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Noteworthy records for *Tantilla cascadae* and *T. ceboruca* (Squamata: Colubridae) from Jalisco, Mexico

Daniel Cruz-Sáenz[1*], **Francisco Javier Muñoz-Nolasco**[2], **David Lazcano**[3] and **Edgar Flores-Covarrubias**[2]

1 Universidad de Guadalajara, Centro Universitario de Ciencias Biológicas y Agropecuarias, Centro de Estudios en Zoología. Km 15.5 Carretera Guadalajara-Nogales, Predio Las Agujas. C. P. 44101. A. P. 1-1919. Zapopan, JAL., México
2 Universidad de Guadalajara, Centro Universitario de Ciencias Biológicas y Agropecuarias. Km 15.5 Carretera Guadalajara-Nogales, Predio Las Agujas. C. P. 44101. A. P. 1-1919. Zapopan, JAL., México
3 Universidad Autónoma de Nuevo León, Facultad de Ciencias Biológicas, Laboratorio de Herpetología, C. P. 66450, A. P. – 513. San Nicolás de los Garza, N. L., México
* Corresponding author. E-mail: dcruzsaenz@gmail.com

Abstract: We report the first records of two species of snake in the state of Jalisco, Mexico. We recorded one specimen of *Tantilla cascadae* and two of *Tantilla ceboruca*, the former known only from its type locality. These findings extend the known geographical distribution of *T. cascadae* 121 km westward from Michoacán, its type locality. Also, it extends the known geographical distribution of *T. ceboruca* 41 km eastward from its type locality and 185 km northwest from its second record in the state of Colima.

Key words: Colubridae, *calamarina* group, Jalisco, Mexico

Tantilla Baird & Girard, 1853 is a genus of small secretive snakes well represented in Mexico, with 30 species present in the country (Wilson and Mata-Silva 2014). Given that many species in this genus are difficult to encounter in the field and that, as a consequence, quite a number of them are known from very few specimens, it is not surprising that additions to the knowledge of their distribution and morphological variation would accumulate as fieldwork in Mexico continues.

The *Tantilla calamarina* group comprises seven species distributed along the Pacific versant of Middle America, from northwestern Mexico to Costa Rica (Canseco-Márquez et al. 2007): *Tantilla calamarina* Cope, 1866; *T. cascadae* Wilson & Meyer, 1981; *T. ceboruca* Canseco-Márquez, Smith, Ponce-Campos, Flores-Villela & Campbell, 2007; *T. coronadoi* Hartweg, 1944; *T. deppei* (Bocourt, 1883); *T. sertula* Wilson & Campbell, 2000; and *T. vermiformis* (Hallowell, 1861). The group is defined by the presence of a spatulate anterior extension of the middorsal dark stripe, which continues anteriorly to cover the remainder of the head, and a parietal pale spot on either side of the head (Wilson and Meyer 1981). The species in the group also present a middorsal dark stripe. Both *T. cascadae* and *T. ceboruca* are known only from a few specimens and localities of western Mexico (Wilson and Meyer 1981; Canseco-Márquez et al. 2007; Reyes-Velasco et al. 2012).

On 6 December, 2011 a single female specimen of *Tantilla cascadae* (voucher CZUG-R304) was collected in the municipality of Pihuamo (19°07′48″ N, 103°11′59″ W, ca. 20 km southeast from the urban area of Pihuamo), Jalisco, Mexico, at an elevation of 1,858 m above sea level (a.s.l.) (Figure 1). The vegetation of the locality corresponds to pine-oak forest. The specimen identity is based on the presence of two postocular scales, six supralabials, six infralabials, 15 rows of dorsal scales, 144 ventral scales, 48 subcaudals, divided cloacal scute, and the color pattern characteristic of the *T. calamarina* species group, consisting of a brownish background color, a middorsal dark stripe along the middorsal scale row, faint lateral stripes, and a pair of postparietal pale spots. Total length of the specimen is 158 mm, snout-vent-length (SVL) 128 mm, tail length (TL) 30 mm, and tail length/total length ratio 0.190 mm (Figure 2). With respect to its coloration in life, the dorsal color is Fawn Color (258, capitalized color names and color numbers follow Köhler 2012) and the ventral color is Pale Greenish Yellow (86), with also tiny dark speckles running across each ventral scale. The dorsal color of the head is Fawn Color (258); its central scales are darkened. It also has a dark middorsal stripe extending from parietal region onto dorsal body (Figure 2).

Tantilla cascadae is known otherwise in the literature based on two records (Wilson and Meyer 1981; Wilson 1988; Wilson and Mata-Silva 2014). The holotype specimen (American Museum of Natural

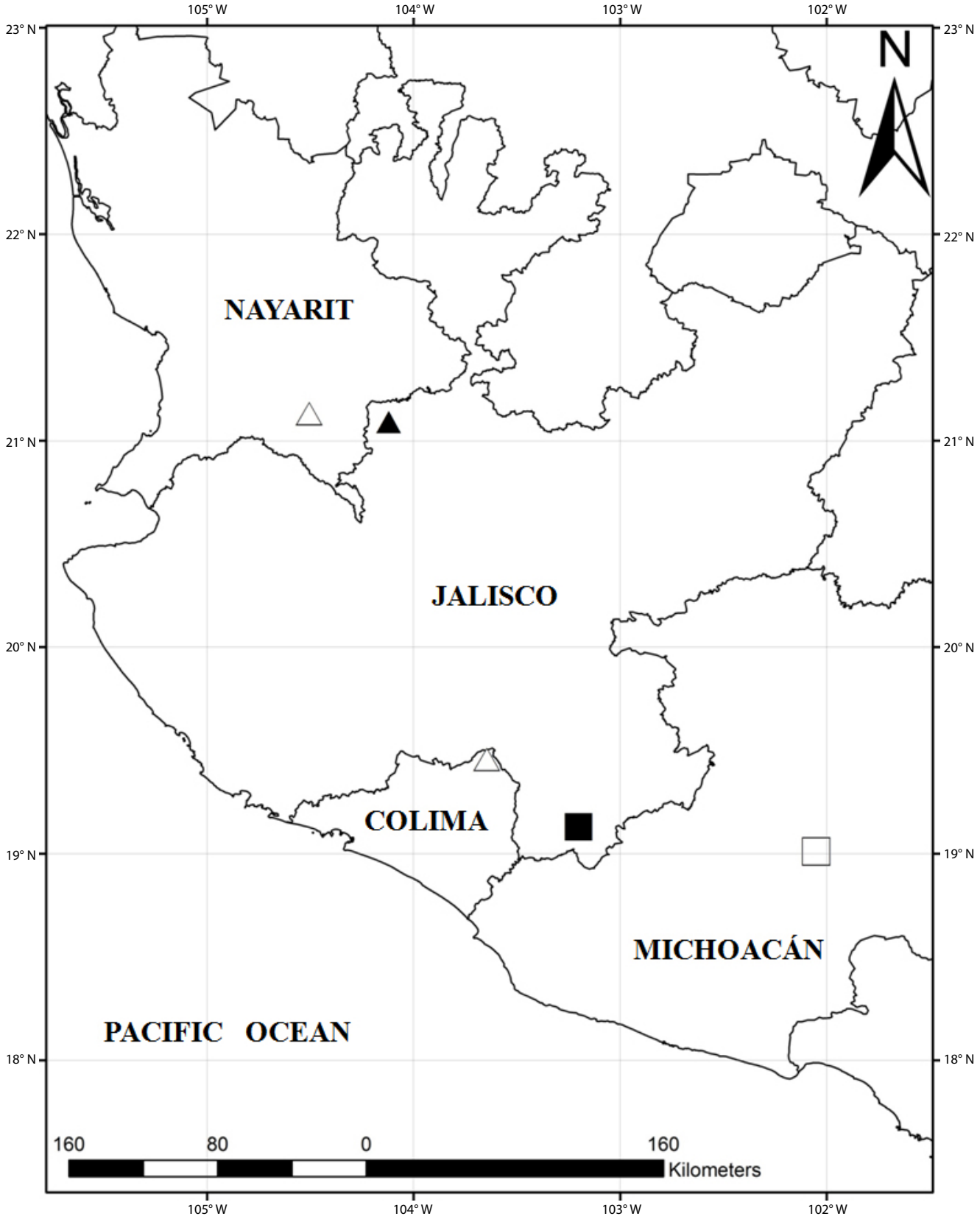

Figure 1. Records of two Mexico endemic species of centipede snakes *Tantilla cascadae* and *T. ceboruca*. Open square: type locality of *T. cascadae* (Wilson and Meyer 1981). Solid square: the new record for *T. cascadae.* Open triangles: previous records of *T. ceboruca,* including the type locality in Nayarit (Canseco-Márquez et al. 2007; Reyes-Velasco et al. 2012). Solid triangle: the new record for *T. ceboruca*.

Figure 2. Micrographs of dorsal and lateral views of the head of *Tantilla cascadae* and color pattern in life of the specimen (CEZUG-R304) recorded in Pihuamo, Jalisco, Mexico. Photographs by Daniel Cruz-Sáenz.

History, AMNH 107389), a female from Tzaráracua Falls (Cascada la Tzaráracua), south of Uruapan (10.5 km south, according to Duellman 1961), Michoacán, Mexico, collected in June, 1939, by D. F. Brand (Wilson and Meyer 1981: 13–15). The elevation and habitat given by Duellman (1961) are 1,430 m a.s.l. and "oak forest with scattered pines" (Wilson and Mata-Silva 2014). The second record includes an individual photographed in 2000 by P. Heimes at the type locality (Wilson and Mata-Silva, 2014). Our new record in the Pihuamo locality, southeastern Jalisco, occurred in a pine forest with scattered oak trees and is the first voucher based record after the species description, almost three-quarters of a century after the holotype capture. This finding is the first record of *T. cascadae* outside its type locality and in the state of Jalisco, extending its known distribution in 121 km westward of the type locality.

On 6 March, 2010 two specimens of *Tantilla ceboruca* were found in a dry stream bed in a tropical dry forest in the municipality of Hostotipaquillo (21°05′23.60″ N, 104°07′09.60″ W, ca. 8 km northwest from the urban area of Hostotipaquillo), Jalisco, Mexico, at an elevation of 1,233 m a.s.l. (Figure 1). Both specimens have seven supralabials, two postoculars, 15 rows of dorsal scales, and a divided cloacal scute. The male specimen (CZUG-R302) has 146 ventral scales and 47 subcaudal scales, whereas the female (CZUG-R303) differs in having 153 ventrals and 36 subcaudals. The male specimen has a total length of 174.6 mm, SVL 140.7 mm, TL 33.9 mm, and tail length/total length ratio 0.194 mm. The female has a total length of 199.6 mm, SVL 166.8 mm, TL 32.8 mm, and tail length/total length ratio 0.164 mm (Figure 3). With respect to its coloration in life, the anterior dorsal color were Light Medium Blue (164, capitalized color names and color numbers follow Köhler 2012), the posterior dorsal color were Caribbean Blue (168), and ventral color generally Pale Greenish Yellow (82) with tiny dark speckles running across each ventral scale. The dorsal color of the heads was Light Medium Blue (164) with central scales slightly darkened. The specimens also

Figure 3. Micrographs of dorsal and lateral views of the head of *Tantilla ceboruca* and color pattern variation in two specimens (CEZUG-R302 and CEZUG-R303) recorded in Hostotipaquillo, Jalisco, Mexico. Photographs by Daniel Cruz-Sáenz and Edgar Flores-Covarrubias.

had a dark middorsal stripe extending from the parietal region onto the dorsal surface of the tail (Figure 3).

Until this work, the known distribution of *Tantilla ceboruca* included only the type locality (based on a single specimen) from Carretera Jala-Cerro microondas, Volcán Ceboruco, Nayarit, Mexico (2,094 m a.s.l., 21°07′55.2″ N, 104°30′16.6″ W) (Canseco-Márquez et al. 2007) and another record (based on two specimens) from Volcán de Colima, Municipality of Cuahutémoc, Colima, Mexico (1,700 m a.s.l., 19°27′23.03″ N, 103°38′39″ W) (Reyes-Velasco et al. 2012) missed by Wilson and Mata-Silva (2014) review on the Mexican *Tantilla*. Our records in Hostotipaquillo extend the known distribution of *T. ceboruca* 41 km eastward from the type locality and 185 km northwest from the Colima record, and are the first records of this species in the state of Jalisco. Despite its small known distribution, *Tantilla ceboruca* is not protected by the Mexican environmental laws (i.e., it was not considered in the SEMARNAT system; Norma Oficial Mexicana NOM-059-SEMARNAT-2010, at www.semarnat.gob.mx). It is worth mentioning that the specimens of *T. ceboruca* were collected in a tropical dry forest at a lower elevation than that of the previous records, where pine-oak forest prevails.

Wilson et al. (2013) provided a conservation reassessment of the herpetofauna of Mexico. They computed an Environmental Vulnerability Score (EVS) of 16 for *Tantilla cascadae*, highly influenced by the species unique record. Wilson and Mata-Silva (2014) recalculated the EVS as 5+8+2 = 15 using our record, but the species remains in the category of high vulnerability (see Wilson et al. 2013, for an explanation of this method). *Tantilla cascadae* was judged as Data Deficient in the IUCN Red List (Canseco-Márquez et al. 2007) and as Threatened in the SEMARNAT List (2010). Our record supports the importance of the remaining coniferous forests of the western Transverse Volcanic Axis of central Mexico to the *T. cascadae* conservation.

Although our records were considered in the Wilson and Mata-Silva (2014) review, we herein present more detailed information on these records and specimens, and an updated map of distribution records by including

the *T. ceboruca* record in the state of Colima (Reyes-Velasco et al. 2012). The three specimens collected (CEZUG-R302; CZUG-R303; and CZUG-R-304) were incorporated into the vertebrate collection of the Centro de Estudios en Zoología of the Universidad de Guadalajara (CEZUG), located in Zapopan, Jalisco, Mexico, with the collect permission FAUT-0074.

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