

# NEW RECORDS OF TROPICAL DRY FOREST'S MAMMALS FROM THE STATE OF MEXICO

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The mammalian fauna of Central Mexico has been known by its high diversity, richness, and endemic species. The Transvolcanic belt, the main mountain system that crosses Mexico from east to west, around 19 degrees of latitude, is a major barrier for faunas of both Nearctic and Neotropical distribution (Ceballos and Galindo, 1984; Ceballos and Navarro, 1991; Fa and Morales, 1993; Goldman and Moore, 1945). Heterogeneity of habitat along the Transvolcanic belt is quite complex, where tropical dry forest habitats get in contact with oak and pine forests (Rzedowski, 1978).

The Mexico state is located in Central Mexico, at midpoint latitude of 19.5° N, 99.5° W, has an area of 21,461 square kilometers. This state contains a high diversity of habitats, including five major biomes: tropical deciduous forest, oak forest, coniferous forest, xeric scrub, and aquatic habitats. The composition of its mammalian fauna is a good example of mixed composition of Nearctic and Neotropical species. Although its mammalian fauna is relatively well-known, there has been interesting additions in recent years, mostly new records from the dry tropical forests (Álvarez-Castañeda, 1991; Alvarez and Alvarez-Castañeda, 1991; Ceballos *et al.*, 1998; González-Ruiz *et al.*, 2000, 2002; Sánchez *et al.*, 2002). Currently there are 121 species recorded in the state (Chávez and Ceballos, 1998; Ceballos and Chávez, in press). In this note, we report 5 new and 3 additional records of tropical dry forest species from the state (i.e. 5 bats, 1 rodent, 1 carnivore, and 1 artiodactyl). We collected specimens from 1980 to 1996; all voucher specimens are deposited in the Colección Nacional de Mamíferos, Universidad Nacional Autónoma de México (IBUNAM) and the Universidad Autónoma Metropolitana – Iztapalapa (UAM-I). Specimens were collected in 8 localities in the tropical lowlands of the State of Mexico (Appendix). The new records are:

***Miconycteris microtis mexicana* Miller, 1898**

Specimens examined: Mexico, Hacienda Santa María Zacazonapan, Zacazonapan (1 B&; IBUNAM 13439). This species was previously known as *Miconycteris megalotis*. We followed Simmons (1996) in recognizing *M. microtis* as the correctly name for that taxon. It has a widespread distribution in the tropical regions of Mexico, from Jalisco and Tamaulipas to the Yucatán Peninsula and Chiapas (Alonso-Mejía and Medellín, 1991). This record is the first record from the state of Mexico, and the most inland in Central Mexico. It represents a range extension of 70 km north of Cueva del Puente de Dios, Municipio de Chilpacingo, Guerrero (Villa, 1967). One adult male was collected in January. Its somatic measurements (in mm) are as follows: total length, 62; length of tail, 13.5; length of hind foot, 10; length of ear, 23; length of forearm, 55.06; length of tibia, 13.35; length of calcar 9.2. The skull is broken. The 3rd, 4th, and 5th premolars are of similar size and these represent a feature of this species (Genoways and Williams, 1986). The coloration dorsal is brown and ventrally grayish. Dorsal hairs are dark in the terminal part. The fur is short on leading edge of ear (£ 3mm; Simmons, 1996).

***Glossophaga morenoi morenoi* Martínez and Villa, 1938**

Specimens examined: Mexico. Tingambato, Otzoloapan (6 B&; IBUNAM 18570-75). Before Gardner's revision (1986) this species was known as *Glossophaga mexicana*. The specimens of Tingambato are within geographic range of this species. This Mexican endemic is restricted to states in western and southern Mexico (Webster and Jones, 1985). This is the second record for the state of Mexico (González-Ruiz et al., 2000). The nearest locality is 58 km west of Tingambato in Tzitzio, Michoacán (Webster and Jones, 1985). All the specimens coming from Tingambato, present in the dorsal coat two bands clearly defined, a band white distally and a band dark proximally. They have procumbent superior incisors (projected towards a head) and small inferior incisors with spaces between them. Five males that were captured in May have signs of reproductive activity. Average external and cranial measurements (in mm, extremes in parentheses) for 6 males are: total length, 62.83 (56-66); length of tail 8.5 (7-9); length hind foot, 10.67 (10-11); length of ear, 13.67 (13-14); length of forearm, 34.44 (33.11-35.53); greatest length of skull (including incisors), 21.16 (20.6-21.7); condylobasal length, 20.03 (19.36-20.38); zygomatic breadth, 9.13 (8.87-9.22); interorbital breadth, 4.14 (4.06-4.19); width across molars (5.43-5.83).

***Hylonycteris underwoodi minor* Phillips y Jones, 1971**

Specimens examined: Mexico, Rincón del Carmen, Municipio de Tejupilco (1 ♂; in process). Although Álvarez and Álvarez-Castañeda (1991) proposed to elevate to specific level this taxon, they did not provide solid arguments to support their recommendation, which has not been accepted by recent publications (Ceballos et al., 2002; Koopman, 1993; Ramírez-Pulido and Múdespacher, 1997). *Hylonycteris underwoodi* is endemic to Mesoamerica and Neotropical species. It is found along the tropical lowlands of the Pacific coast, from Nayarit to Oaxaca, and in the Gulf of Mexico from Veracruz to Panama, and had been recorded in the coastal States of Chiapas, Oaxaca, Guerrero, Jalisco, Nayarit, Tabasco and Veracruz (Hall, 1981; Reid, 1997). Our new record is the first for the state of Mexico, and constitutes a range extension of 155 km NNW of Laguna de Agua Fría, in Omiltemi, Municipio de Chilpancingo, Guerrero (León and Romo, 1991). The specimen of Rincón del Carmen displays a dorsal coloration dark brown, does not have inferior incisors, and presents a pattern of three bands (dark-clear-dark) in the dorsal coat. This specimen was collected together with *Sturnira ludovici* and *Anoura geoffroyi* in the channel of a stream, where the predominant vegetation was an oak forest. The female without signs of sexual activity was captured on 30th January of 1991. The external and cranial measurements (in mm, extremes in parentheses) are: total length, 57; length of tail, 11; length hind foot, 7; length of ear, 12; weight, 12g; length of forearm, 33.6; greatest length of skull (including incisors) 20.71; breadth of braincase, 8.39; least interorbital breadth, 3.46; mastoid breadth, 8.16; length of maxillary toothrow, 7.8.

***Myotis carteri* La Val, 1973**

Specimens examined: Cañada de Malinaltenango, 2.3 km N Puente del Diablo or Malinaltenango (1 ♂; UAM-I 9523). *M. carteri* originally was described as a subspecies of *M. nigricans* (La Val, 1973). Bogan (1978) proposed to elevate it to specific level. Nevertheless, Koopman (1993), proposed to return to *M. carteri* as *M. nigricans*, without further arguments. Here we followed Bogan (1978), and several Mexican authors (Ceballos et al., 2002; Ramírez-Pulido and Múdespacher, 1997) in considering it as a full species. *Myotis carteri* is endemic species of Mexico, where its distribution is confined to the lowlands of the Pacific coast, from Nayarit to Michoacán (La Val, 1973; Polaco and Muñoz-M, 1987). The specimen of Cañada de Malinaltenango is the first record for the state of Mexico and constitutes a very important range extension of the species to Central Mexico through the tropical lowlands of the Balsas river basin. Similar patterns of distribution are found in other

species of mammals such as *Marmosa canescens*, *Megasorex gigas*, *Musonycteris harrisoni*, *Peromyscus perfulvus*, *Hodomys alleni*, and *Osgoodomys banderanus* (Ceballos and Miranda, 2000; Ceballos and Chávez, in press). The new locality is 331 km ENE of the nearest locality in Michoacán (18 km W, 10 km S of Arteaga, Municipio Arteaga; Polaco and Muñoz-M, 1987). The female was collected in February 1991. The external and cranial measurements (in mm, extremes in parentheses) are: total length, 65.4; length of tail, 26; length hind foot, 8.3; length of ear, 11.7; weight, 5g; length of forearm, 32.8; tibia (TIB), 13.76; condylocanine length (CCL), 8.85; condylo premaxilar length (CPM), 12.33; maxillary tooth row length (MTR), 5.12; cranial breadth (CB), 6.65; cranial depth (CD), 4.6; interorbital breadth (IOB), 3.71; rostral breadth (RB) 4.21, Rostral length (RL), 5.52; dentary length (DL), 9.92; height of coronoid process (HCP), 2.76; Condylobasal length (CBL), 12.86; post orbital constriction, 3.81. The external and cranial measurements fall within the intervals given by Bogan (1978) for *M. carteri*.

#### ***Rhogeessa parvula parvula* H. Allen, 1866**

Specimens examined: Zacualpan, La Cañada de Malinaltenango (1 female; UAM-I 9524). *Rhogeessa parvula* is endemic to Mexico. It is found along the tropical lowlands of the Pacific coast, from Sonora to Oaxaca, including Durango, Zacatecas, and Morelos. The present record confirms the distribution of the species in the state of Mexico, the nearest locality is to 32.9 km to the south, in the tropical deciduous forest, in Ixcateopa, Municipio de Ixcateopa, Guerrero (León and Romo, 1991). This specimen, a female with no signs of reproductive activity, was captured in July. It has a relatively short ears and a small uropatagium, half of the distance between the knee and the leg. The dorsal coat has two bands, with darker bases and clear tips. Its external measures are: total length, 75.5; length of tail, 29.2; length hind foot, 5; length of ear, 10.2; weight, 8.9g; length of forearm, 30.1; Condylobasal length, 11.53; breadth of braincase, 6.3; Mastoid breadth, 6.6; bread to cross to upper molars, 5.1; length of maxillary too throw, 3.48.

#### ***Hodomys alleni elattura* (Osgood 1938)**

Specimens examined: Mexico, Cueva del Coyote, 3 km S Puerta Santiago, Municipio Tonatico (1 @, IBUNAM 7917). The taxonomic status of genus *Hodomys* has been accepted by most recent authors (Ceballos et al., 1997; Musser and Carleton, 1993; Ramírez-Pulido y Múdespacher, 1996). This endemic genus of Mexico is distributed throughout the Pacific versant from the Rosario, Sinaloa to Acapulco, Guerrero, and throughout the Balsas river basin (Genoways and Birney, 1974). This is the first record of the species in the state of Mexico. The closest locality is 52 km to the east,

in Cañón de Lobos, 9.6 km to the west of Yautepec, Morelos (Davis and Russell, 1954). The external measures (in mm) are: total length, 220; length of tail, 45; length hind foot, 35; length of ear, 27; greatest length of skull, 45.43; interorbital constriction, 5.88; mastoid breadth, 17.22; length of nasals, 16.9; length of incisive foramen, 10.9; length of palatal bridge, 8.8; length of maxillary tooth, 9.77. This species very clearly shows the characteristic pattern of the enamel of third lower molar form of «S» (Genoways and Birney, 1974).

***Leopardus pardalis nelsoni* Goldman, 1925**

Specimens examined: None. We have a visual record in Bejucos, Municipio de Tejupilco (GC). This is the second record for the species in the state, the previous record is 13 kms to SSE, where it has been recorded in Palmar Chico, Municipio de Amatepec, (18°41'N, 100°22'W), the native vegetation was tropical deciduous forest (Sánchez et al., 2002).

***Tayassu tajacu humeralis* Merriam, 1901**

Specimens examined: This is a visual record in Barranca de Calderón (GC). This species is found in all Mexico, with exception of Baja California and great part of the Mexican Plateaus (Sowls, 1984). The locality more close had been reported was 91.8 km south, Zacacoyuca, Municipio de Iguala, Guerrero (Villa, 1951).

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#### APPENDIX

Localities where the new records were collected are the following ones:

Rincón del Carmen, Municipio de Tejupilco ( 18° 54' N 100° 7.2' W, 1530 m a.s.l). Dominant vegetation is a temperate broad leaf forest, with oak trees (*Quercus magnoliifolia* and *Q. crassifolia*) as dominant species.

Cañada Durazno, 1 km SE de Colorines, Municipio de Santo Tomás de los Plátanos (19° 10.9' N, 100° 15.5' W, 1700 m a.s.l). It is an ecotone between tropical deciduous and oak forests, with fig trees (*Ficus* sp) and oaks (*Quercus* sp).

Cañada de Malinaltenango 2.3 km N del Puente del Diablo, Municipio de Zacualpan (18°47.4' N, 99° 42.2' W, 1400 m a.s.l.), is a tropical deciduous forest.



Hacienda Santa María Zacazonapan, Municipio de Zacazonapan ( $19^{\circ} 2.9' N$   $100^{\circ} 16.3' W$ , 1350 m.a.s.l.) is a tropical deciduous forest.

Tingambato, Municipio de Oztoloapan ( $19^{\circ} 7.7' N$ ,  $100^{\circ} 23.3' W$ , 710 m.a.s.l.) is a tropical deciduous forest.

Bejucos, Municipio de Tejupilco ( $18^{\circ}46.5' N$ ,  $100^{\circ}25.5' W$ , 730 m.a.s.l.) is a very perturbed tropical deciduous forest.

Barranca de Calderón, Municipio de Ixtapan de Sal ( $18^{\circ}50.2' N$   $99^{\circ}37.5' W$ ), is deep more than 500 m gorge, where the Calderón river runs, covered by a relatively well preserved tropical deciduous forest.

Cueva del coyote, 3 km S Puerta Santiago, Municipio de Tonalico ( $18^{\circ}43.8' N$ ,  $99^{\circ}36.7' W$ , 1,500 m a.s.l.). A tropical deciduous forest surrounds the cave.