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Macrophyllum macrophyllum

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Macrophyllum Gray, 1838

Macrophyllum Gray, 1838:489. Type species *Macrophyllum nieuwiedii* Gray, 1838, by monotypy.

Dolichophyllum Lydekker, 1891:673. Type species *Phyllostoma macrophyllum* Schinz, 1821, by designation Miller, 1907:127 (see also Vieira, 1942:311).

Dolychophyllum Trouessart, 1904:110, a variant spelling.

CONTEXT AND CONTENT. Order Chiroptera, Family Phyllostomatidae, Subfamily Phyllostomatinae. The genus *Macrophyllum* is monotypic.

Macrophyllum macrophyllum Schinz, 1821

Wied's Long-legged Bat

Phyllost[oma] macrophyllum Schinz (not Wied), 1821:75. Type locality Mucuri River, Minas Geraes, Brasil (Wied, 1826). Husson (1962:8) showed that the specific description cannot be attributed to Wied.

Macrophyllum Nieuwiedii (*sic*) Gray, 1838:489. Type locality Brazil.

Macrophyllum macrophyllum, Nelson, 1912:93, first use of current name combination.

CONTEXT AND CONTENT. Context noted in the generic summary above. *Macrophyllum macrophyllum* is monotypic. Avila-Pires (1965) did not find any original specimen, nor has a type ever been selected.

DIAGNOSIS. This diagnosis is for the genus and species. The tail is long, continued to distal border of broad interfemoral membrane; the latter is studded on its ventral aspect distally with longitudinal rows of projecting dermal denticles. The legs are long, the feet strikingly enlarged, with powerful claws, each foot with claws subequal in length with the tibia. The ears are separate and slightly longer than the head; the tragus is long and acuminate (figure 1). The noseleaf is prominent, lanceolate, with a median ridge. The wing membrane arises from the distal extremity of the tibia. The skull has a short rostrum (figure 2); rostral length is less than the breadth of the high braincase. The nares are emarginate laterally and above, exposing a flattish area over the incisor roots. The basioccipital pits are obsolete, the tympanic bullae small. The dentition is essentially as in *Micronycteris*, but the anterior upper premolar is small, not much larger than the outer upper incisor, and the middle lower premolar is minute and crowded inward so that the first and third are almost in contact (figure 3). The upper incisors completely fill the space between the canines, those of the middle pair much larger than the outers. Overall size is small, the forearm measuring 34 to 39 mm, greatest length of the skull 16.3 to 17.5 mm, and maxillary cheekteeth (canine through molars) 5.2 to 5.8 mm.

GENERAL CHARACTERS. A small, slender phyllostomatid bat, readily distinguishable from all others by the peculiar development of the posterior extremities and tail membrane. General color Prout's Brown, the hairs becoming paler toward the base, underparts scarcely paler than back; wings and interfemoral membrane naked (Goodwin, 1946). Husson (1962) gave diagnostic features in his key to the Suriname Phyllostomatinae and figured the facial characteristics and anterior dentition as well as a diagrammatical representation of the tail membrane. Felten (1956) gave a general description and figured the head. Miller (1907) gave brief diagnostic characters of the genus and further details were furnished by Goldman (1920). Gervais (1855) figured the skull and dentition and provided a plate showing the general form. Walker *et al.* (1964) gave photographs of the skin and skull and reproduced Goodwin's (1946) figure of the head. Dobson (1878) figured the anterior dentition; Wied (1826) briefly described the tongue as part of a general description and provided a good color plate of the ventral aspect and figure of the noseleaf. Vieira (1942) also included a general description and figure of the species. Vaughan (1970) described the dactylopatagium minus, which is of the narrow, heavily pigmented type. The palate has been described and figured by Harrison and Pendleton (1975). A weight of 6 to 9 g was given for this species by Walker *et al.* (1964). Linares (1966) discussed the pelvic structure and figured the skull and dentition.

DISTRIBUTION. Details given are as complete as possible from the literature and available material (figure 4). The species was first found in Brazil, at Rio Mucuri, in Minas Geraes (the type locality) and in Bahia (Gervais, 1855); later Brazilian records are from Ititinga, Rio Doce (Vieira, 1942);

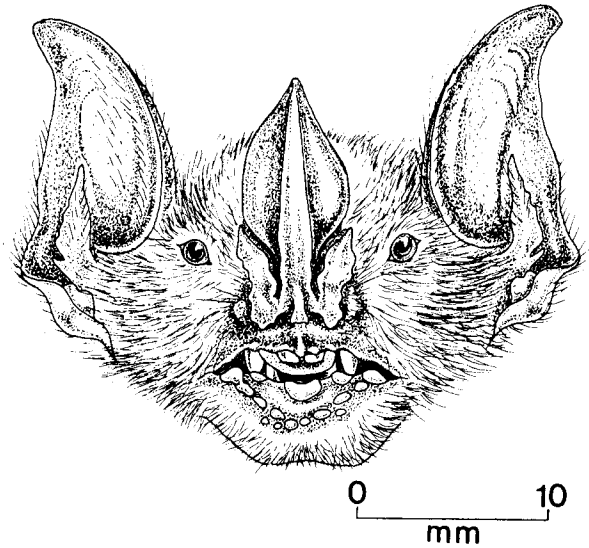

FIGURE 1. Head of *Macrophyllum macrophyllum* from a specimen in spirits in the Harrison Zoological Museum (HZM 13.7502 ♂ N. of Acajutla, El Salvador). Drawn by D. L. Harrison.

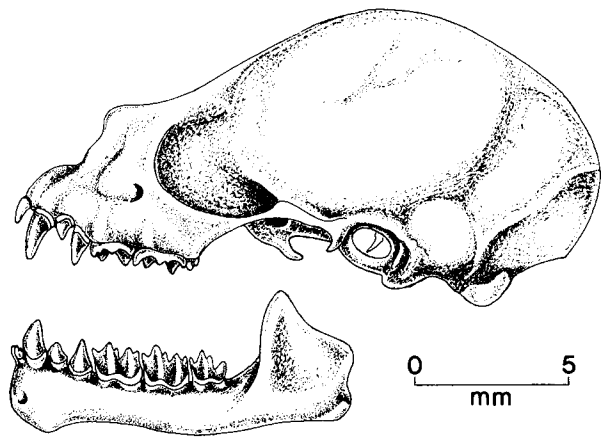

FIGURE 2. Lateral view of skull and mandible of *Macrophyllum macrophyllum* from a specimen in the Harrison Zoological Museum (HZM 5.7030 ♂ N. of Acajutla, El Salvador). Drawn by D. L. Harrison.

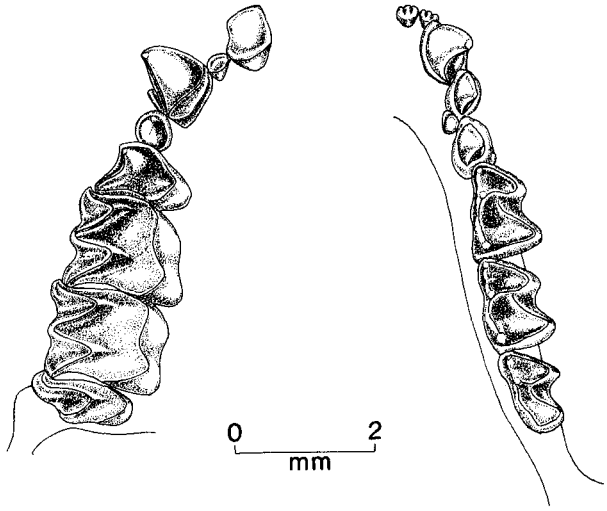

FIGURE 3. Occlusal views of right maxillary dentition (on left) and right mandibular dentition (on right) of the same specimen as in Figure 2. Drawn by D. L. Harrison.

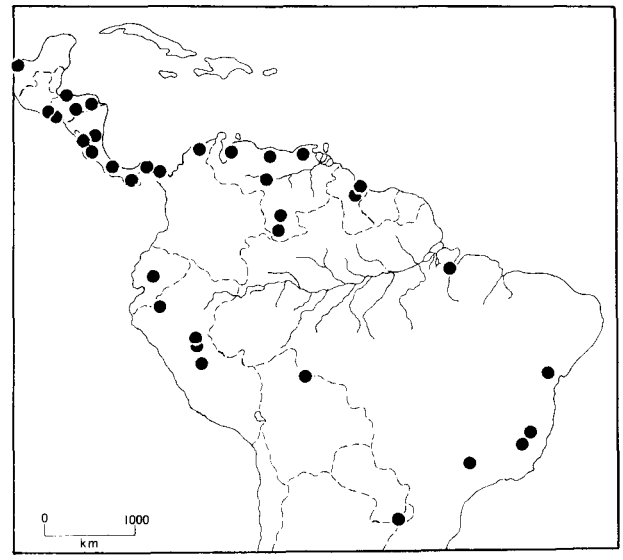

FIGURE 4. Distribution of *Macrophyllum macrophyllum* in Central and South America. Symbols indicate localities of known occurrence, which are listed in text.

Emas, in São Paulo (Vieira, 1955); Ilha do Taiuna, Rio Tocantins, in Para (American Museum of Natural History no. 97252).

M. macrophyllum has been reported from scattered localities in northern South America. Localities in Perú are San Jeronimo, Río Ucayali (Thomas, 1928), Yarinacocha (Sanborn, 1949), and Río Cenipa and San Juan (Tuttle, 1970). A locality in Ecuador is Putsu (Hill and Bown, 1963). It was found in Bolivia at the mouth of Río Baures, in the Beni (AMNH 209320–21). A report from Surinam includes no exact locality (Husson, 1973). For Guyana (British Guiana) reports are from Georgetown (Quelch, 1892; Anthony, 1921), no locality (Goodwin, 1946), and 24 miles from Bartica on Potaro Road (Hill, 1964). Venezuelan localities are Lagunillas (Handley, 1957), and El Merey and 2 km from La Esmeralda, in Amazonas, Lago de Valencia, in Carabobo, Cueva del Guachero, in Monagas, and Laguna de Macupino, in Apure (Linares, 1966). Reports for Colombia are Bonda (Allen, 1900) and no precise locality (Sanborn, 1949; Vieira, 1942; Trouessart, 1904; Aellen, 1970).

The species extends south to San Ignacio, in Misiones, Argentina (Fornes *et al.*, 1969), and north into Central America. It has been found in Panamá at Ruins of Old Panamá (Nelson, 1912; Goldman, 1921), sea cave and near Borinquen Dam (Bloedel, 1955), Jaqué and Boca de Río Paya, in Darién, Armila and Puerto Obaldía, in San Blas, Chepo, Pacora, Cerro Azul, and Panamá Viejo, in Panamá, Madden Dam, Fort Gulick, Fort Davis, and Salamanca Hydrographic Station, in the Canal Zone, Cerro Hoya, in Los Santos, and Almirante and 12 km SSW Changuinola, in Bocas del Toro (Handley, 1966), 2 mi. S San Francisco, in Verguas (Davis *et al.*, 1964), and Balboa and Cristobal, in the Canal Zone (Fleming, 1973).

Reports from farther north in Central America are from Costa Rica, no exact locality (Vieira, 1955), Río Colorado, in Guanacaste, and Finca La Lola, in Limon (Starrett and Casebeer, 1968). For Honduras, localities are Río Sicre, in Colon (Handley, 1957), Río Coco, 76 mi. E Danli (Davis *et al.*, 1964), and Lancetilla (Valdez and LaVal, 1971); for El Salvador, Cueva Hedionda (Felten, 1956; Burt and Stirton, 1961), and N of Acajutla, in Sonsonate (Harrison and Pendleton, 1975). It has also been found in Nicaragua at 2 km NE San Juan del Sur, in Rivas (Jones, 1964), and Cacao, in Zelaya (Davis *et al.*, 1964). In southern Mexico it is known from 2.75 mi. SE Teapa, in Tabasco (Lay, 1962).

ECOLOGY. Thomas (1928) reported one caught in Perú on a tree trunk over water. Felten (1956) obtained five males in a cave near the Pacific coast in El Salvador in December. Bloedel (1955) found the species somewhat solitary in Panamá, where he found two or three hanging singly in a sea cave with a few *Desmodus*. Goldman (1920) also found a colony in a vaulted cellar in the ruins of Old Panamá, which they were sharing with a large colony of *Carollia perspicillata* and *Glossophaga soricina*. Línares (1966) noted association with *Peropteryx macrotis* and *Diphylla ecaudata*. A colony north of Acajutla in El Salvador inhabited a water culvert beneath the Guatemala road (Harrison and Pendleton, 1975). This consisted of two parallel pipes, about five feet in diameter and some 50 m long; their dark interior opened at each end into a deep bushy gully, which floods in wet weather. The bats moved freely from one pipe to the other when disturbed in daylight and were caught in a hand net and also in a mist net suspended across the pipe entrance. In this culvert they were found with *Glossophaga soricina* and *Carollia subrufa*. Both sexes of *Macrophyllum* were found in the colony on 13 October 1972, on 16 June 1973, and again on 16 October 1973. According to Walker *et al.* (1964), C. O. Handley, Jr. (1966) had recently taken more than 40 specimens in Panama, where the species was found in a variety of habitats including rain forest and tropical deciduous forest. It was caught there in mist nets placed over streams as well as in road culverts. In Ecuador, two specimens were taken in a deserted Indian hut (Hill and Bown, 1963). Starrett and Casebeer (1968) found *Macrophyllum* in an irrigation tunnel in Costa Rica, along with numerous *Carollia* and *Pteronotus parnellii*. Peracchi and Albuquerque (1971) also noted association with *Carollia perspicillata* and *Glossophaga soricina* in Brazil. Greenhall and Paradiso (1968) noted *Macrophyllum* as roosting in caves, buildings, and culverts.

The peculiar anatomy of the posterior extremities, somewhat reminiscent of the fish-eating bats *Noctilio* and *Pizonyx*, makes the diet of the species a matter of special interest. Bloedel (1955) stated that his only captive died after two days with fruit available. Quelch (1892) speculated that this species possibly supplements its usual insect diet with occasional tastes of the blood of animals. Wied (1826) stated that he found remnants of insects in the stomachs. Davis *et al.* (1964) first suggested the possibility of aquatic hunting. Stomach contents of specimens obtained in El Salvador by Harrison and Pendleton (1975) consisted entirely of finely chewed insect remains. Microscopical examination revealed wing fragments, probably lepidopterous and dipterous, and many lepidopterous wing scales, confirming that much of the diet consists of aerial insects, although the possibility of some form of aquatic hunting cannot be considered excluded.

REPRODUCTION AND DEVELOPMENT. A female obtained north of Acajutla in El Salvador on 13 October 1972 was pregnant, its single embryo measuring 18 mm in crown-rump length (Harrison and Pendleton, 1975). Another, obtained on 16 October 1973 at the same locality, also bore a single foetus, crown-rump length 17.5 mm, described by Harrison and Pendleton. Although still quite small, the feet and claws of this embryo already measured 8 mm, exactly equal to its forearm length and almost half its crown-rump length. The peculiar nodules on the tail membrane were already present. Testes of males obtained on 16 October in this colony mea-

sured 4.6 to 5.1 mm, whereas a single male obtained on 16 June had testes measuring 5.7 mm. Felten (1956) considered three of the males collected by him in El Salvador in December to be sexually active ("brunstig").

REMARKS. I wish to express here my special thanks to Mrs. N. Pendleton, whose assistance in obtaining material of this unique species for the Harrison Zoological Museum resulted in the detailed study summarized herein. Dr. Gordon Bradshaw provided most helpful notes and suggestions, with invaluable citations from the literature, and J. E. Hill, of the Mammal Section, British Museum (Natural History), also has given most helpful advice with taxonomic problems.

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