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Mimon bennettii.

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Mimon Gray, 1847

Mimon Gray, 1847:14. Type species *Phyllostoma bennettii* Gray.
Tylostoma Gervais, 1856:49. Type species *Phyllostoma crenulatum* É. Geoffroy St.-Hilaire. Not *Tylostoma* Sharpe, 1849, a mollusc.
Anthorhina Lydekker, 1891:647. Type species *Anthorhina*, a renaming of *Tylostoma* Gervais, as restricted by Dobson (1878, pp. 488–491).

CONTEXT AND CONTENT. Order Chiroptera, Suborder Microchiroptera, Family Phyllostomidae, Subfamily Phyllostominae, Tribe Phyllostomini (Baker et al., 1989). The genus *Mimon* is divided in two subgenera with one species each: *Mimon* including the species *bennettii*, and *Anthorhina*, containing the species *crenulatum* (Koopman, 1993). The genus *Mimon* consists of two species (Koopman, 1993), although Jones and Carter (1976) recognized four. A key to the species of *Mimon* as modified from (Hall, 1981) follows (measurements are in mm):

Dorsal color dark, with a longitudinal whitish stripe on back; forearm <54; noseleaf hairy with crenulated sides. Tympanic bullae large (length 3.97–4.46), first premolars inconspicuous ..... *Mimon crenulatum*

Dorsal color brownish, without a stripe on back; forearm >54; noseleaf without hair and smooth on sides. Tympanic bullae small (length, 2.62–2.98), first premolars well developed ..... *Mimon bennettii*

Mimon bennettii (Gray, 1838)

Bennett's Spear-nosed Bat

Phyllostoma bennettii Gray, 1838:483. Type locality: Ypanema (*sic*), São Paulo, Brazil, as restricted by Hershkovitz (1951).
Mimon bennettii Gray, 1847:14. First use of current name combination.
Mimon cozumelae Goldman, 1914:75. Type locality: from Cozumel Island, Quintana Roo, Mexico.

CONTEXT AND CONTENT. Most authors treat *Mimon cozumelae* as a subspecies of *M. bennettii* (Koopman, 1993; Schaldach, 1964). However, some consider the two as different species, because intergradation has not been demonstrated (Jones and Carter, 1976).

DIAGNOSIS. *Mimon bennettii* (Fig. 1) resembles several genera of phyllostomids. However, it is easily distinguishable from *Tonatia* and *Chrotopterus* because of its much larger noseleaf without excrescence in the base (Linares, 1987). One species of little big-eared bat (*Micronycteris daviesi*) is as large as *M. bennettii*, but the former has a smaller and broader noseleaf. Round-eared bats (*Tonatia*) have rounded ears and a shorter noseleaf. *Macrophyllum macrophyllum* is distinguishable from *Mimon* by its smaller size and by the strikingly enlarged feet with well-developed claws. *M. bennettii* differs from *M. crenulatum* by it larger size, lack of a whitish pale brown dorsum, and the presence of small whitish patches behind the ears (Eisenberg, 1989). The noseleaf in *M. crenulatum* is crenulated and covered with hairs along the edges, whereas in *M. bennettii* the edges are naked and smooth. The tympanic bulla of *M. crenulatum* is greater (total length, 3.97–4.46 mm) than in *M. bennettii* (total length, 2.62–2.98 mm). Bennett's spear-nosed bat posseses a well developed first premolar, whereas this tooth in *M. crenulatum* is inconspicuous.

GENERAL CHARACTERS. *Mimon bennettii* is a medium-sized phyllostomid with long, woolly fur. The ears of *M. bennettii* are large and pointed and rather acute. The noseleaf is long, narrow, and spear-shaped with a simple horseshoe. The edges are smooth and naked. The lower lip has a large central wart in the front and series of large oblong transverse warts on the edge. The chin has a small tubercle on each side, separated by a narrow groove (Gray, 1838; 1847). The wings are broad and relatively large, with a broad front margin from the upper part of the ankle. The dorsal color is a pale, warm brown, with individual hairs pale at the base. Hair on the neck is slightly paler and in some specimens these pale hairs extend to the shoulders. The wings and interfemoral membrane are pale brown. The hair of the back is long (ca. 7 mm), but shorther on the abdomen (ca. 5.5 mm). The interfemoral membrane is wide and reaches the base of the feet; the tail is long (ca. 14.5 mm) and completely encased in the first third of the interfemoral membrane. External and cranial measurements (in mm) are: total length, 65–75; length of tail, 15–26; length of ear, 32–38; length of forearm, 54.6–60.7; length of testes, 3–4; greatest length of skull, 25.3–27.4; condylobasal length, 21.8–23.3; zygomatic breadth, 13.3–14.4; postorbital constriction, 4.4–4.7; breadth of braincase, 9.1–10.1; length of maxillary toothrow, 8.9–9.8; breadth across upper molars, 8.6–9.8 (Birney et al., 1974; Carter et al., 1966; Dalquest, 1957; Eisenberg, 1989; Gardner et al., 1970; Genoways et al., 1981; Goodwin, 1969; Hatt and Villa-R., 1950; Hill, 1964; Marinkelle and Cadena, 1972; Swanepoel and Genoways, 1979; Valdez and LaVal, 1971; Villa-R., 1967).

The skull of *M. bennettii* (Fig. 2) is robust and the braincase is elevated above the rostrum. The frontal and the palatine bones are large and slender, with a tight postorbital constriction (ca. 4.5 mm). Basisphenoids are broad and shallow and the sagittal crest is weakly developed. The postorbital process is thin and fragile, with a wide zygomatic breadth (ca. 13.5 mm). The mastoidal breadth is relatively narrow (ca. 11.2 mm). Tympanic bullae are small. Body mass of *M. bennettii* is ca. 25 g. The dental formula is i 2/1, c 1/1, p 2/2, m 3/3, total 30 (Villa-R., 1967).

DISTRIBUTION. *Mimon bennettii* occurs in the lowland tropical rain forests and semideciduous tropical forests from southern Veracruz, Mexico, to northern Colombia (Fig. 3). It is also found from the northern coastal region of Venezuela through Guyanas to southeastern Brazil (Eisenberg, 1989; Koopman, 1983).

FOSSIL RECORD. A mandible of *M. bennettii* (=*cozumelae*) was found in the Spukil cave in Yucatan, Mexico (Hatt et al., 1953). These sediments correspond to the late Pleistocene (Arroyo-C., 1992).

FIG. 1. *Mimon bennettii* from Bacalar, Quintana Roo, Mexico (photograph provided by Héctor T. Arita).

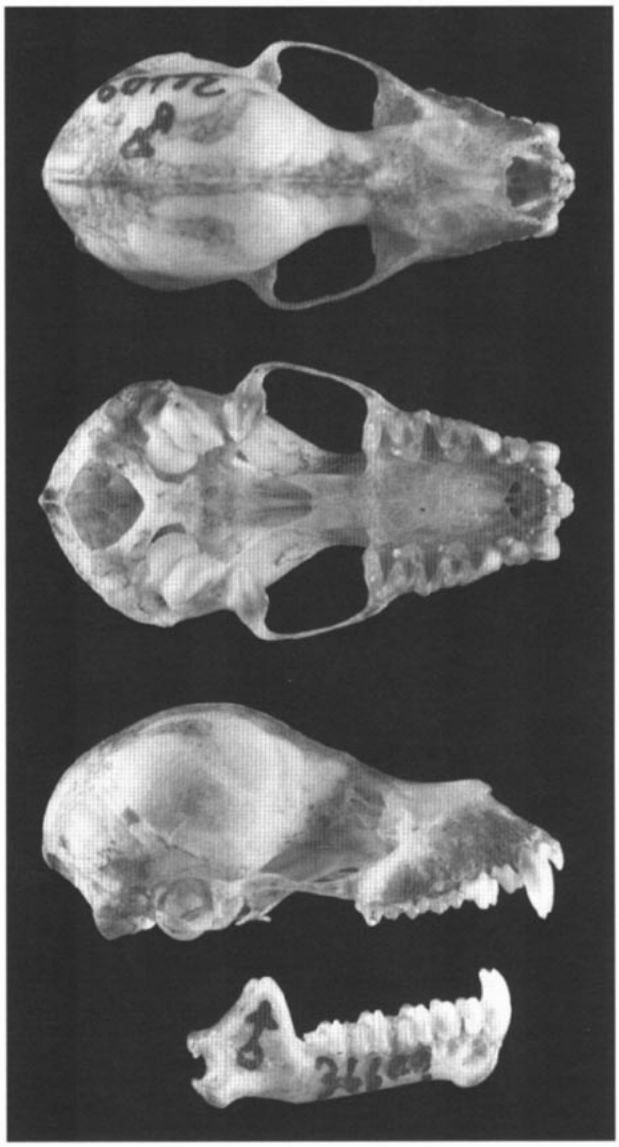

FIG. 2. Dorsal, ventral, and lateral views of cranium and lateral view of mandible of *Mimon bennettii* (Instituto de Biología, UNAM, 36609, male, from 2.3 km SE Escárcega, Campeche, México). Greatest length of skull is 25.1 mm.

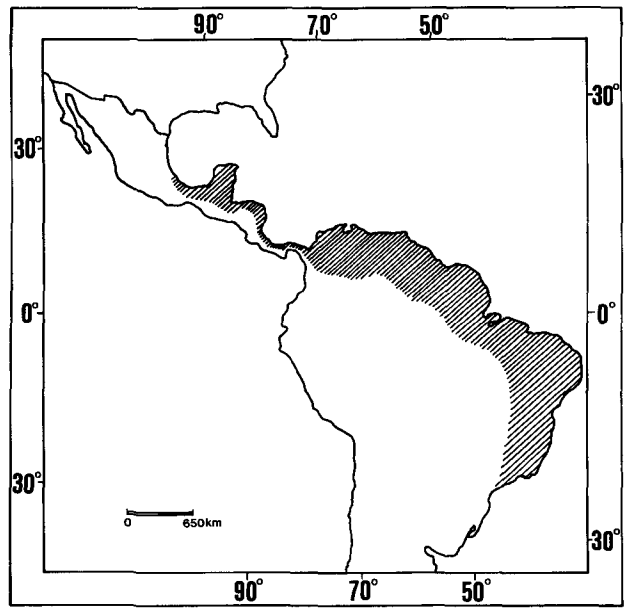

FIG. 3. Distribution of *Mimon bennettii* (Hall, 1981; Koopman, 1983; Eisenberg, 1989).

FORM AND FUNCTION. The anatomy of the brain of the genus *Mimon* was described by McDaniel (1976) as showing general and primitive characteristics of bats with insectivorous habits. The cerebral hemispheres are deep and extremely short, the caudal termination is dorsally anterior to the inferior colliculi, resulting in a dorsal exposure of the precollicular tectum that is unique for this phyllostomid. The cerebellum is simple, with shallow foliations.

The deciduous dentition of *M. bennettii* follows the typical arrangement for the inner upper incisors for the subfamily phyllostominae (Phillips, 1971). The inner upper and lower incisors are larger and more developed than in the other subfamilies. *Mimon*, like other members of the subfamily, has robust teeth with primitive structure. Canines tend to be thick at the base and have notable cingula. The trigonid of the lower molars shows the typical W-shaped appearance (Phillips et al., 1977).

Generally, the genus *Mimon* has the highest aspect ratio compared to other phyllostomatines (overall mean aspect ratio 5.92 mm). However, the aspect ratio of *M. bennettii* is shorter than that of *M. crenulatum* (Smith and Starrett, 1979).

ONTOGENY AND REPRODUCTION. Females of this species apparently produce only one young per year, at the beginning of the rainy season (Wilson, 1979). Two pregnant females were caught in April during the rainy season in Veracruz, Mexico; one had a fully developed embryo (Hall and Dalquest, 1963). In the Yucatan peninsula, Mexico, 18 females were taken with a single embryo each (crown-rump length 20–33 mm; Jones et al., 1973). Lactating females and juveniles were caught in the rainy season (May to September) in several Middle American countries (Goodwin, 1942; Navarro, 1982; Rick, 1968; Valdez and LaVal, 1971).

ECOLOGY. Bennett's spear-nosed bats live in a great variety of tropical habitats. They have been caught in disturbed and undisturbed sites along the Yucatan peninsula, Mexico (Fenton et al., 1992; Winkelman, 1962). *M. bennettii* was captured in several Middle American countries in nets streched over streams inside primary tropical rainforest (Carter et al., 1966; Handley, 1966; Jones, 1966; Medellín, 1986). The recapture rate was over 75% at La Selva in Costa Rica (n = 8), with a mean recapture interval of 49 days at a mean recapture distance of 299 m (LaVal and Fitch, 1977).

Reported ectoparasites for this species include mites such as trombiculids (*Trombicula* sp., *Whartonia nudosetosa*, and *Loomisia desmodus*), and one spinturnicid (*Periglischrus dusbabeki*—Webb and Loomis, 1977; Wolfgang and Polaco, 1985). *M. bennettii* is also the host of an endoparasitic *Trypanosoma cruzi*-like form (Ubelaker et al., 1977).

Mimon bennettii is included in the guild of insect-foliage gleaners (Humphrey et al., 1983; LaVal and Fitch, 1977). In the Yucatan peninsula, Mexico, an individual with a mass of 22 g was caught carrying a 1.5 g lizard, and another individual (23 g) was mist netted while carrying a 1.4 g grasshopper (Fenton, 1992). Several Bennett's spear-nosed bats were noted flying around a half-spoiled orange, suggesting that the bats eat the fruit, fermented juice, and the insects attracted to it (Dalquest, 1957). Droppings of *Mimon* have a strong odor resembling the droppings of owls and hawks, suggesting that this species is somewhat carnivorous (Hall and Dalquest, 1963). Gardner (1977), based on Dalquest (1957), reported that *M. bennettii* eats fruit and insects. Remains recorded from fecal pellets of four *M. bennettii* included beetles, corn, and birds (Whitaker and Findley, 1980).

Bats of this species roost principally in caves, mines, culverts, and hollow logs (Tuttle, 1976). They form small colonies of fewer than 10 individuals (Arita, 1993*a*; LaVal, 1977). Bennett's spear-nosed bat has been classified as a segregationist species because it normally roosts in caves with few other species. Species that have been reported sharing roosts with *M. bennettii* include *Artibeus jamaicensis, Carollia perspicillata, Desmodus rotundus, Diphylla ecaudata, Glossophaga soricina, Micronycteris megalotis, Mormoops megalophylla, Myotis keaysi, Natalus stramineus, Peropteryx macrotis, Pteronotus davyi*, and *Pteronotus parnellii* (Arita and Vargas, 1995; Jones et al., 1973). *M. bennettii* was considered

locally rare but with a wide distribution when compared with other Neotropical bats (Arita, 1993*b*).

GENETICS. The karyotype of *M. bennettii* has a fundamental number of 56, and a diploid number of 30. The X chromosome is a medium-sized metacentric and the Y-chromosome is minute. This species has a polymorphism in the fifth largest pair of autosomes, likely due to a pericentric inversion (Baker et al., 1981).

The G- and C-banding patterns of different genera of phyllostomid bats show that the genus *Mimon* is part of the *Tonatia-Mimon-Phyllostomus* group. This group is characterized as sharing four synapomorphic Robertsonian fusions and one synapomorphic inversion (Patton, 1976).

REMARKS. Chromosomal races are uncommon in phyllostomid bats. Therefore genetic data would suggest that *M. bennettii* (2n = 30; FN = 56) and *M. cozumelae* (2n = 34; FN = 60) might be specifically distinct (Baker et al., 1981).

The generic name *Mimon* comes from the Greek word *mimo* (= imitator; Alvarez-Castañeda and Alvarez, 1996). The specific name *bennettii* is the latin derivation of Bennett, a zoologist in whose memory the spear-nosed bat was named (Gray, 1938).

The holotype of *M. bennettii cozumelae* was collected by G. F. Gaumer in the early 1900s; this specimen does not have precise collecting data attached to it. Because this species has not been obtained by subsequent collectors on Cozumel Island, the holotype probably was collected somewhere else (Jones et al., 1973).

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