

NOTEWORTHY RECORDS OF MAMMAL FROM CAMPECHE, MÉXICO

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Tropical forests are seriously threatened due mainly to its transformation into agricultural, forestry, and cattle-production areas to suit the needs of the expanding human population. Wildlife reserves have been established to curtail the loss of biodiversity. In southeastern Mexico, the largest patches of undisturbed tropical forests are located in the south of the Yucatán Peninsula. This natural feature was one of the main reasons the Mexican federal government established the Calakmul Biosphere Reserve (ca. 723,185 ha) in the southernmost area of the Campeche state, Mexico (17° 50' – 19° 25' N, 89° 04' 37" - 90° 08' 31" W).

The dominant type of vegetation in the Calakmul Biosphere Reserve is tropical semideciduous forest with a canopy height averaging 25 m. In addition, there are deciduous tropical forests, rain forests, seasonally flooded tropical forests, savannahs, reed beds, introduced grasslands for cattle, non-irrigated and irrigated farmlands, and secondary vegetation (March, 1994). The vegetation is taller (ca. 30m) and more humid (1400 mm of annual precipitation) in the south of the reserve (Miranda, 1958). Lundell (1934), Miranda (1958) and Flores (1990) gave a detailed description of the Calakmul floristic composition. The climate is sub-humid warm, with an annual average temperature of 26°C and rainfall ranging from 600 to 1200 mm (García, 1988). The rainy season lasts from June to October (March, 1994).

In recent years, approximately 57 species of mammals have been recorded around and within the boundaries of the Calakmul Biosphere Reserve (Jones *et al.*, 1973, 1974a, 1974b; Genoways and Jones, 1975; Sánchez and Romero, 1995; Hernández *et al.*, 2000; Vargas-Contreras *et al.*, 2002, 2005; Escalona-Segura *et al.*, 2002). Of these 57 species, 17.5 % represented new records for the state of Campeche.

This fact enhances the need to intensify biotic inventories and a wide range of ecological research to increase our knowledge of the Yucatán Peninsula mammals.

The main goal of this note is to provide information about 12 species of mammals that inhabit southern Campeche, Mexico, and a new record from this state. Given the rarity of encountering some these species, we consider it important to document some observations made during two sampling seasons in the Calakmul region (August 1998 and July 1999) and another general surveys in the region (September 1998 and February 1999).

Grayish Mouse Opossum - *Tlacuatzin canescens canescens* (J.A. Allen, 1893).

An individual was captured and photographed approximately 37 km N of the Calakmul archaeological ruins ("CAR", 18° 19' N, 89° 51' W) on 6 June 1998. This individual was located in semideciduous tropical forest composed of "palo tinto" (*Haematoxylon campechianum*), "pucté" (*Bucida buceras*), "sisilché" (*Gimnopodium floribundum*) and "cascarillo" (*Croton* sp). A local ornithologist, Mauro Berlanga, found this small opossum in the vegetation while walking through the forest. Identifying key features of the individual were a small size, light brown fur coloration, and presence of dark ocular ring. This species has been previously recorded in the central-south region of the Yucatán state (Osgood, 1913; Tate, 1933; Hershkovitz, 1951; Hatt *et al.*, 1953; Jones *et al.*, 1974b; Hall, 1981). In addition, it is possible that a similar species of opossum, *Marmosa mexicana*, might be present in southern Campeche due to the similarity of some environmental conditions such as vegetation (sub-evergreen tropical forest) and temperature.

Greater White-lined Bat - *Saccopteryx bilineata centralis* (Thomas, 1904).

A non-reproductive male was collected on 15 February 1999, 60 km S of Dzibalchén, Campeche (19° 01' 48" N, 90° 00' 48" W) in deciduous tropical forest. This individual was deposited in the Museo de Zoología, ECOSUR Unidad Chetumal (ECO CHM). Its measurements are 58.6-11-10.3-15.2=6g (total length - length of tail - length of hind foot - height of ear from notch, all of them in mm = body mass), forearm (AB)=44.2 (ECO CHM1728). This species was recorded in Campeche by Jones *et al.* (1973) 46 km S of Champotón; 1 km N and 13 km W of Escárcega; 65 km S and 128 km E of Escárcega. Other recent records in the Yucatán Peninsula are by Pozo and Escobedo (1999) who found it in the Sian Ka'an Biosphere Reserve, Quintana Roo; by Jones *et al.* (1973) in Chichén-Itzá, Yucatán; Sánchez and Romero (1995) in Tabasco; Dickerman *et al.* (1981) and McCarthy (1987) in Guatemala; McCarthy and Blake (1987), O'Farrell and Miller (1997), and Bärtschi (1998) in Belize.

Davy's Naked-backed Bat - *Pteronotus davyi* (Gray, 1838).

We collected a non-reproductive adult female on 15 February 1999, 60 km S of Dzibalchén, Campeche (19° 01' 48" N, 90° 00' 48" W) in deciduous tropical forest. Its measurements are 69-23.4-10.5-17=6.5g, AB=45 (ECO CHM1711). Another individual was collected in Xbonil (18° 30.041' N, 90° 03.674' W) in tropical semideciduous forest. Its measurements are 74-24-9-15=3.4g, AB=27.3 (ECO CHM 1865). Recent records for the Yucatán Peninsula are by Pozo and Escobedo (1999) in the Sian Ka'an Biosphere Reserve, and Álvarez and Álvarez (1991) 20.6 km S, 31.6 km W of Chetumal, Quintana Roo; Arita and Vargas (1995) for the municipalities of Tekax, Oxkutzkab, Opichén, and Hochtún, Yucatán; Jones *et al.* (1973) for Apazote, Champotón, and Escárcega, Campeche. The nearest record (5 km S of Champotón) to our collecting sites is located approximately 100 km NE of Dzibalchén and 100 km SE of Xbonil (Jones *et al.*, 1973).

Orange-throated Bat - *Micronycteris brachyotis* (Dobson, 1879).

One non-reproductive female was collected on the 10 July 1999, 25 km N of CAR (18° 14' N, 89° 48' W) in semideciduous tropical forest. This individual was preserved in alcohol (ECO CHM1759), and its measurements are 65-11-9-12=12.5g, AB=41.2. This bat species has been recorded for southern Veracruz, Oaxaca and Chiapas (Schaldach, 1965; Davis *et al.*, 1964, Medellín *et al.*, 1983), but not for the Yucatán Peninsula. Our record is the second for the Yucatán Peninsula and the state of Campeche, after Hernández *et al.* (2000).

Schmidt's Big-eared Bat - *Micronycteris schmidtorum* (Sanborn, 1835).

We caught five individuals, two of which were collected and deposited, one in ECO CHM1758 and the other in the Museo de Zoología de la Facultad de Ciencias, UNAM (MZFC 11178). The individual deposited in ECOSUR was a male subadult (in alcohol, 8.5g, AB=35) collected on 4 August, 1998, approximately 37 km N of CAR (18° 19' N, 89° 51' W). The second specimen, a male with scrotal testis (61-12-8-23=8g, AB=34.3), was caught on 5 July 1999, at the same study site. The other three individuals were captured, sexed, weighed, their AB measured, and then released. Two of them, an adult female (13g, AB=36.5) and an adult male (14.5g, AB=35), were mist-netted on 29 June 1999, about 16 km N of Conhuás (18° 36' N, 89° 52' W). The fifth specimen was an adult male (8.5g, AB=35) captured 25 km N of CAR (18° 14' N, 89° 48' W) on 17 July 1999. All individuals were captured in semideciduous tropical forest. In the Yucatán Peninsula, this species has been recorded at the Cozumel island, Quintana Roo (Jones *et al.*, 1973). This specimen was confirmed by McCarthy (1987) and the first author of this paper.

There is also another record for the Dzilám de Bravo reserve (Hernández Betancourt *et al.*, 1996). The most recent records of this species were taken by Pozo and Escobedo (1999) in the Sian Ka' an Biosphere Reserve and by third author in the Calakmul Biosphere Reserve. Our five individuals confirm the species's presence in southern Yucatán Peninsula. However, its presence has not been documented in the central-western area of the Yucatán Peninsula. Apparently, these specimens show morphological differences with South American individuals of this species. Therefore, a taxonomic review is necessary.

Golden Bat - *Mimon benettii cozumelae* (Goldman, 1914).

We collected a non-reproductive adult female on 19 September 1998 in CAR (18° 06' 37" N, 89° 48' 21" W) in semideciduous tropical forest. Its measurements are 84.9-17-15.3-29.8=23g, AB=58.8 (ECO CHM1680). Recent records for the Yucatán Peninsula come from Navarro *et al.* (1990) 36 km S of Felipe Carrillo Puerto in Quintana Roo; Hernández Betancourt *et al.* (1996) reported it for the Dzilám de Bravo reserve, northern Yucatán; while Birney *et al.* (1974) found it in two localities in central and northeastern Yucatán; Arita and Vargas (1995) recorded this species in Actún Lol-tún Cave, Yucatán. In Campeche, this bat species had been recorded by Romero and Sánchez (1994) and Sánchez and Romero (1995) at the Haltunchén-Ruinas Edzná road; Jones *et al.* (1973) found it in Dzibalchén 2 km NE of Hopelchén. In Belize, this species was recorded by Bârtschi (1998), McCarthy (1987), and McCarthy and Blake (1987).

David's Round-eared Bat - *Tonatia evotis* (Davis and Carter, 1978).

Three individuals of this species were captured using mist nets; two of them were adult males collected on 12 August 1998, near CAR (18° 19' N, 89° 51' W) in semideciduous tropical forest. The morphometric measurements for these individuals are 88-17-12-31=25g, AB=51 (MZFC 11187) and 73-12-11.7-33=26g, AB=47.6 (ECO CHM1587). On 28 June 1999, we mist-netted one more adult male (21.5g, AB 47.8) NW of Conhuás (18° 36' N, 89° 52' W) in tropical semideciduous forest. There are very few records of this species nationwide. Davis and Carter (1978) mention four localities where individuals of *T. evotis* have been collected: Veracruz, Tabasco, Chiapas, and Campeche. Concerning previous records in the state of Campeche, it was collected 12 km W of Escárcega and our records come from a site located 86 km E of Escárcega. On the other hand, Sánchez *et al.* (1986) reported the presence of this species in Quintana Roo, 165 km NNE of our sites. Our three specimens had similar morphological characteristics to the one deposited in the collection of mammals at Natural History Museum, University of Kansas (KUNHM 93346), obtained by Davis and Carter (1978). Our records are the third from Campeche (after Jones *et al.*, 1973, Hernández *et al.*, 2000).

Great Fruit-eating Bat - *Artibeus lituratus palmarum* (J.A. Allen and Chapman, 1897).

We captured three individuals of this species with mist nets. One of them was a lactating adult female, on 21 August 1998 in CAR (18° 06' 37" N, 89°48' 21" W) in semideciduous tropical forest. Its body measurements are 89-0-17.4-21=69g, AB=71 (ECO CHM1576). The other two individuals were collected on 25 September 1998, 1 km S of Plan de Ayala (18° 03' 30" N, 89° 17' 34" W). These individuals were a non-reproductive adult male with body measurements of 90-0-20.5-20.5=65g, AB=75 (ECO CHM1664), and a lactating adult female with body measurement 93-0-18.5-21=71g, AB=71 (ECO CHM1665). The vegetation where the latter two individuals were collected is tropical rain forest. In the Yucatán Peninsula, previous records are from Pozo and Escobedo (1999) who collected at 6 km S of Boca Paila in the Sian Ka'an Biosphere Reserve, Quintana Roo; Sánchez and Romero (1995) in Ciudad del Carmen, Campeche; and Hernández-Betancourt *et al.* (1996) in Dzilám de Bravo, northern Yucatán. Koopman (1993) considered *A. intermedius* and *A. lituratus* the same species. However, Davis (1984) revised the complex *Artibeus lituratus* in Central America and accepted *A. intermedius* as a valid separable species from *A. lituratus*. We agree with this species division and suggest further study to determine the new geographic distribution range of both species.

Common Tent-making Bat - *Uroderma bilobatum molaris* (Davis, 1968).

One adult male with scrotal testis was collected on 25 September 1998, 1 km S of Plan de Ayala, Campeche (18° 03' 30" N, 89° 17' 34" W) in tropical rain forest. Its measurements are 66-0-7.3-6=12g, AB=39.8 (ECO CHM 1668). The first records for this species in the Yucatán Peninsula are from Sánchez *et al.* (1986) in the Ruinas de Konhulich, Quintana Roo. McCarthy (1987) recorded this species in Bacalar, Quintana Roo. From Campeche, the first record, and probably the only one, was given by Dowler and Engstrom (1988). They recorded seven individuals of this species 11 km S of Candelaria. This location is approximately 170 km W of our collection sites. We believe that it is likely to find this species at the border between Campeche, Mexico and Guatemala due to the vast forest continuity in this area and because Dickerman *et al.* (1981) recorded it in Guatemala.

Little Yellow-eared Bat - *Vampyresa pusilla thyone* (Thomas, 1909).

One non-reproductive adult male was collected on 25 September 1998, 1 km S of Plan de Ayala, Campeche (18° 03' 30" N, 89° 17' 34" W) in tropical rain forest. Its body measurements are 40-0-8.5-8=6.5g, AB=30 (ECO CHM 1669). Davis *et al.* (1964)

recorded this species for first time in Chiapas, Mexico. Reid (1997) considered this species as absent from the Yucatán Peninsula, while Jones *et al.* (1973) recorded it 65 km S, 128 km E of Escárcega. There are several records relatively close to our collecting site in Belize (McCarthy, 1987).

Tayra - *Eira barbara* (Linnaeus, 1758).

We found a male with scrotal testis (1140-470-103-48) recently killed on highway Escárcega-Chetumal at km 143 (18° 30' N, 89° 29' W). Our record had the complete pattern of fur coloration explained by Reid (1997). We found the same phenotype variation in specimens deposited in the mammal collection of the Natural History Museum of the University of Kansas (KUMHN). Such specimens were collected from the Mexican states of Campeche (KUMHN 95113), Chiapas (KUMHN 66216), and Veracruz (KUMHN 24544-24545). However, Reid (1997) indicates that the pale-brown head form, with a diamond on the throat and dark brown body is found only from Honduras to Panama. Krumbiegel (1942) stated that the diamond-shape spot on the throat is not a reliable feature to separate the subspecies because its presence is part of the intrapopulation variation. We strongly suggest a taxonomic revision of this species of mustelid to define the distributional limits of the subspecies in Mexico and Central America.

Yucatan Vesper Mouse - *Otonyctomys hatti* (Anthony 1932).

We accidentally captured a female (203-113-16-13=27g; ECO CHM1761) 5 km N of Conhuás (18° 36' N, 89° 52' W) on June 27 1999 in semideciduous tropical forest. It was found tangled and hanging up side down from a mist net just before opening it for a bird survey. Apparently, there are very few records of the species, which is endemic to the Yucatán Peninsula. This specimen has a size and fur coloration similar to those deposited in the KUMHN (KUMHN 93870, from N Campeche; and KUMHN 92356, from NE Yucatán) cited by Jones *et al.* (1974) and Anthony (1932). Navarro *et al.* (1990) recorded *O. hatti* for first time in central Quintana Roo; till recently Aranda *et al.* (1997) recorded this species for northern Quintana Roo. Our record is the fourth for the state of Campeche (Jones *et al.*, 1974; Hall, 1981; Hernández *et al.*, 2000).

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