



Research note

New state record for the snake *Amastridium sapperi* (Squamata: Dipsadidae) from Hidalgo, Mexico

Nuevo registro estatal de la serpiente *Amastridium sapperi* (Squamata: Dipsadidae) para Hidalgo, México

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Abstract. The dipsadid snake *Amastridium sapperi* is reported for the first time from the state of Hidalgo, Mexico. The single male specimen was found in a shaded coffee grove, which agrees well with the habitat preference shown by other male specimens reported from Mexico. This snake is broadly distributed, but rarely encountered and was not evaluated by either the Semarnat or IUCN systems of conservation assessment, although it has been evaluated using the EVS measure. Also included are details of body length, scutellation, dentition, coloration, testicular development, diet, habitat, and conservation status.

Key words: *Amastridium sapperi*, geographic distribution, Hidalgo, Mexico.

Resumen. Se registra por primera vez la culebra Dipsadidae *Amastridium sapperi* para el estado de Hidalgo, México. El ejemplar es un individuo macho encontrado en un cafetal de sombra, el cual coincide con las características mostradas en otros ejemplares machos documentados previamente para México. Esta serpiente se distribuye ampliamente, pero rara vez se la encuentra y no está considerada por sistemas para la evaluación de la conservación como Semarnat o IUCN; sin embargo, se ha evaluado empleando el método de EVS. También se incluyen datos sobre la longitud del cuerpo, escutelación, dentición, coloración, desarrollo testicular, dieta, hábitat y estatus de conservación.

Palabras claves: *Amastridium sapperi*, distribución geográfica, Hidalgo, México.

Amastridium Cope, 1861, is a dipsadid snake genus (Pyron et al., 2013) containing 2 species, *A. sapperi* (Werner, 1903) and *A. veliferum* Cope, 1861. These 2 taxa had long been considered separate, allopatric species (Smith, 1971; Savage, 2002). Wilson and Meyer (1969) argued, however, that these 2 taxa were conspecific, based on the discordant nature of the variation in the characters used to distinguish them, and maintained that position for a number of years (Wilson and Meyer, 1985; Wilson, 1988). Soon after the Wilson and Meyer (1969) review appeared, however, Smith (1971) opined that northern and southern populations were distinguishable on the basis of the presence of a loreal scale and a relatively high

number of ventrals in the former (144-170), and the lack of this scale and the presence of a relatively low number of ventrals (111-134) in the latter. Smith concluded that these 2 groups should be recognized as subspecies. Savage (2002) accepted Smith's (1971) argument, but recognized the taxa *sapperi* and *veliferum* as separate species-level taxa, a position that has been followed by several other authors (Köhler, 2008; Acevedo et al., 2010; Johnson et al., 2010; Stafford et al., 2010; Townsend and Wilson, 2010; Wilson and Johnson, 2010; McCranie, 2011; Wilson et al., 2013) in recent years. Interestingly however, only 1 species is recognized on The Reptile Database website (accessed 5 July 2013). At present, we consider *A. sapperi* to be the valid name for the northern population by adhering to the evolutionary species concepts as discussed by Porras et al. (2013). *Amastridium sapperi* has an allopatric

distribution and discernible taxonomic characters, and thus is considered a separate evolutionary lineage.

Amastridium sapperi occurs in Mexico, Belize, Guatemala, and Honduras, at elevations ranging from 100-1 600 m (Wilson and Johnson, 2010). In Mexico (Fig. 1), it is recorded from the states of Nuevo Leon, Tamaulipas, Puebla, Veracruz, Oaxaca, and Chiapas (Wilson and Meyer, 1969; Smith, 1971; Canseco-Márquez and Gutiérrez-Mayén, 2006). *Amastridium veliferum* Cope (1861) is distributed from extreme southern Nicaragua to Colombia (Wilson and Meyer, 1969; Savage, 2002; Rueda-Almonacid and Rueda-Martínez, 2004).

Amastridium sapperi occurs in natural settings in lowland and premontane rain forest, lowland dry forest, premontane moist forest, and lower montane wet forest (Wilson and Johnson, 2010), and anthropogenic situations such as shaded coffee plantations (Wilson and Meyer, 1969; McCranie, 2011) and citrus groves (Stafford and Meyer, 2000), and in microhabitats such as decaying logs, leaf litter, and soil. The diet is known to consist of invertebrates such as millipedes and vertebrates, among which are frogs of the genus *Eleutherodactylus* and lizards of the genus *Lepidophyma* (Martin, 1955; Pérez-Higareda et al., 2007). It is an oviparous species; Pérez-Higareda et al. (2007) reported a female from the Los Tuxtlas, Veracruz, region that contained 2 well-developed eggs in October.

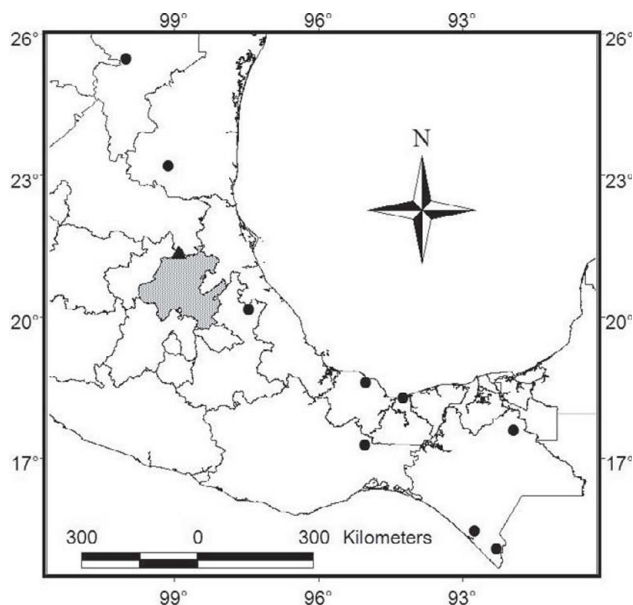


Figure 1. Geographic distribution of *A. sapperi* in Mexico, including the new record for Hidalgo. Circles, the historical records; triangle, the new record for Hidalgo.

On 29 June 2013 at 22:30 hours, an adult male *A. sapperi* was collected at 560 m in the town of La Cueva, Municipality de Pisaflores, Hidalgo (21°16'00" N, 98°59'50" W; Fig. 1). The snake was captured while crawling on a rural road in a shaded coffee plantation. Collecting was allowed under permit number SGPA/DGVS/02419/13 issued by Semarnat (Secretaría de Medio Ambiente y Recursos Naturales). The specimen (CIB-4300) is deposited in the herpetological collection of the Centro de Investigaciones Biológicas (CIB), Universidad Autónoma del Estado de Hidalgo.

The specimen depicted in figure 2 (A, B) has a SVL length of 385 mm and a tail length of 164 mm. The scutellation is as follows: nasal divided; canthal edge sharp; supralabials 7-7, third and fourth entering the orbit; parietal separated from fifth supralabial by anterior temporal(s); loreal present; preoculars 1-1; postoculars 2-2; temporals 2-1 (temporals fused on right side); infralabials 9-9, 4 in contact with first pair of chin shields and 2 with the second pair; ventrals 149; cloacal scute divided; subcaudals 90, divided; dorsal scales in 17-17-17 rows, scales in cervical region with 2 apical pits, smooth on rest of body, except for scales on tail lightly keeled. Maxillary teeth are 11-12, which increase in size from anterior to posterior. The coloration in life was as follows: ground color of head yellowish red with dark gray spots on the rostral, prefrontal, frontal, supraoculars and parietals; supralabials dark brown, each with a pale central spot, with the exception of the seventh; mental, infralabials and both pairs of chin shields pale brown, with the mental and the first 4 infralabials each with central spot; iris dark brown; dorsum of body and tail dark olive brown, with a series of small pale spots, each confined to a single scale on the 5th row and separated from one another by 2 to 3 scales; ground color of entire venter gray heavily patterned with dark gray markings (Fig. 2 B).

The data on scutellation, morphometrics (body and tail lengths), and coloration for this specimen are mostly within the ranges described in the original description of



Figure 2. A, male *A. sapperi* encountered at the locality La Cueva, Municipality of Pisaflores, Hidalgo. B, ventral view of the specimen reported. Photographs by Daniel Lara Tufiño.

A. sapperi (Werner, 1903), as well as those reported for specimens from populations in Nuevo León, Tamaulipas, Veracruz, and Chiapas discussed by Wilson and Meyer (1969) and those from Oaxaca and Chiapas reported by Smith (1971) and Blaney and Kimmich-Blaney (1978). The Hidalgo specimen, however, has 90 subcaudals, a number greater than the maximum of 86 previously reported for the species by Wilson (1988). In addition, it has a greater total length (549 mm) than previously reported for the species in Mexico (378 mm) by Smith (1944). Finally, the dorsal coloration (dark olive brown) is relatively paler than individuals previously reported from other populations (Wilson and Meyer, 1969).

The individual collected exhibited advanced testicular development, with the right testicle measuring 22.2×5.4 mm and the left 24.9×5.1 mm, and thus appeared to be reproductively active. The stomach contained mineral matter and teeth of a snake, the latter representing a previously unreported element in the diet of this species.

This male specimen represents a first record for the state of Hidalgo. It also belongs to a rare species, and most of the reported specimens are females (Wilson and Meyer, 1969; Smith, 1971). We are aware of only 5 males reported for Mexico (Smith, 1944; Wilson and Meyer, 1969; Ramírez-Bautista, 1977; Blaney and Kimmich-Blaney, 1978). The features exhibited by the Hidalgo specimen generally are in agreement with those of the males previously reported for the country.

The new record extends the distribution of the species 204 km northwest of the nearest locality, Cuetzalan del Progreso, Puebla (Canseco-Márquez and Gutiérrez-Mayén, 2006), and increases the number of genera to 44 and species to 84 of snakes known from the state of Hidalgo (Ramírez-Bautista et al., 2013).

The relatively few specimens of *A. sapperi* recorded from Mexico were found in tropical rain forest and cloud forest, as well as in shaded coffee plantations, as noted above, which suggests that this species would be susceptible to more drastic land-use changes such as the introduction of pastures and crop monocultures. *Amastridium sapperi* is given no status in the Semarnat system and is not evaluated by the IUCN (Wilson et al., 2013). Wilson et al. (2013), however, placed this species within the medium category of environmental vulnerability, with an EVS of 10. Nonetheless it is important to acquire more information on distribution and ecological requirements in order to establish more appropriate conservation measures for this snake.

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Literature cited

- Acevedo, M., L. D. Wilson, E. B. Cano and C. Vásquez-Almazán. 2010. Diversity and conservation status of the Guatemalan herpetofauna. *In* Conservation of Mesoamerican amphibians and reptiles, L. D. Wilson, J. H. Townsend and J. D. Johnson (eds.). Eagle Mountain Publishing, L. C., Eagle Mountain, Utah. p. 406-435.
- Blaney, R. M. and P. Kimmich-Blaney. 1978. Additional specimens of *Amastridium veliferum* Cope (Serpentes: Colubridae) from Chiapas, México. *The Southwestern Naturalist* 23:269.
- Canseco-Márquez, L. and M. G. Gutiérrez-Mayén. 2006. Herpetofauna del municipio de Cuetzalan del Progreso, Puebla. *In* Inventarios herpetofaunísticos de México: avances en el conocimiento de su biodiversidad, A. Ramírez-Bautista, L. Canseco-Márquez and F. Mendoza-Quijano (eds.). Publicación Especial de la Sociedad Herpetológica Mexicana No. 3. p. 180-196.
- Cope, E. D. 1861. Descriptions of reptiles from tropical America and Asia. *Proceeding of the Academy of Natural Sciences of Philadelphia* 11:368-374.
- Johnson, J. D., V. Mata-Silva and A. Ramírez-Bautista. 2010. Geographic distribution and conservation of the herpetofauna of southeastern Mexico. *In* Conservation of Mesoamerican amphibians and reptiles, L. D. Wilson, J. H. Townsend and J. D. Johnson (eds.). Eagle Mountain Publishing, L. C., Eagle Mountain, Utah. p. 322-369.
- Köhler, G. 2008. Reptiles of Central America. Second edition. Herpeton, Offenbach, Germany. 400 p.
- Martin, P. S. 1955. Herpetological records from the Gómez Farías region of southwestern Tamaulipas, Mexico. *Copeia* 3:173-180.
- McCranie, J. R. 2011. The snakes of Honduras: systematics, distribution, and conservation. Society for the Study of Amphibians and Reptiles, Contributions to Herpetology, Vol.19, Ithaca. 714 p.
- Pérez-Higareda, G., M. A. López-Luna and H. M. Smith. 2007. Serpientes de la región de Los Tuxtlas, Veracruz, México. Guía de identificación ilustrada. Instituto de Biología, Universidad Nacional Autónoma de México. 189 p.
- Porras, L. W., L. D. Wilson, G. W. Schuett and R. S. Reiserer. 2013. A taxonomic reevaluation and conservation assessment of the common cantil, *Agkistrodon bilineatus* (Squamata: Viperidae): a race against time. *Amphibian & Reptile Conservation* 7:48-73.
- Pyron, R. A., F. T. Burbrink and J. J. Wiens. 2013. A phylogeny and revised classification of Squamata, including 4161 species of lizards and snakes. *BioMed Central Evolutionary Biology* 13:93.
- Ramírez-Bautista, A. 1977. Algunos anfibios y reptiles de

- la región de “Los Tuxtlas” Veracruz. Tesis, Facultad de Biología. Universidad Veracruzana. Xalapa. 183 p.
- Ramírez-Bautista, A., C. S. Berriozabal-Islas, R. Cruz-Elizalde, U. Hernández-Salinas and L. M. Badillo-Saldaña. 2013. Rediscovery of the snake *Chersodromus rubriventris* (Squamata: Colubridae) in cloud forest from Sierra Madre Oriental, México. *Western North American Naturalist* 73:392-398.
- Rueda-Almonacid, J. V. and J. N. Rueda-Martínez. 2004. Primer registro de una serpiente del género *Amastridium* Cope, (Serpentes: Colubridae), para Sudamérica. *Revista de la Academia Colombiana de Ciencias Exactas, Físicas y Naturales* 28:291-293.
- Savage, J. M. 2002. The amphibians and reptiles of Costa Rica: a herpetofauna between two continents, between two seas. The University of Chicago Press, Chicago. 934 p.
- Smith, H. M. 1944. Snake of the Hoogstral expeditions to northern Mexico. *Zoological Series of the Field Museum of Natural History* 29:135-152.
- Smith, H. M. 1971. The snake genus *Amastridium* in Oaxaca, México. *Great Basin Naturalist* 31:254-255.
- Stafford, P. J. and J. R. Meyer. 2000. A guide to the reptiles of Belize. Academic Press, London. 356 p.
- Stafford, P. J., P. Walker, P. Edgar and M. G. Penn. 2010. Distribution and conservation of the herpetofauna of Belize. *In* Conservation of Mesoamerican amphibians and reptiles, L. D. Wilson, J. H. Townsend and J. D. Johnson (eds.). Eagle Mountain Publishing, L.C., Eagle Mountain, Utah. p. 370-405.
- The Reptile Database. 2013. <http://reptile database.reptarium.cz/species?genus=Amastridium& species=veliferum>; last access: 5.VI.2013.
- Townsend, J. H. and L. D. Wilson. 2010. Conservation of the Honduran herpetofauna: issues and imperatives. *In* Conservation of Mesoamerican amphibians and reptiles, L. D. Wilson, J. H. Townsend and J. D. Johnson (eds.). Eagle Mountain Publishing, L. C., Eagle Mountain, Utah. p. 460-487.
- Werner, F. 1903. Ueber reptilian und batrachier aus Guatemala und China in der zoologischen Staats-Sammlung in München nebst einem Anhang über seltene Formen aus anderen Gegenden. *Abhandlungen Königlich Bayerische Akademie der Wissenschaften* 22:343-384.
- Wilson, L. D. 1988. *Amastridium, A. veliferum*. *Catalogue of American Amphibians and Reptiles* 449.1-449.3.
- Wilson, L. D. and J. D. Johnson. 2010. Distributional patterns of the herpetofauna of Mesoamerica, a biodiversity hotspot. *In* Conservation of Mesoamerican amphibians and reptiles, L. D. Wilson, J. H. Townsend and J. D. Johnson (eds.). Eagle Mountain Publishing, L. C., Eagle Mountain, Utah. p. 30-235.
- Wilson, L. D. and J. R. Meyer. 1969. A review of the colubrid snake genus *Amastridium*. *Bulletin of the Southern California Academy of Science* 68:146-160.
- Wilson, L. D. and J. R. Meyer. 1985. The snakes of Honduras. Milwaukee Public Museum, Milwaukee. 150 p.
- Wilson, L. D., V. Mata-Silva and J. D. Johnson. 2013. A conservation reassessment of the reptiles of Mexico based on the EVS measure. *Amphibian and Reptile Conservation* 7:1-47.