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Hugh H. Genoways

University of Nebraska - Lincoln, h.h.genoways@gmail.com

J. Knox Jones Jr.

University of Kansas

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GENERAL NOTES

NOTES ON BATS FROM THE MEXICAN STATE OF ZACATECAS

Much of the Mexican state of Zacatecas lies in the area ascribed to the Mexican Plateau. Along the western border and in the southwest, however, the state encompasses a portion of the Sierra Madre Occidental, and perhaps more importantly, from a zoogeographic view, the Río Juchipila, a major tributary of the Río Grande de Santiago, drains the southern "pan-handle." The valley of the Juchipila supports tropical vegetation as perhaps do the valleys of several other smaller tributaries of the Río Grande that barely reach the southern part of the state. The setting of southern Zacatecas suggests, therefore, considerable faunal diversity.

Perusal of the pertinent literature reveals but a few scattered reports and observations concerning the distribution and natural history of bats in Zacatecas. Miller and Allen (1928) evidently were the first to mention chiropterans from the state when they reported four vespertilionids (*Myotis californicus mexicanus*, *Myotis thysanodes thysanodes*, *Myotis velifer velifer*, and *Myotis yumanensis lutosus*) from Hda. San Juan Capistrano. Later, Baker (1956: 185) listed *Lasiurus ega xanthinus* from Zacatecas, Cockrum (1956: 491) incidently reported *Desmodus rotundus murinus* in a paper on bat reproduction, and Handley (1959: 151, 189) recorded *Plecotus mexicanus* and *Plecotus townsendii australis*. In his monograph on the bats of Mexico, Villa-R (1967) mentioned some of the earlier records and listed as examined specimens of *Choeronycteris mexicana*, *Myotis velifer velifer*, *Eptesicus fuscus pallidus*, *Plecotus townsendii australis*, and *Tadarida brasiliensis mexicana*. Finally, Baker *et al.* (1967: 225) reported *Sturnira lilium parvidens*, *Pipistrellus hesperus australis*, and *Tadarida aurispinosa*. Thus, a total of 14 species of bats representing four families are on record.

In October of 1950, J. R. Alcorn collected mammals in Zacatecas for the Museum of Natural History of The University of Kansas. Subsequently, R. W. Dickerman in early 1954, Percy L. Clifton and Hugh H. Genoways in July of 1966, and Clifton in September of 1966 and again in June of 1967 obtained additional material. Among the specimens thus accumulated are 15 species of bats, seven of which are new to the fauna of the state. In the accounts beyond, in which all our Zacatecan specimens are treated, measurements are in millimeters, catalogue numbers refer to specimens in the Museum of Natural History, and all place-names refer to localities in Zacatecas.

Glossophaga soricina leachii (Gray, 1844).—On 26 June 1967, Clifton netted bats in a small mango grove situated along a tributary of the Río Juchipila "upstream from a ranch called Santa Rosa." On the night of 30 June he returned to the same locality, designated as 5½ mi. S Moyahua, 4000 ft, and strung three nets "in a larger mango orchard." One *G. s. leachii* (112044) was obtained on the first night and 16 (112045–60) on the second; six of the 17 specimens were females, none of which evidenced gross reproductive activity. Species captured at this place on the dates mentioned in addition to long-tongued bats included *Leptonycteris sanborni*, *Sturnira lilium*, *Artibeus hirsutus*, *A. jamaicensis*, *A. lituratus*, *A. toltecus*, *Chiroderma salvini*, and *Desmodus rotundus* (not preserved).

Leptonycteris sanborni Hoffmeister, 1957.—A total of 28 long-nosed bats was collected 5½ mi. S Moyahua on 26 and 30 June 1967, under conditions mentioned in the previous account. The specimens (112079–106), all adult males preserved in spirits, have a mean forearm length of 54.1 (52.1–55.6), and represent the first locality of record for this species in Zacatecas.

Sturnira lilium parvidens Goldman, 1917.—Twenty-one yellow-shouldered bats (112107–27) were netted 5½ mi. S Moyahua on 26 and 30 June 1967. Three of the nine females obtained were pregnant (embryos 3.5, 4, and 5 in crown–rump length). Several other females had swollen uteri.

Artibeus hirsutus Andersen, 1906.—On the evening of 11 September 1966, Clifton netted bats just south of the village of Santa Rosa at a place also labeled by him as 5½ mi. S Moyahua, 4000 ft. The net was set under a large tree and across a stream—a tributary of the Río Juchipila. Bats captured in addition to one female (nonpregnant) *Artibeus hirsutus* (108724) included *Artibeus jamaicensis*, *Desmodus rotundus*, and *Myotis yumanensis*. On 30 June 1967, 15 *A. hirsutus* (112191–204) were netted in a large mango orchard located near the same stream. Included in this series were six adult females, one adult male, four young females, and four young males. All of the adult females had enlarged mammae and at least one appeared to be pregnant with a small embryo (5 in crown–rump length); two others had swollen uteri, possibly indicative of early pregnancy. The average forearm length of the eight young bats was 54.2 (52.0–57.2).

The specimens of *A. hirsutus* here reported, and those listed below for three other species of *Artibeus*, constitute the first records for Zacatecas.

Artibeus jamaicensis triomylus Handley, 1966.—Fifteen specimens of the Jamaican fruit-eating bat (108725–39) were collected by Clifton on 11 September 1966 in the same net with specimens of *Artibeus hirsutus* mentioned above. Five of seven adult females had enlarged mammary glands and swollen uteri. Also included were four young females and two young males, the forearms of which average 57.8 (56.2–59.2). Of four specimens (112205–08) taken 5½ mi. S Moyahua on 30 June 1967, three were young (two males and a female) with forearms that measured 55.6, 58.7, and 57.8, respectively; the fourth bat was a pregnant female that carried a single embryo (8 in crown–rump length).

Artibeus lituratus palmarum J. A. Allen and Chapman, 1897.—Six specimens of this large fruit-eating bat (112213–18) were obtained on 30 June 1967 under the conditions discussed in the account of *Glossophaga soricina leachii*. Three of four adult females each carried a single embryo (40, 37, and 37 in crown–rump length). One specimen was a juvenile as judged by the incompletely fused phalangeal epiphyses.

Artibeus toltecus (Saussure, 1860).—Six specimens of the Toltec fruit-eating bat (112224–29) were taken 5½ mi. S Moyahua, three each on 26 and 30 June 1967. No reproductive data were recorded for two adult females prepared as museum skins; of two other females (preserved in spirits), one contained a single embryo that measured 23 in crown–rump length and the second had enlarged mammary glands. The forearms of two males and four females, all adults, measured 40.3, 40.0, 40.4, 41.7, 42.0, and 40.6, respectively.

Chiroderma salvini scopaeum Handley, 1966.—Five males (112186–90) of this comparatively rare white-lined bat were netted 5½ mi. S Moyahua in late June of 1967. Forearms of three adults and two young individuals measured, respectively, 47.5, 45.3, 44.6, 44.3, and 44.8. *C. s. scopaeum* has been reported previously from the states of Chihuahua, Colima, Guerrero, Jalisco, Nayarit, and Sinaloa (Handley, 1966: 298).

Desmodus rotundus murinus Wagner, 1840.—The only previous report of this species from Zacatecas was based on a pregnant female from 2 mi. NNE Jalpa, 4700 ft, that was listed by Cockrum (1956: 491) in a paper on reproduction in North American bats. This specimen was one of a series of 31 vampire bats (39574–94, 39596–605) collected by J. R. Alcorn on 27 October 1950. Included in the series in addition to the pregnant female were 14 nonpregnant adult females, five young females, nine adult males, and two young males. A nonpregnant female (108884) was netted by P. L. Clifton on the evening of 11 September 1966 just south of Santa Rosa along with individuals of *Artibeus hirsutus*, *A. jamaicensis*, and *Myotis yumanensis*. Later, on 15 September 1966, Clifton visited a large cave located 5½ mi. S Moyahua. In his field notes he wrote that “. . . this cave is about 2 hours walk up the hill from the highway at Santa Rosa. In all the cave we saw nothing but *Desmodus* which we caught by net.” Of 21 vampire bats collected in the cave, two were adult males, nine were nonpregnant females, and 10 (seven males, three females) were young of the year. The average forearm length of the young bats is 57.8 (53.0–62.5).

Myotis californicus californicus (Audubon and Bachman, 1842).—An adult male (57967) obtained 8 mi. S Majoma, 7700 ft, on 26 January 1954 by R. W. Dickerman is

the first specimen of this subspecies to be reported from Zacatecas. The species was known previously from the state on the basis of a single specimen from Hda. San Juan Capistrano assigned to *M. c. mexicanus* by Miller and Allen (1928: 160). Our bat, however, is much paler than specimens of *M. c. mexicanus* from Jalisco and agrees in color with individuals of *M. c. californicus* from Coahuila.

Myotis velifer velifer (J. A. Allen, 1890).—An adult male cave myotis (107473) was shot on the evening of 18 July 1966 as it flew over a stream at a place 6 mi. E Monte Escobedo, 6500 ft. Scattered large trees grew along the stream; surrounding areas for several miles were open grassland.

Myotis yumanensis lutosus Miller and G. M. Allen, 1928.—On the evening of 18 July 1966, Clifton and Genoways netted an adult male (107474) of this species over a stream 6 mi. E Monte Escobedo, 6500 ft, at the same place where the specimen of *M. v. velifer* mentioned above was shot. No other bats were taken in this net. A second male (108939) was obtained 5½ mi. S Moyahua by Clifton on 11 September 1966 (see account of *Artibeus hirsutus*). The forearms of our two specimens measure 33.4 and 33.1, respectively.

Eptesicus fuscus miradorensis (H. Allen, 1866).—Two adult females (107486–87) were shot by Clifton as they flew over a grassy clearing in pine-oak forest at a place 3 mi. NW Monte Escobedo, 8000 ft. The clearing was on a high, cool mesa that lacked standing water. We follow Baker and Greer (1962: 74) in assigning our specimens, which are from the Sierra Madre Occidental, to the subspecies *miradorensis*. Villa-R (1967: 401) reported big brown bats from two other localities in the state under the subspecific name *pallidus*.

Lasiurus ega xanthinus (Thomas, 1897).—On 21 January 1954, R. W. Dickerman obtained two specimens (57968–69) of the southern yellow bat at Concepción del Oro, 7680 ft, in a mist net placed across an irrigation tank. Cultivated crops along with a few fruit trees grew in the area. The net was left in place another night and two additional specimens (57970–71) were caught. *Tadarida brasiliensis mexicana* was the only other kind of bat taken in this net. The four specimens of *L. e. xanthinus* formed the basis of Baker's (1956: 185) earlier report of this species from Zacatecas.

Tadarida brasiliensis mexicana (Saussure, 1860).—On 27 October 1950, four adult female Brazilian free-tailed bats (39730–33) were obtained 5 mi. NE Jalpa by J. R. Alcorn; none evinced reproductive activity. On 21 and 22 January 1954, 16 specimens (11 non-pregnant females and five males) of *T. b. mexicana* (57972–79, 57982, 58878–83) were collected at Concepción del Oro, 7680 ft. These were netted along with the *Lasiurus* mentioned above.

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HUGH H. GENOWAYS AND J. KNOX JONES, JR., *Museum of Natural History, The University of Kansas, Lawrence, 66044. Accepted 14 May 1968.*