

DISTRIBUTIONAL NOTES AND RECORDS FOR  
MIDDLE AMERICAN CHIROPTERA

A growing interest in Neotropical bat faunas has prompted the publication in recent years of several papers updating information on distributional patterns, species associations, and ecological affinities. These include Greenbaum and Jones (1978) for El Salvador, Honduras, and Nicaragua, LaVal (1977), Starrett (1976), and Gardner et al. (1970) for Costa Rica, and Baker and Jones (1975) for Nicaragua. A checklist of the bats of México and Central America has been compiled by Jones et al. (1977). Chiropterans we collected between 8 July and 18 August 1977 in Middle America further extend our knowledge of species distribution and habitat preference, and form the basis of this paper. Four species are reported for the first time from Guatemala, four from Honduras, and one species and one subspecies are reported as new to the fauna of Nicaragua. Distributional notes and comments are included for six additional taxa.

In the accounts that follow, specimens deposited in The Museum, Texas Tech University, are denoted by the prefix TTU; those in the Texas Cooperative Wildlife Collection, Texas A&M University, by TCWC.

**Balantiopteryx plicata plicata** Peters, 1867.—HONDURAS. *Choluteca*: Río Nacaome, Pespire, ca. 150 m, 1 ♀ (TTU 29226). This reproductively inactive female netted 25 July on the Río Nacaome is the first record of Peters' sac-winged bat from Honduras. *B. plicata*, although obviously common and widespread throughout Central America, apparently has gone unreported from Honduras. This oversight probably stems from Goodwin's (1942) inclusion of *B. plicata* in his list of Honduran mammals. His account, however, clearly refers only to specimens from México, Guatemala, and Costa Rica, although he was undoubtedly implying that the species was a likely resident within the country inasmuch as it was known from east and west of Honduras. See the account for *Myotis albescens* for additional species taken at this locality.

**Noctilio albiventris minor** Osgood, 1910.—GUATEMALA. *Santa Rosa*: Río Margarita, 10 km S, 14 km E Chiquimulilla, 100 m, 1 ♀ (TTU 29232). This reproductively inactive female was netted over the Río Margarita on 15 July. Our specimen extends the known range of *N. albiventris* in Middle America northwestward along the Pacific versant from the vicinity of Rivas, Nicaragua; in Honduras, this species is known only from the Caribbean versant (Davis, 1976). Although we encountered *N. albiventris* in the dry tropical forest of Guanacaste, Costa Rica, we suspect that this species occurs principally in the mesic tropical habitats of Middle America and that its distribution is not continuous along the Pacific coast from Guatemala to Rivas. Selected measurements for the Guatemalan specimen appear in Table 1. Other species of bats taken with *N. albiventris* on the Río Margarita are *Rhynchonycteris naso*, *Uroderma bilobatum*, *U. mag-nirostrum*, *Myotis fortidens*, *Lasturus ega*, *Molossus ater*, and *M. molossus*.

**Pteronotus gymnonotus** (Wagner, 1843).—COSTA RICA. *Guanacaste*: Río Liberia, 1.0 km SW Liberia, ca. 150 m, 1 ♀ (TTU 29239). *P. gymnonotus* is a poorly known monotypic species recorded in Central America only from scattered localities, all in essentially mesic forest habitats. Although previously reported from Costa Rica (Sanborn, 1932; Starrett and Casebeer, 1968; Smith, 1972), no specimens are known from outside southeastern Puntarenas, the country's southernmost province. Our specimen, a lactating female, was netted on 12 August over a small, shallow, and open pond formed by the damming of the Río Liberia. It provides the first record of the big naked-backed bat from northern Costa Rica; more importantly, it appears to be the first specimen taken in a Central American dry tropical forest. Collected also from this pond were eight *Molossus pretiosus*, one male *Noctilio leporinus*, and a female *N. albiventris*.

**Artibeus inopinatus** Davis and Carter, 1964.—HONDURAS. *Choluteca*: Pespire, ca. 150 m, 2 ♂♂, 1 ♀ (TTU 29247–29249). *Morazán*: 0.3 mi SE Sabana Grande, 1,100 m, 1 ♂ (TTU 30484). *Valle*: 10 mi SSW Nacaome, ca. 100 m, 38 ♂♂, 41 ♀♀ (TTU 28101–28149; 30454–30483); 6 km E Amatillo, ca. 50 m, 15 ♂♂, 3 ♀♀ (TCWC 18379–18380, 18382–18386, 18390–18391, 18397–18405). Since this species was described (Davis and Carter, 1964), an accumulation of additional material, listed above, indicates that *A. inopinatus* is restricted to a thorn-scrub habitat extending from western El Salvador across the southern Honduran lowlands into Nicaragua, where it occurs between the low Pacific coastal range and central highlands as far as northern Lake Nicaragua. The female caught on 25 July at Pespire was lactating.

**Myotis albescens** (É. Geoffroy St.-Hilaire, 1806).—HONDURAS. *Choluteca*: Río Nacaome, Pespire, ca. 150 m, 1 ♀ (TTU 29299). This pregnant female, mist-netted on 25 July over the Río Nacaome, carried a fetus measuring 19 mm in crown-rump length. Our specimen verifies the

TABLE 1.—Mean values in mm (followed by range in parentheses) of external and cranial measurements for selected species. Locality designations are as follow. 1) Costa Rica: Alajuela; Cinchona. 2) Guatemala: Santa Rosa; Río Margarita. 3) México: Chiapas; 6 km E Cintalapa. 4) Nicaragua: Zelaya; Rama. 5) Nicaragua: Boaco; Río Los Cocos. 6) Panamá: Chiriquí; Alanje.

Local-ity	Sex	N	Forearm	Condylobasal length	Zygomatic breadth	Maxillary toothrow	Greatest breadth across molars
<i>Noctilio albiventris minor</i>							
2	♀	1	61.1	18.4	14.2	7.4	9.2
<i>Eptesicus furinalis carteri</i>							
5	♂	2	40.3 (40.1–40.4)	15.1 (14.8–15.3)	10.6 (10.4–10.8)	5.7 (5.6–5.8)	6.2 (6.2–6.3)
5	♀	9	41.6 (40.2–42.8)	15.3 (14.8–15.5)	10.8 (10.5–11.3)	5.7 (5.4–5.9)	6.5 (6.3–6.9)
4	♀	3	41.0 (40.3–42.2)	15.1 (15.0–15.2)	10.7 (10.4–10.9)	5.7 (5.6–5.8)	6.5 (6.4–6.7)
<i>Eumops bonariensis nanus</i>							
6	♂	1	39.6	15.6	9.8	5.9	6.5
6	♀	1	42.8	15.8	10.2	6.0	7.0
<i>Eumops u. underwoodi</i>							
4	♂	3	73.3 (71.4–75.6)	29.3 (28.9–29.6)	18.8 (18.5–19.1)	11.8 (11.5–12.0)	12.5 (12.3–12.7)
4	♀	9	73.4 (70.1–76.3)	29.0 (28.4–29.5)	18.4 (18.2–18.9)	11.8 (11.6–12.1)	12.4 (12.1–12.5)
3	♀	3	70.8 (67.7–72.7)	28.7 (27.9–29.5)	18.1 (17.6–18.6)	11.6 (11.4–11.9)	12.1 (11.7–12.5)
<i>Tadarida b. brasiliensis</i>							
1	♀	1	44.8	15.9	9.9	6.0	7.0

occurrence of *M. albescens* in Honduras, as reported by LaVal (1973) on the basis of a personal communication from Robert J. Baker. One (TTU 13347 from 12 km N Santa Barbara) of the two specimens referred to by Baker is of this species, the other is not. Pespire is situated in a thornscrub association, an unlikely environment for *M. albescens* in Middle America, although, in South America, LaVal reported that this species seemed to occupy a variety of lowland vegetative zones. Other species taken at this locality are *Balantiopteryx plicata* and *Artibeus inopinatus*.

**Myotis fortidens fortidens** Miller and G. M. Allen, 1928.—GUATEMALA. Santa Rosa: Río Margarita, 10 km S, 14 km E Chiquimulilla, 100 m, 1 ♀ (TTU 29301). Prior to the capture of this reproductively inactive female on 15 July over the Río Margarita, the southernmost locality for *M. fortidens* was 10 mi S Zapaluta in southern Chiapas (Findley and Jones, 1967). Our specimen was taken at a locality more mesic than is common for the species. For a listing of the other species collected along the Río Margarita, see the account for *Noctilio albiventris minor*.

**Myotis velifer velifer** (J. A. Allen, 1890).—GUATEMALA. Huehuetenango: 1 km N, 1 km E Aguacatán, 1,670 m, 1 ♂ (TTU 29300). A single male of this species was netted together with specimens of *Molossus molossus aztecus* on 13 July over a small water impoundment. This specimen is reported here because of the proximity of Aguacatán to Cobán, the type locality for a species (*Myotis cobanensis*) still known only from the holotype. Measurements of our specimen fall within the range of values of *M. v. velifer* as reported by de la Torre (1958).

**Eptesicus furinalis carteri** Davis, 1965.—NICARAGUA. Zelaya: Rama, 25 m, 4 ♂♂, 15 ♀♀ (TTU 29279–29295). Distributional data available to Davis (1965) indicated that this subspecies was restricted to the wet tropical forest of the Caribbean slope of western Panamá and Costa Rica. It now appears that the range of *E. f. carteri* extends northward in the lowland coastal regions of Nicaragua, perhaps as far north as Cabo Gracias da Dios in eastern Honduras. *Eptesicus f. gaumeri* was reported (Davis, 1965; Jones et al., 1971) from the Pacific side of Nicaragua, and, based on three lactating females (TTU 29276–29278) taken on the Río Los Cocos, Boaco, 27 July, apparently intergrades with *carteri* along the low northern Cordillera Chontaleña, which divides the country into wet and dry habitats (see selected measurements in Table 1). Nine of the 15 females collected 29 July from Rama were lactating, the remainder appeared reproductively inactive; two males were obvious juveniles whereas two others were young adults of less than one year of age. Listed under the account for *Molossus bondae* are additional species collected at this locality.

**Lasiurus ega panamensis** (Thomas, 1901).—GUATEMALA. Santa Rosa: Río Margarita, 10 km S, 14 km E Chiquimulilla, 100 m, 1 ♀ (TTU 29298). A nonreproductive female taken 15 July in a mist net set over the Río Margarita is the first record of the southern yellow bat from Guatemala. It was collected with the species listed in the account for *Noctilio albiventris*. This widespread species would appear to be more common than the records indicate.

***Eumops bonariensis nanus* (Peters, 1874).**—PANAMA. Chiriquí: Alanje, ca. 100 m, 1 ♂, 1 ♀ (TTU 29307, 29308). Handley (1966) referred to this species as rare in Panamá and listed a single specimen from Boquerón (8°31'N, 82°34'W) and two from Bugaba (8°29'N, 82°37'W), all within the department of Chiriquí. Eger (1977) added a fourth specimen and third locality, Tolé (8°16'N, 81°40'W) in Veraguas; however, these coordinates appear to correspond to a town by the same name that is situated in the department of Chiriquí. Our specimens, a male and female taken on 9 August in mist nets set outside a church in Alanje, provide the only other known record of this species in Panamá (selected measurements are given in Table 1). The Tolé specimen aside, *Eumops bonariensis* appears to have a very limited distribution in Panamá that is restricted primarily to the xeric coastal lowlands along the drainage of the Río Piedras and Río Chiriguá in southwestern Chiriquí.

***Eumops underwoodi underwoodi* Goodwin, 1940.**—NICARAGUA. Boaco: Río Los Cocos, 14 km S Boaco, 100 m, 3 ♂♂, 9 ♀♀ (TTU 29309–29320). Our specimens, mist-netted 27 July over calm water on the Río Los Cocos, constitute the first record from Nicaragua. All females were lactating; testicular length for the three males was 14, 13, and 13 mm. The Nicaraguan sample extends the known range of *E. u. underwoodi* approximately 312 km southward from El Pedrero in La Paz, Honduras. External and cranial measurements presented in Table 1, along with similar data for three individuals from Chiapas, México, and those given by Eger (1977), suggest that a clinal increase in size occurs from north to south in this subspecies.

***Tadarida brasiliensis brasiliensis* (I. Geoffroy St.-Hilaire, 1824).**—COSTA RICA. Alajuela: Cinchona, 1,000 m, 1 ♀ (TTU 29870). This individual was mist-netted beside an old building in Cinchona, a small village approximately 2 km S Cariblanco. It was taken first in the city of San José (Goodwin, 1946) and last reported by Starrett and de la Torre (1964), based on material collected in 1957. Subsequent visits by D. C. Carter in 1960 and 1963 to the localities given by these authors failed to yield additional specimens. Considering the time devoted by various researchers in recent years to the study of Costa Rica's chiropteran fauna (Starrett and Casebeer, 1968; Armstrong, 1969; Gardner et al., 1970; Starrett, 1976; LaVal, 1977), it is noteworthy that *T. brasiliensis* appears to have gone unreported during the last 20 years (see Table 1 for selected measurements).

***Molossus bondae* J. A. Allen, 1904.**—HONDURAS. Colón: Brus Laguna, ca. 5 m, 4 ♀♀ (TCWC 24584–24587). NICARAGUA. Zelaya: Rama, 25 m, 4 ♂♂, 12 ♀♀ (TTU 29534–29549). These localities, and those reported by Miller (1913) for Graytown, Nicaragua, Gardner et al. (1970) and LaVal (1977) for Costa Rica, and Handley (1966) for Panamá, indicate that *M. bondae* is restricted to the wet Caribbean tropical forests of Central America from eastern Honduras south and thence eastward into South America. According to LaVal (1977), Honduran specimens reported by Goodwin (1942) are not of this species. Previous to our report, *M. bondae* was known with certainty only as far north as Graytown (=San Juan del Norte) near the Nicaraguan-Costa Rican border. Our specimens from Rama are similar in size to those taken in the vicinity of Turrialba, Costa Rica; those from Brus Laguna are somewhat larger than others that we have examined from Central America, but they are smaller than examples of *M. pretiosus* from Nicaragua and Costa Rica. Of 12 females taken at a church in the center of Rama on 29 July, seven carried fetuses (20–28 mm in crown-rump length), one was lactating and pregnant (fetus = 25 in crown-rump length), two were lactating, one was postlactating, and one (an adult female of less than one year in age) was reproductively inactive. Reproductive information on the 80 or more species of molossid bats is scant, but at least two species of *Eumops* (*auripendulus* and *glaucinus*) and four of *Molossus* (*bondae*, *molossus*, *pretiosus*, and *sinaloae*) are known to be polyestrous on occasion (see accounts for *M. molossus* and *M. pretiosus* in this paper; Carter, 1970; LaVal and Fitch, 1977). Other bats taken also in nets set at the church in Rama are *Noctilio albigentris minor*, *Glossophaga* sp., *Eptesicus furinalis carteri*, *Rhogeessa tumida*, and *Molossus sinaloae*; one *Myotis nigricans* was found dead on the floor of the church beneath a portion of the roof obviously used as a roost.

***Molossus molossus aztecus* Saussure, 1860.**—GUATEMALA. Huehuetenango: 1 km N, 1 km E Aguacatán, 1,670 m, 1 ♂, 1 ♀ (TTU 29570, 29569); Santa Rosa: Río Margarita, 10 km S, 14 km E Chiquimulilla, 100 m, 5 ♂♂, 3 ♀♀ (TTU 29571–29577, 29550). EL SALVADOR. Cuscatlán: Suchitoto, 200 m, 2 ♀♀ (TTU 29552, 29553); Sosonate: La Libertad, 5 m, 2 ♂♂, 2 ♀♀ (TTU 29565–29568). This species, previously unreported for Guatemala, was netted over a water impoundment near Aguacatán in the west-central highlands and on the Río Margarita in the Pacific lowlands of southeastern Guatemala. The first locality lies in a xeric valley between the Cuchu-

mantanes and the Sierra de Chuacus; the second is situated in a mesic forest habitat, much of which had been cleared for pasture or other agricultural use. Following Jones et al. (1977), we tentatively refer the specimens to the subspecies *aztecus* although individuals from the two Guatemalan localities appear to differ somewhat in size and general coloration of the pelage. Our specimens from coastal Guatemala are smaller than those of Gardner's (1966) *Molossus aztecus lambi* from southern Chiapas and further confuse the relationship of *M. aztecus lambi* to other populations of small *Molossus*. Of the females taken between 13 and 15 July in Guatemala, one from Río Margarita was lactating, the other was reproductively inactive; that from Aguacatán was postlactating. Testicular length in all males examined was 3 mm.

Burt and Stirton (1961) referred to a single male of this species from San Salvador and cited Felten (1957) for the record. Our specimens were collected with large numbers of *Molossus ater* on 16 July on Río Jute in La Libertad and on 18 July from a church in Suchitoto predominantly occupied by *M. ater*. One female was lactating and pregnant (fetus = 16 mm in crown-rump length), and two were nonlactating and carrying single fetuses (20 mm crown-rump length); testicular lengths for three males were 4, 5, and 5 mm.

***Molossus pretiosus* Miller, 1902.**—COSTA RICA. *Guanacaste*: Cañas Dulces, 100 m, 20 ♂♂, 40 ♀♀ (TCWC 10177–10236); 1 km SW Liberia, on Hwy. 21, ca. 150 m, 6 ♂♂, 10 ♀♀ (TTU 29748–29763). This bat, first reported from Central America by Jones et al. (1971), was recorded for Costa Rica only by LaVal (1977). *M. pretiosus* occurs commonly in the dry tropical forest of Guanacaste, Costa Rica, and southwestern Nicaragua, and its distribution in Central America appears to be restricted to this habitat. In South America, *M. pretiosus* is known only from Venezuela. Specimens from Cañas Dulces were taken during 1963 in the attic of a frame church (since demolished); those from near Liberia were netted 12 August 1977 on the Río Liberia. Of 10 females taken near Liberia, two each carried a single fetus (4–22 mm in crown-rump length), four were lactating, one was lactating and pregnant (fetus = 15 mm in crown-rump length), two were postlactating, and one was reproductively inactive. See the account of *Pteronotus gymnotus* for additional species collected at this locality.

***Molossus sinaloae* J. A. Allen, 1906.**—HONDURAS. *Atlantida*: Tela, 5 m, 1 ♂, 1 ♀ (TCWC 14796–14797); *Copán*: Copán, 660 m, 1 ♂ (TCWC 19885); *Cortes*: 1 mi W La Lima, ca. 50 m, 2 ♂♂, 4 ♀♀ (TCWC 11055–11060); NE end Lake Yojoa, 700 m, 14 ♂♂, 23 ♀♀ (TCWC 11018–11054); San Francisco de Yojoa, 400 m, 1 ♂ (TTU 29823); *Francisco*: 10 mi N Talanga, 820 m, 3 ♀♀ (TCWC 11061–11063); *Santa Barbara*: Santa Barbara, 160 m, 3 ♂♂, 9 ♀♀ (TCWC 19889–19900); *Yoro*: Yoro, 720 m, 7 ♂♂, 16 ♀♀ (TTU 29836–29858), 12 ♂♂, 27 ♀♀ (TCWC 19901–19939); 4 mi E Progreso, ca. 50 m, 2 ♀♀ (TCWC 14789, 14799); Santa Rita, ca. 50 m, 5 ♂♂, 7 ♀♀ (TTU 29824–29835). Although *Molossus sinaloae* appears in Goodwin's (1942) list of Honduran mammals, he examined no specimens from the country and appeared to have included an account for this species only because he considered it of probable occurrence. A perusal of the literature indicates that *M. sinaloae* has gone unreported from Honduras with the exception of a reference by Miller (1913) to specimens examined from several Mexican and Central American localities, one of which was Chamalicon (=Chamelecón, Depto. Cortes), Honduras.

The above localities restrict this species in Honduras to the more mesic tropical forests north of the continental divide. Southward, *M. sinaloae* is known from moist lowland forests (but not from dry tropical forest habitats) along both coasts of Nicaragua (Jones et al., 1971), Costa Rica (Armstrong, 1969; LaVal and Fitch, 1977), and Panamá (Handley, 1966). Northward, there is a single record in Guatemala from Bobos, Izabal (Jones, 1966), and it is distributed in México along the Pacific versant from Chiapas to Escuinapa, Sinaloa; it is known also from Yucatán. With the exception of its purported occurrence at Escuinapa (the type locality), data available to us indicate that this species occurs exclusively in mesic tropical habitats. We are at a loss to explain J. H. Batty's capture of a single, old female at Escuinapa, an environment that is decidedly arid and unlike any other from which we have seen specimens of *M. sinaloae*. Subsequent attempts to locate this bat in Sinaloa have failed, and the northernmost recent record of occurrence known to us is Teuchitlán [ca. 800 m], Jalisco, México (Watkins et al., 1972).

Of 25 females collected in Honduras between 21 and 24 July, 12 were lactating, two were postlactating, 12 carried fetuses (14–29 mm in crown-rump length), and two were reproductively inactive. Testicular length noted for one male was 6 mm. Specimens identified above by a TTU prefix were netted at dusk during 1977 around buildings.

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### ADDITIONAL RECORDS OF *HYLOMYSCUS BAERI* HEIM DE BALSAC AND AELLEN (RODENTIA, MURIDAE) FROM WESTERN AFRICA

Heim de Balsac and Aellen (*Biologica Gabonica*, 1:175-178, 1965) described *Hylomyscus baeri* based on two alcoholic specimens from Adiopodoume, Ivory Coast (5°20'N, 4°07'W). A possible third specimen, represented by a dried skin without a skull, from an unknown locality in Ivory Coast also was mentioned. No additional specimens have been reported since the original description.

On 22 October 1967, a field party from the United States National Museum obtained an adult female of *H. baeri* from 6 mi NW Kade, Ghana (6°06'N, 0°05'W). On 21 January 1969, two additional specimens were collected near Blekoum, Ivory Coast (6°23'N, 3°31'E). The purpose of this paper is to describe these specimens and discuss how they differ from the holotype, and, thereby, to add to our meager knowledge of variation within the species.

The three specimens are characterized externally by pure white ventral pelage separated from the darker pelage of the dorsum by a buff-colored line, much as in *Thamnomys* and *Grammomys*. The dorsum in the two specimens from Ivory Coast is a yellowish-red mixed with gray, which becomes more reddish anteriorly in the male and more grayish in the female. The specimen from Ghana is molting, and only the short, gray underfur is visible dorsally. Cranial measurements of our two specimens (one female from Ivory Coast is represented only by a dried skin) are larger than those of the holotype for most characters, notably the length of the nasals and the zygomatic breadth (Table 1). The upper molars are as originally described, but the lower first

TABLE 1.—*External and cranial measurements (mm) of Hylomyscus baeri. Measurements of the holotype and paratype are those of Heim de Balsac and Aellen (Biologica Gabonica, 1:175-178, 1965) or, in parentheses, those of Heim de Balsac and Aellen (Rev. Suisse Zool., 72:695-754, 1965).*

Measurements	Ghana			Ivory Coast	
	USNM 413461 ♀	USNM 450445 ♂	USNM 450446 ♀	Holotype ♀	Paratype ♂
Total length	210	223	225	193 (198)	170
Length of tail	117	123	125	108 (110)	90
Length of hindfoot	20	20	20	20	19
Length of ear		17	15		
Greatest length of skull	25.8	26.8		24.4	23.5
Condylar-incisive length	23.8	25.2		23.5	21.0
Length of nasals	9.0	9.7		8.0	7.0
Length of diastema	7.3	7.4		7.0	6.0
Zygomatic breadth	12.6	12.9		11.6 (12.9)	10.5 (11.8)
Jugal breadth				13.0	11.0
Interorbital breadth	4.2	4.2		(4.3)	(4.3)
Alveolar length of upper molar tooth row	4.3	4.5		4.2	4.0
Alveolar length of lower molar tooth row	4.5	4.7		4.8 (4.5)	(4.5)
Length of incisive foramina	4.6	5.1		(4.1)	(4.1)