

## Three new bat species in the state of Oaxaca, Mexico

Antonio Santos-Moreno\*, Leydy Gallardo Sipriano

Laboratorio de Ecología Animal, CIIDIR Unidad Oaxaca, Instituto Politécnico Nacional, Mexico.

\* Corresponding author: santosm90@hotmail.com

### SHORT COMMUNICATION

*Manuscript history:*

*Submitted in 19/Aug/2013*

*Accepted in 9/Aug/2014*

*Available on line in 30/Au/2014*

*Section editor: Maria João R. Pereira*

**Abstract.** The state of Oaxaca, in southeastern Mexico, is one of the regions with the highest species richness in the country, comparable even with that of some Central American countries. Over the course of a study on the region known as Los Chimalapas, in the southeastern portion of the state of Oaxaca, we recorded the presence of three new species for the state: two New World leaf-nosed bats (*Phylloderma stenops* and *Micronycteris schmidtorum*) and one vesper bat (*Myotis albescens*). The localities of these registers represent the northeastern extreme of the geographic distribution of the last two species. The three species included in the present work bring the number of terrestrial mammalian wildlife species in Oaxaca to 209, and the number of bat species to 93.

**Keywords:** *Micronycteris schmidtorum*, *Myotis albescens*, new records, Oaxaca, *Phylloderma stenops*.

We recorded three species of bats for first time in the state of Oaxaca, Mexico, in an inventory of bats carried out from January-June 2012 in the Municipal Agency of San Antonio Nuevo Paraíso, south of the Municipality of Santa María Chimalapa, in the region known as Los Chimalapas, at the eastern corner of the state of Oaxaca, southeast Mexico. In the zone we recorded a total of 29 bat species. The specimens were preserved as complete skeletons and deposited in the Colección de Referencia de Mamíferos del Laboratorio de Ecología Animal del Centro Interdisciplinario de Investigación para el Desarrollo Integral Regional, Unidad Oaxaca del Instituto Politécnico Nacional de México (ECOAN-MAM). The following cranial and mandibular measurements are included for each specimen, following Martin et al. (2000): greatest length of the skull (GLS), rostral breadth (RB), zygomatic breadth (ZB), maxillary tooth row length (MXTRL) and mandibular tooth row length (MTRL) (Table 1). We use the classification system and nomenclature proposed by Simmons (2005).

*Micronycteris schmidtorum* ranges from southern Mexico to the French Guiana, and northeastern of Peru and eastern of Brazil (Simmons 2005; Ascorra et al. 1991; Figure 2). In Mexico, its geographical distribution it's patchy and deserves clarification; reported specimens come from isolated localities and some identifications are questionable (Escobedo-Cabrera et al. 2006). The range of *M. schmidtorum*

includes the states of Chiapas, Yucatan, Quintana Roo and Campeche (Álvarez & Álvarez-Castañeda 1990; Hernández Betancourt et al. 1996; Medellín 2005a; Escobedo-Cabrera et al. 2006; Hernández-Mijangos et al. 2008). On the 23rd of February 2012, at approximately 0500 GTM (2300 local time), at 2.5 km SSW of San Antonio Nuevo Paraíso (Table 1), in the interior of an evergreen forest we captured a male with no evidence of reproductive activity. The specimen was captured along with *Carollia sowelli* and *Vampyroides caraccioli*. The closest previously known locality is the El Ocote Forest Biosphere Reserve in Chiapas, 275 m (Hernández-Mijangos et al. 2008). As such, the new locality represents an expansion of 60 km W to the species distribution area, and the most northerly limit of its range.

*Phylloderma stenops* is present from southern Mexico to Rio de Janeiro, Brazil (Esbérard & Faria 2006), Santa Cruz Department, Bolivia (Barquez 1988), and Cuzco Department, Peru (Patterson et al. 1996) (Figure 2). In Mexico, along with Medellín (2005b) this bat was located in riverine area. On the 21th of February 2012, at approximately 0430 GTM, we captured an adult male specimen with scrotal testes at 3 km SSW of San Antonio Nuevo Paraíso (Table 1). We placed the net close to a river and captured an *Artibeus lituratus* along with the specimen. The closest previous register of this species is 10 miles west of Mal Paso, Chiapas (Carter et al. 1966).

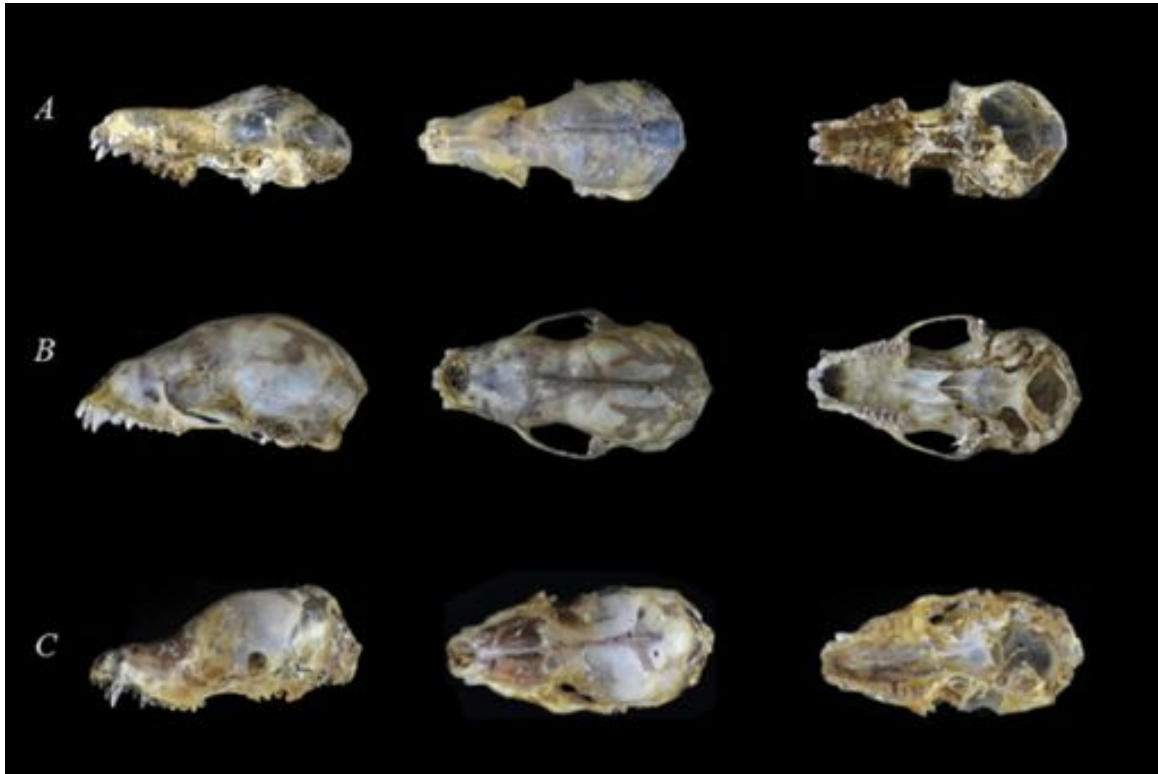


Figure 1. Upper, lateral and ventral view (not a scale) of the skull of *Micronycteris schmidtorum* (A), *Phylloderma stenops* (B) and *Myotis albescens* (C).

Although the members of the genus *Myotis* are among the most difficult species of North American bats to differentiate, the specimen described below exhibited all of the characteristics attributed to *Myotis albescens* (LaVal 1973; López-González et al. 2001; Vicente et al. 2005).

Table 1. External somatic and cranial measures (see text for abbreviations), geographic coordinates (UTM) and elevation (in meters) of recording sites of three bat species in Oaxaca, Mexico.

	<i>Micronycteris schmidtorum</i>	<i>Phylloderma stenops</i>	<i>Myotis albescens</i>
Total Length	56.53	109.6	78.72
Vertebral tail length	9.85	11.49	34.26
Hind feet length	8.64	11.4	8.56
Ear length	15.6	22.11	11.09
Weight	-	108	5
Forearm length	27.4	65.43	34.89
GLS	17.84	35.3	11.45
RB	6.19	13.33	2.69
ZB	6.49	16.73	6.11
MXTRL	7.69	12.73	3.13
MTRL	8.23	13.63	2.85
Latitude	355322	355487	355404
Longitude	1896775	1896258	1899377
Altitude	414	399	218

Its current distribution includes from south of the state of Veracruz, Mexico, Central America to Uruguay, South Argentina, central Bolivia and Peru (Braun et al. 2009; Simmons 2005; Figure 2). In Mexico, specimens have been collected in the states of Chiapas, Tabasco, and Veracruz (Medellín 2005c), and although Goodwin (1969)

suggested its presence in Oaxaca, it had not been confirmed until now. On the 23<sup>rd</sup> of January 2012, we captured a subadult male without evidence of reproductive activity in the Municipal Agency of San Antonio Nuevo Paraíso (Table 1). We found the specimen beneath a sheet on the roof of a house with five other individuals. The closest previous register is located 86.5 km to the NW, in the state of Veracruz, 40 km SW of Coazacoalcos (Goodwin 1969). The new locality is about 7 km southeast to the western limits of the geographic range of the species (IUCN 2008).

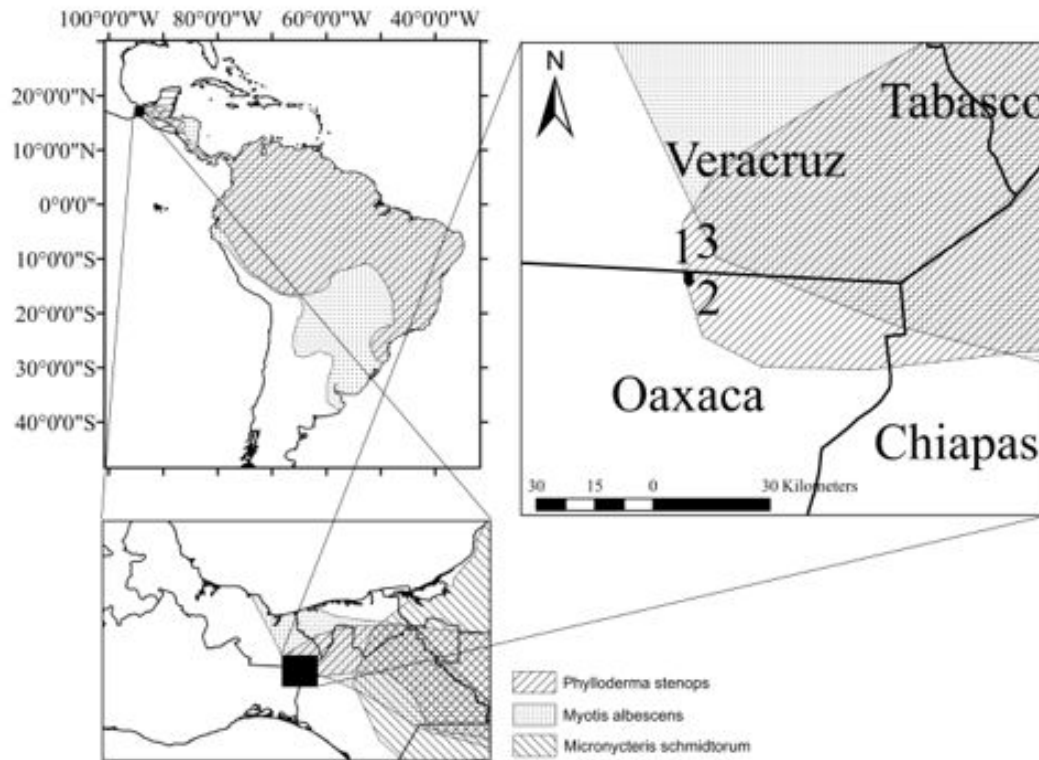


Figure 2. Geographic ubication of new localities and limits of the distribution of *Micronycteris schmidtorum* (1), *Phylloderma stenops* (2) and *Myotis albescens* (3).

These registers in the region of Los Chimalapas, together with other recent registers (García-García et al. 2007; Santos-Moreno et al. 2010) confirm need to continue developing biological inventories for the area. The addition of *Micronycteris schmidtorum*, *Phylloderma stenops* and *Myotis albescens* to the list of mammals of the state of Oaxaca, increase the number of terrestrial mammals up to 209 and 93 for bat species.

#### Acknowledgements

The authors would like to thank the Community Authorities of San Antonio Nuevo Paraíso for authorizing the study, the Instituto Politécnico Nacional de México for funding the project, and C. Kraker Castañeda for his help with the fieldwork.

#### References

- Ascorra C.F., Wilson D.E. & Gardner A.L. 1991. Geographic distribution of *Micronycteris schmidtorum* Saborin (Chiroptera: Phyllostomidae). Proceedings of the Biological Society of Washington 104:351-355.
- Álvarez T. & Álvarez-Castañeda S.T. 1990. Cuatro nuevos registros de murciélagos (Chiroptera) para el estado de Chiapas. Anales de la Escuela Nacional de Ciencias Biológicas 33:157-161.
- Barquez R.M. 1988. Notes on identity, distribution, and ecology of some argentine bats. Journal of Mammalogy 69:873-876.
- Braun J.K.; Layman Q.D. & Mares M.A. 2009. *Myotis albescens* (Chiroptera: Vespertilionidae). Mammalian Species 846:1-9.
- Carter D.C.; Pine R.H. & Davis W.B. 1966. Notes on Middle America bats. The Southwestern Naturalist 11:488-499.
- Esbérard C.E.L. & Faria D. 2006. New records of *Phylloderma stenops* Peters, 1865 in the Atlantic Forest, Brazil (Chiroptera, Phyllostomidae). Biota Neotropica 6:1-5.
- Escobedo-Cabrera E.; León-Paniagua L. & Arroyo-Cabrales J. 2006. Geographic distribution and some taxonomic comments of *Micronycteris schmidtorum* Saborin (Chiroptera: Phyllostomidae) in Mexico. Caribbean Journal of Science 42:129-135.
- García-García J.L.; Santos-Moreno A.; Alfaro A. & Soto-Centeno A. 2007. Noteworthy records of *Eptesicus brasiliensis* from Oaxaca, México. Bat Research News 48:5-6.
- Goodwin G.G. 1969. The mammals of the state of Oaxaca, Mexico, in the American Museum of

- Natural History. Bulletin of the American Museum of Natural History 141:1-269.
- Hernández-Betancourt S.; Sánchez-Cordero V.; Escalante J.S. & Castillo A.S. 1996. Lista anotada de los mamíferos terrestres de la Reserva de Dzilam, Yucatán, México. Listados Faunísticos de México VIII. Instituto de Biología, Universidad Nacional Autónoma de México. México. p. 1-39.
- Hernández-Mijangos L.A.; Gálvez Mejía R.; Díaz Negrete M. & Cruz Durante C.M. 2008. Nuevas localidades en la distribución de murciélagos filostóminos (Chiroptera: Pyllostomyidae) en Chiapas, México. Revista Mexicana de Mastozoología 12:163-169.
- IUCN (International Union for Conservation of Nature) 2008. *Myotis albescens*. The IUCN Red List of Threatened Species. Version 2014.2.
- LaVal R.K. 1973. A revision of the Neotropical bats of the genus *Myotis*. Bulletin of the Natural History Museum, Los Angeles County 15:1-54.
- López-González C.; Presley S. J.; Owen R.D. & Willig M.R. 2001. Taxonomic status of *Myotis* (Chiroptera: Vespertilionidae) in Paraguay. Journal of Mammalogy 82:138-160.
- Martin R.E.; Pine R.H. & DeBlase A.F. 2000. A manual of Mammalogy with keys to families of the world. Third edition. McGraw-Hill, New York.
- Medellín R.A. 2005a. *Micronycteris schmidtorum*. In: Los mamíferos silvestres de México, (coordinated by Ceballos G. & Oliva G.), pp. 191-192. Comisión Nacional para el Conocimiento y Uso de la Biodiversidad and Fondo de Cultura Económica. Distrito Federal, México.
- Medellín R.A. 2005b. *Phylloderma stenops*. In: Los mamíferos silvestres de México (coordinated by Ceballos G. & Oliva G.), p. 208. Comisión Nacional para el Conocimiento y Uso de la Biodiversidad and Fondo de Cultura Económica. Distrito Federal, México.
- Medellín R.A. 2005c. *Myotis albescens*. In: Los mamíferos silvestres de México (coordinated by Ceballos G. & Oliva G.), pp. 277-278. Comisión Nacional para el Conocimiento y Uso de la Biodiversidad and Fondo de Cultura Económica. Distrito Federal, México.
- Patterson B.D., Pacheco V. & Solari S. 1996. Distribution of bats along an elevational gradient in the Andes of south-eastern Peru. Journal of Zoology 240:637-658.
- Santos-Moreno A.; García Orozco S. & Pérez Cruz E.E. 2010. Records of bats from Oaxaca, Mexico. The Southwestern Naturalist 55:454-456.
- Simmons N.B. 2005. Order Chiroptera. In: Mammal species of the world: a taxonomic and geographic reference (edited by Wilson D.E. & Reeder D.M.), pp. 312-529. Johns Hopkins University Press, Maryland.
- Vicente E.C., Jim J. & Taddei V.A. 2005. Características morfológicas externas distintivas de *Myotis albescens*, *M. nigricans*, *M. sinus* e *M. riparium* (Chiroptera; Vespertilionidae). Ensaios e Ciência 9:293-304.