnira magna. By J. R. Tamsitt and Christoph Häuser

Published 13 December 1985 by The American Society of Mammalogists

***Sturnira* Gray, 1842**

Sturnira Gray, 1842:257. Type species *Sturnira spectrum* Gray (= *Phyllostoma lilium* E. Geoffroy St.-Hilaire, 1810:181).

Nyctiplanus Gray, 1849:58. Type species *Nyctiplanus rotundatus* Gray (= *Phyllostoma lilium* E. Geoffroy St.-Hilaire, 1810:181).

Corvira Thomas, 1915:309. Type species *Corvira bidens* Thomas. *Sturnirops* Goodwin, 1938:1. Type species *Sturnirops mordax* Goodwin.

CONTEXT AND CONTENT. Order Chiroptera, Suborder Microchiroptera, Family Phyllostomidae, Subfamily Stenoderminae, Genus *Sturnira*, Subgenus *Sturnira*. The genus *Sturnira* contains 12 species (Honacki et al., 1982), of which 10 belong to the subgenus *Sturnira* and 2 to the subgenus *Corvira*.

***Sturnira magna* de la Torre, 1966**

de la Torre's Yellow-shouldered Bat

Sturnira magna de la Torre, 1966:267. Type locality "Santa Cecilia (100 m), Río Maniti, Iquitos, Department of Loreto, Perú."

CONTEXT AND CONTENT. Context same as for genus. *Sturnira magna* is a monotypic species and is distinguished from all species of the genus except *S. aratathomasi* by its large size (length of forearm greater than 53 mm, greatest length of skull greater than 27.5 mm, greatest length of mandible greater than 17.0 mm). The following key will aid in identification:

Inner upper incisors broad, in near contact terminally; lingual and buccal cusps of m1 and m2 low, not separated by a deep cleft; posterior palate ending in a short U; length of upper toothrow (C-M3) less than 8.0 mm; width across upper molars (M1-M1) less than 9.8 mm. Occurring from south-central Colombia south through eastern Ecuador and Peru to northwestern Bolivia *Sturnira magna*

Inner upper incisors long and centrally pointed, not in contact terminally; lingual and buccal cusps of m1 and m2 well defined, separated by a deep cleft; posterior palate ending in a long narrow V; length of upper toothrow greater than 8.0 mm; width across upper molars greater than 9.8 mm. Occurring in Andean regions of southwestern Colombia and northeastern Venezuela *Sturnira aratathomasi*

DIAGNOSIS. Some distinctive characteristics of the species are provided in the key. The presence of two pairs of well-developed lower incisors distinguishes *S. magna* from the two species of the subgenus *Corvira* (*S. bidens* and *S. nana*) that usually have only one pair of lower incisors. The absence of well-defined lingual cusps on the first and second mandibular molars distinguishes this species from *S. aratathomasi*, *S. lilium*, *S. luisi*, *S. thomasi*, and *S. tildae*. In species lacking these cusps (*S. bogotensis*, *S. erythromos*, *S. ludovici*, and *S. mordax*), *S. magna* most closely resembles *S. ludovici* in general shape of the skull and in tooth structure (de la Torre, 1966).

The skull of *S. magna* (Fig. 1) differs from *S. aratathomasi* by having a shorter and thicker rostrum, a shorter and wider anterior nasal aperture, shorter anterior palatine foramina separated by a wider septum, upper incisors shorter and less anteriorly directed, shorter lower canines, and a larger M3, and the tragus is shorter, narrower, and more pointed (Peterson and Tamsitt, 1968). A key to eight species [*S. angeli* (= *S. lilium*), *S. bidens*, *S. erythromos*, *S. lilium*, *S. ludovici*, *S. magna*, *S. oporaphilum* (= *S. ludovici*), and *S. tildae*] was given by de la Torre (1961), whereas Davis (1980), in his key, recognized 11 species: *S. aratathomasi*, *S. bidens*, *S. erythromos*, *S. lilium*, *S. luisi*, *S. ludovici*, *S. magna*, *S. mordax*, *S. nana*, *S. thomasi*, and *S. tildae*.

GENERAL CHARACTERS. Pelage color of the type specimens from Peru was described by de la Torre (1966) as yellowish or golden brown, whereas Marinkelle and Cadena (1972) reported the color of a specimen from Amazonian Colombia as dark grayish brown. Tamsitt et al. (in press) found brown tones to predominate in *S. magna* from southwestern Colombia and also reported considerable individual variation. Pelage color of specimens from Colombia and Peru on deposit in the American Museum of Natural History and the Field Museum of Natural History varies from brownish buff to sepia on the nape, to brownish buff, olive brown, dark rust, or sepia on the rump. Specimens from Bolivia on deposit in the American Museum of Natural History and the Louisiana State University Museum of Zoology are darker and more grayish. Dorsal hairs are

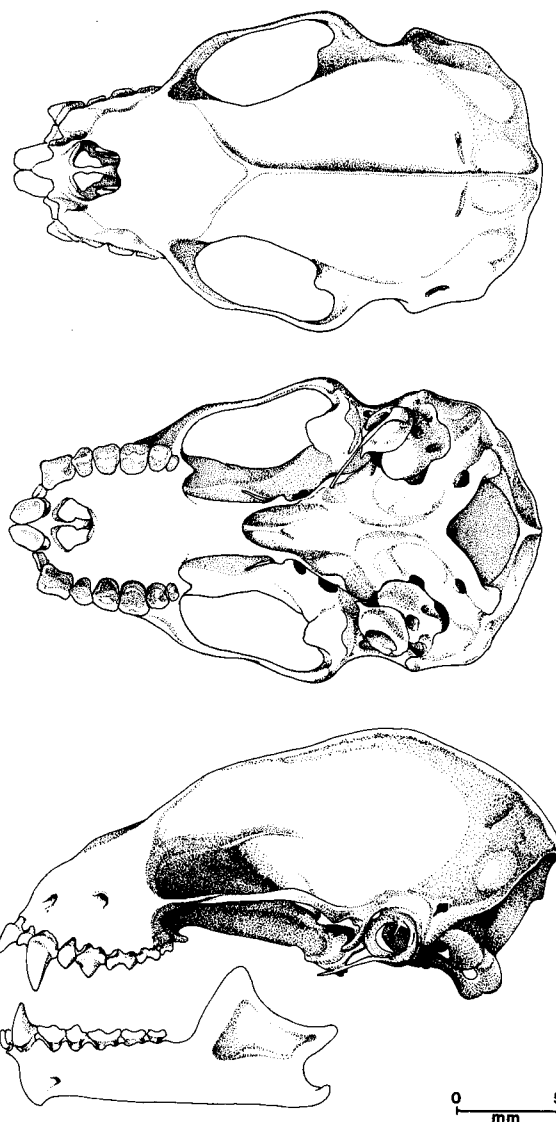


FIG. 1. Dorsal, ventral, and lateral aspects of cranium and lateral view of mandible of *Sturnira magna* (ROM 79888 ♀) from 5 km E Cabaña Duda, Dept. Meta, Colombia. Illustration by Mrs. Sophie Poray.

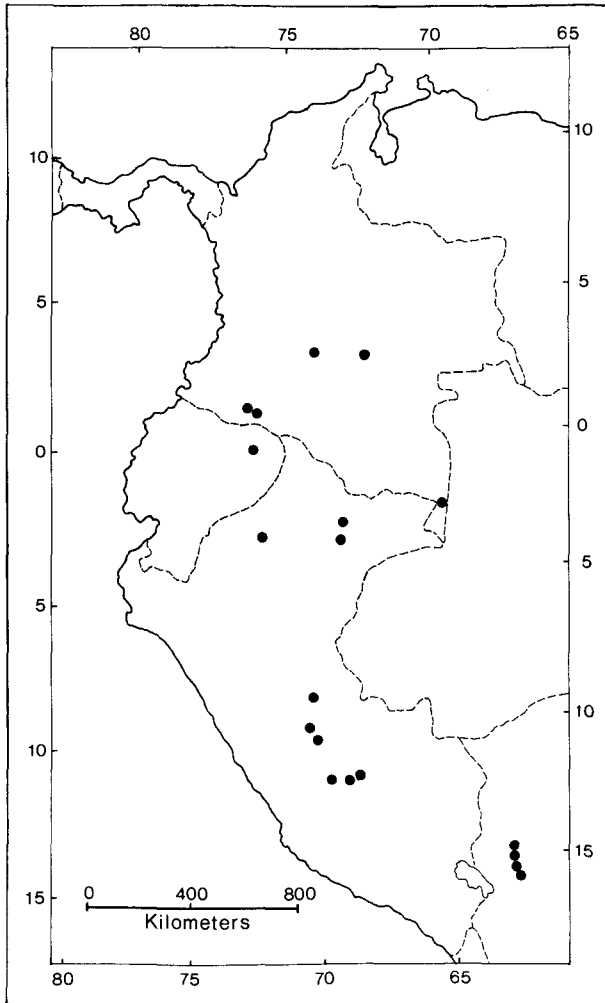


FIG. 2. Known localities of *Sturnira magna* in northwestern South America.

grayish white or yellowish at the base, followed by a wider brownish or grayish white epibasal band, a broad buff or pale gray subterminal band, and a narrow dark gray or brown terminal band. In most specimens, the dorsal fur is conspicuously mottled on the shoulders, back, and rump because tips of hairs are sharply demarcated from the pale subterminal band. Ventrally the pelage is pale yellow, brown, or gray, paler anteriorly and darker posteriorly. The ventral pelage is paler than that of the dorsum, and individual hairs are tricolored, the pale tip longer than that of the dorsal hairs. In subadults this banding is less obvious or obliterated. The forearm is furred dorsally and ventrally on the proximal two-thirds, and the short (1 to 3 mm) individual hairs are reddish or grayish brown. The propatagium is furred to the same level as on the forearm, and the plagiopatagium has hairs to a line extending from the elbow to the knee. The tibia is heavily furred dorsally with hairs 3 to 5 mm long, and the uropatagium (all but absent in the midline, 3 to 6 mm wide at knees) is densely fringed with hairs (5 to 8 mm long at the midline). The calcar is short (1 to 2 mm) but distinct. The large feet (19 to 21 mm long) are dorsally covered with hair (2 mm or less). Wing membranes and noseleaf are dark brown or blackish brown, as are the ears, which are darker toward the medial and distal margins. The tragus is pale brown, dark brown, or dark gray.

Skulls of males are generally larger than those of females. The most notable characters used to separate the sexes are greatest length of skull, lengths of maxillary and mandibular tooththrows, greatest length of mandible, and heights of canines. In adult males, golden-colored epaulettes may be conspicuous. Patches of yellowish brown hairs may occur on the shoulders of adult females, but the hairs are less stiff and the color not as intense (Tamsitt et al., in press).

Selected measurements (in mm) of the male holotype followed by the average (extremes in parentheses) of five male and three

female paratypes of *S. magna* from Peru (de la Torre, 1966) are: length of forearm, 56.3, 57.4 (56.3 to 59.6); greatest length of skull, 29.0, 28.7 (27.9 to 29.1); condylobasal length, 25.6, 26.1 (25.5 to 26.5); width of postorbital constriction, 7.4, 7.2 (7.0 to 7.4); zygomatic width, 17.4, 17.1 (16.3 to 17.4); length of maxillary tooththrow, 7.8, 7.7 (7.3 to 7.9); and length of mandible, 19.2, 18.0 (18.3 to 19.2). Extremes of the same measurements of 5 males and 12 females from Colombia (Tamsitt et al., in press) are, respectively: 56.1 to 60.5, 56.4 to 60.7; 29.4 to 29.9, 27.7 to 29.2; —, —; 7.1 to 7.4, 6.7 to 7.2; 17.1 to 17.8, 16.0 to 17.2; 7.8 to 8.0, 7.2 to 7.8; and 19.6 to 20.0, 18.1 to 19.2. The length of the forearm of a male from Amazonian Colombia (Marinkelle and Cadena, 1972) is 56.8 mm and that of a female from Amazonian Ecuador (Baker, 1974) is 58.7 mm. Selected measurements (in mm) of a male from Bolivia (Webster and Jones, 1980) are: length of forearm, 58.4; greatest length of skull, 29.4; and length of maxillary tooththrow, 7.5. The weight (in g) of the adult male holotype is 50 (de la Torre, 1966), and the average weight (extremes in parentheses) of one male and three females from Peru (Gardner, 1976) is 43.1 (41.0 to 44.5).

The dental formula is $i\ 2/2, c\ 1/1, p\ 2/2, m\ 3/3$, total 32. Ears are short, and the tips of the pinnae are ovate. The tragi are elongate and taper distally, the tips subacute. As in other species of the genus, *S. magna* is tailless, and the uropatagium is greatly reduced.

DISTRIBUTION. This species inhabits tropical and subtropical regions in the eastern slopes of the northern Andes and adjacent Amazonian lowlands from Colombia southward to Bolivia (Fig. 2; Koopman, 1982:289, fig. 11). The northernmost record is near Cabaña Duda ($2^{\circ}33'N, 47^{\circ}03'W$), Departamento de Meta, Colombia, and the southernmost record is Serrania Bella Vista ($15^{\circ}40'S, 67^{\circ}35'W$), Departamento de La Paz, Bolivia. In Colombia, *S. magna* has been recorded in the Departamento de Meta (Lemke et al., 1982; Tamsitt et al., in press), Intendencia de Putumayo, Comisaría Especial del Guaviare (Tamsitt et al., in press), and Comisaría de los Amazonas (Marinkelle and Cadena, 1972); in Ecuador, in the Provincia de Napo (Baker, 1974); in Peru, from the Departamentos de Loreto (Davis, 1975), Pasco (de la Torre, 1966; Tuttle, 1970), Ayacucho (Gardner, 1976), Huánuco, and Cuzco (Koopman, 1978); and in Bolivia, in the Departamento de La Paz (Anderson et al., 1982; Webster and Jones, 1980). Exact limits of distribution are unknown because of paucity of specimens.

The fossil record of this species is not known.

FORM. Smith and Starrett (1979) included measurements of six specimens of *S. magna* in their study of morphometrics of the wings of phyllostomid bats. They also used data from *S. lilium*, *S. thomasi*, *S. tildae*, *S. mordax*, *S. bidens*, *S. nana*, *S. aratathomasi*, *S. ludovici*, and *S. erythromos*, and summarized their results at the generic level. In comparison with other phyllostomids, sturnirine bats have wings average in size, a short forearm and fifth digit, and a disproportionately long third digit. The length of the forearm averaged more than half (65%) the length of head and body. The overall aspect ratio of the wings of *Sturnira* averaged 5.76 (5.62 to 5.88).

ONTOGENY AND REPRODUCTION. In Colombia, females collected on 14 November 1976 on deposit in the Instituto de Ciencias Naturales, Universidad Nacional de Colombia, and on 26 February 1971 and 25 May 1971 on deposit in the Field Museum of Natural History contained 14-, 25-, and 30-mm (crown-rump) fetuses, respectively; the latter two were males (the sex of the first was not determined). Measurements (in mm) of the male fetuses were: length of forearm, 15, 16; length of foot, 9.7, 10.6; and length of ear, 7.8, 8.6. In Colombia, four adult females collected in May 1971 had enlarged mammae surrounded by bare areas of skin, and young adult bats were taken in nets in March, May, and February 1971 (Tamsitt et al., in press). In Peru, a lactating female was taken in a net on 10 May 1971 (Gardner, 1976), and a female captured on 2 December 1972 that contained a single fetus (crown-rump = 45 mm) is on deposit in the Texas Cooperative Wildlife Research Collection, Texas A&M University.

Males with enlarged testes (>6 mm in length) were taken in Peru on 8 May (Gardner, 1976) and 25 July (Tuttle, 1970) and in Bolivia on 19 July (Webster and Jones, 1980). Testes of young adult males collected on 11 and 26 June 1979 in Bolivia, on deposit in the American Museum of Natural History and the Louisiana

State University Museum of Zoology, were small (2 to 4 mm in length).

ECOLOGY. *Sturnira magna* has a wide elevational distribution: from 200 m in lowland forests of Colombia, Ecuador, Peru, and Bolivia, to 2,300 m in montane forests in Peru. Specimens have been collected at elevations from 200 to 915 m in Colombia (Tamsitt et al., in press), at 300 m in Ecuador (Baker, 1974), 200 to 2,300 m in Peru (Graham, 1983), and 350 to 1,650 m in Bolivia (Anderson et al., 1982; Webster and Jones, 1980). The vertical distribution of the species appears to be more restricted in the northern part of the range, as all localities north of 5°S are at lower elevations (100 to 915 m), whereas elevations of collecting sites south of this latitude are from 200 to 2,300 m. Of 19 localities known for the species, 14 (74%) are in tropical life zones (100 to 915 m), 4 (21%) in premontane zones (1,120 to 1,650 m), and 1 (5%) above 2,000 m in the montane zone. Most localities occur in tropical forests characterized by a mean annual precipitation greater than 400 cm and by a mean annual temperature greater than 24°C (Holdridge, 1947). *S. magna* has been taken characteristically in mature forest habitats and, of 66 specimens collected, 26 (39%) are from wet tropical forests, 17 (26%) from moist tropical forests, 13 (20%) from premontane moist forests, 9 (14%) from premontane wet forests, and 1 (2%) from montane cloud forest.

Netting sites include various habitats, but all are within or near large tracts of undisturbed tropical and subtropical forest. In Colombia, specimens were netted in forest or over a ditch in dense lowland forest (Tamsitt et al., in press). In Peru, specimens were taken in nets set in open forest (Gardner, 1976), in a clearing bordered by forest (Davis, 1975), at the edge of a large area of newly cut trees surrounded by mature forest, across a narrow trail leading to a garden where bananas (*Musa* sp.) and papayas (*Carica papaya*) were grown (Tuttle, 1970), and in highland cloud forest (Graham, 1983). In Bolivia, specimens were taken in or near virgin tropical forest (Webster and Jones, 1980). Roosting sites of *S. magna* are unknown.

Bats captured with *S. magna* in undisturbed lowland forest in Colombia were *Rhynchonycteris naso*, *Noctilio leporinus*, *Micronycteris megalotis*, *Tonatia sylvicola*, *Phyllostomus elongatus*, *P. discolor*, *P. hastatus*, *Phylloderma stenops*, *Trachops cirrhosus*, *Chrotopterus auritus*, *Carollia castanea*, *C. brevicauda*, *C. perspicillata*, *Rhinophylla pumilio*, *Sturnira lilium*, *S. ludovici* (*S. bogotensis*?), *Uroderma bilobatum*, *Vampyrops infuscus*, *V. brachycephalus*, *V. helleri*, *Vampyressa pusilla*, *Artibeus* sp., *A. planirostris*, *A. lituratus*, *A. fuliginosus*, *Desmodus rotundus*, *Myotis riparius*, and *Tadarida (Nyctinomops) laticaudata* (Lemke et al., 1982). In Peru, *Sturnira erythromos*, *S. lilium*, *S. ludovici*, *S. bidens*, and *S. nana* were netted with *S. magna* in open forest (Gardner, 1976), and in a clearing bordered by tropical forest *Uroderma bilobatum*, *Vampyrops helleri*, *Vampyressa pusilla*, *V. bidens*, *Chiroderma villosum*, *C. trinitatum*, *Artibeus* sp., *A. pumilio* (= *A. cinereus*), *A. planirostris*, and *A. lituratus* were captured with this species (Davis, 1975). In Bolivia, *S. lilium*, *S. oporophilum* (= *S. ludovici*), *S. erythromos*, and *S. magna* were taken at the same localities (Anderson et al., 1982).

The diet of *S. magna* is unknown. Presumably this bat is frugivorous as are other species of the genus. Frugivory has been demonstrated in *S. aratathomasi* (Thomas and McMurray, 1974), *S. lilium*, *S. tildae*, *S. erythromos*, *S. mordax*, and *S. ludovici* (Gardner, 1977a).

Sturnira magna is parasitized by the streblid fly *Anastrebla delatorrei*, which also was recorded from *S. lilium* and *S. tildae* (Marinkelle and Grose, 1981).

GENETICS. The karyotype of *S. magna* ($2n = 30$, FN = 56) appears to be identical with that of *S. bidens*, *S. erythromos*, *S. lilium*, *S. ludovici*, *S. mordax*, *S. nana*, *S. thomasi*, and *S. tildae* (Baker, 1979; Baker et al., 1982). Autosomes are biamred and consist of 10 pairs of metacentrics and submetacentrics and four pairs of submetacentrics; the X-chromosome is a submetacentric, and the Y-chromosome is a small acrocentric (Gardner, 1977b).

REMARKS. The generic name *Sturnira* is derived from the Latin *sturnus* (starling) to honor H.M.S. Starling, an escort vessel of the expedition that led to the discovery of the specimen from the coast of Brazil described by Gray in 1842 as *Sturnira spectrum*. The specific name *magna* is from the Latin and refers to the comparably large size of the species.

We thank Charles O. Handley, Jr., Karl F. Koopman, Robert M. Timm, and W. David Webster for important information; Mrs. Sophie Poray for drawing the figures; and Mrs. Denise Machalski and Ms. Nancy Grepe for secretarial and word processing assistance.

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Editors of this account were B. J. VERTS and J. KNOX JONES, JR. Managing editor was TIMOTHY E. LAWLOR.

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