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REDISCOVERY OF *Amphisbaena prunicolor* (Cope, 1885) (Squamata, Amphisbaenidae) IN PARAGUAY

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Abstract: *Amphisbaena prunicolor* is a worm-lizard distributed in Argentina, Brazil, and Paraguay. In Paraguay, the species was known for only one record in southern Paraguay. Here we provided a second record for the species in the country, thus extending its distribution 60 km west of the closest record located at Itapúa department, also the rediscovering of the species after 35 years.

Keywords: distribution; South America; Yacyreta.

The worm lizards genus *Amphisbaena* is recorded from Central to South America and represents the most diverse genus of Amphisbaenia, with 96 species recognized to date (Uetz *et al.* 2019). In Paraguay eleven species are recorded (Cacciali *et al.* 2016), many of those species such as *Amphisbaena angustifrons*, *A. prunicolor*, *A. leeseri* and *A. steindachneri* have only a few records (Cacciali *et al.* 2016), which make distribution on these species very fragmented for the country. Among these poorly known Paraguayan species, *Amphisbaena prunicolor* is a medium-sized worm lizard distributed in northern Argentina (Corrientes and Misiones Provinces), south of Brazil (from Rio Grande do Sul to Espírito Santo States) and south of Paraguay (Perez *et al.* 2012, Cacciali *et al.* 2016). The only known record for Paraguay was reported from Itapúa department, 3 km northeast of Encarnación (Montero & Terol 1999, Cacciali *et al.* 2016), and the specimen (CM 109119) was last collected in 1984 by I. Gamarra, housed in Carnegie Museum of Natural History (Pittsburgh, USA) (Montero &Terol 1999). This species was long ago synonymized with *Amphisbaena darwinii* by Boulenger (1885), and included in the *A. darwini* complex by Gans (1966), which encompasses eight species: *Amphisbaena albocingulata*, *A. darwinii*, *A. heterozonata*, *A. hogei*, *A. munoai*, *A. nigricauda*, *A. prunicolor* and *A. trachura*. Gans (1966) recognized two subspecies for *A. prunicolor*: *A. p. prunicolor* and *A. p. albocingulata*, later, Vanzolini (2002) elevated *A. prunicolor* and *A. albocingulata* to full species and Perez *et al.* (2012) analyzed the variation of both species. *Amphisbaena albocingulata* has no precise type locality (cited only as Paraguay in the original description).

In this contribution, we present a new record

of *Amphisbaena prunicolor* from Paraguay, which is the second record for the country. The specimen was found dead (probably road-killed) on 6 December 2017 in a paved road near the Yacyretá Dam in the Itapúa department, southern Paraguay (27°18'59.4"S 56°28'18.3"W, Figure 1). We collected the specimen under Scientific collection permit 173/2017 obtained from the Ministerio del Ambiente y Desarrollo Sostenible (MADES) and it is housed at the herpetological collection of the Instituto de Investigación Biológica del Paraguay (IIBP-H 4460). The new record extends the known distribution of the species 60 km west of the nearest record northeast of Encarnación, Itapuá (Montero & Terol 1999), and represents the most western record of the species to date.

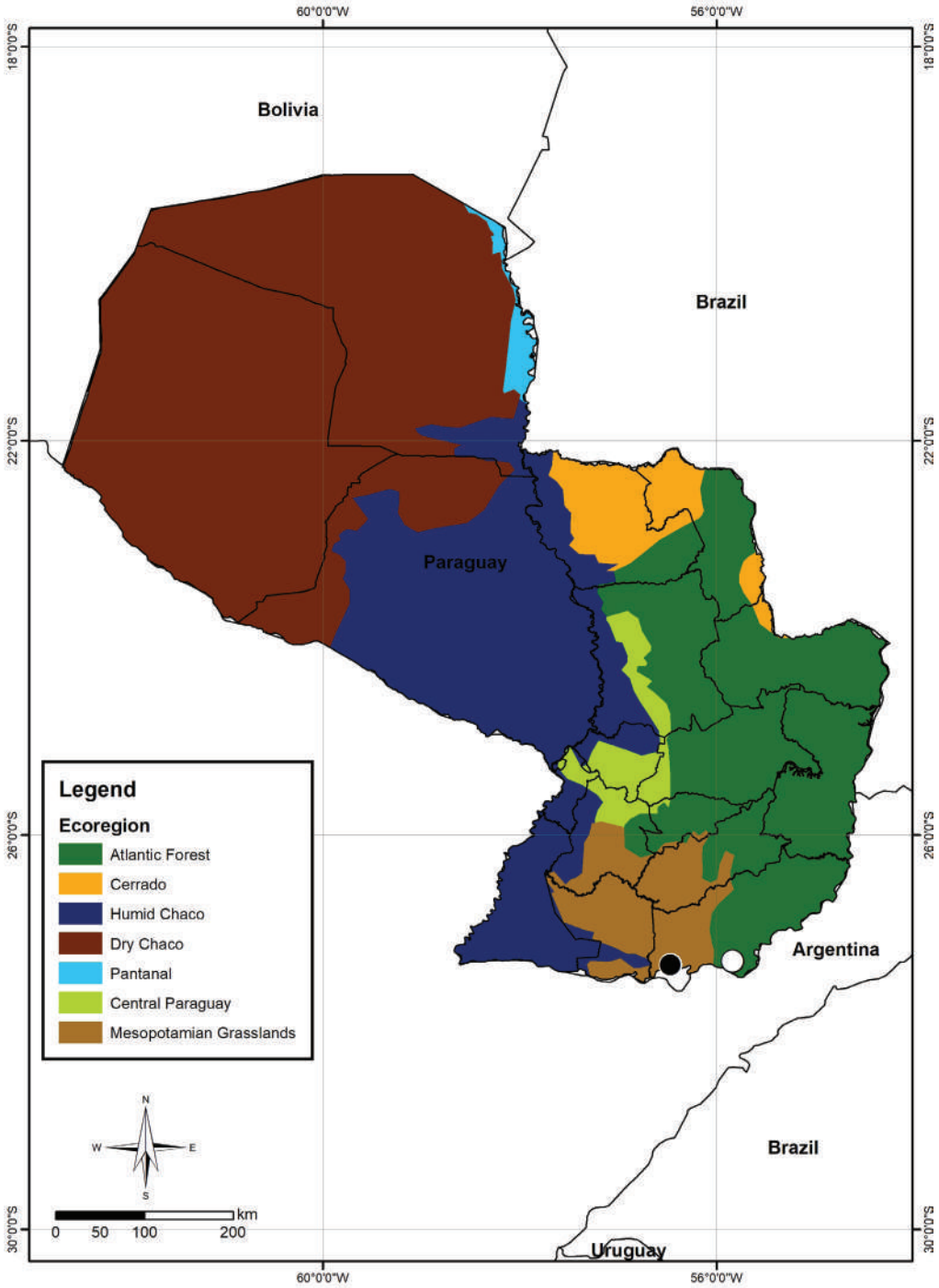

Figure 1. Map of ecoregions of Paraguay showing the records of *Amphisbaena prunicolor* in Paraguay: previously known record in Cacciali *et al.* (2016) (white dot), and the new record from Yacyreta Dam (black dot).

According to Perez *et al.* (2012) *Amphisbaena prunicolor* has a rounded snout, the nasal shields are in contact on the dorsal part of the head, caudal autotomy is externally visible, presence of four precloacal pores, 3/3 supralabials and infralabials, body annuli 181 - 215, caudal annuli 18 - 24, dorsal and ventral segments 10 - 17 and 14 - 20 respectively at the midbody, and presence of postmalar row which is the main difference for differentiating it from *A. albocingulata* (absence of postmalar row). Also, it differs from this species by presenting a venter light checkerboard coloration pattern. All diagnose characters are present in the new collected individual, confirming its specific identification. The measurements of the specimen are 178.7 mm of snout-vent length, 18.9 mm of tail length, 7.1 mm of head length and body diameter 5.7 mm. The scale count are 197 body annuli, 19 caudal annuli, 14 dorsal and 17 ventral segments at midbody annulus, 3/3 supralabials and 3/3 infralabials plate, rounded snout, four precloacal pores, presence of postmalar row (Figure 2A-C). Also, the specimen has light ventral coloration pattern (Figure 3A-B) which matches with the diagnosis presented by Perez *et al.* (2012) for differentiated *Amphisbaena prunicolor* from *A. albocingulata.*

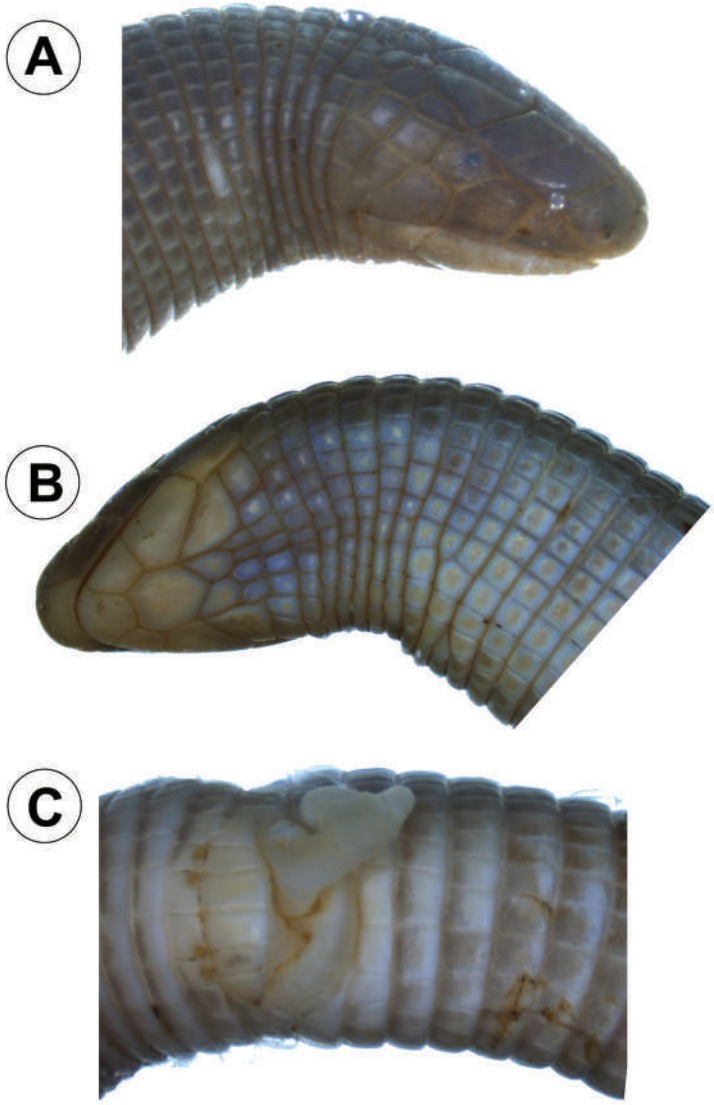

Figure 2. A) Lateral view of the head of *Amphisbaena. prunicolor*, IIBP-H 4460B) ventral view of the head of *Amphisbaena prunicolor*, notice the presence of postmalar row, C) ventral view of the cloacal region, showing the four pores.

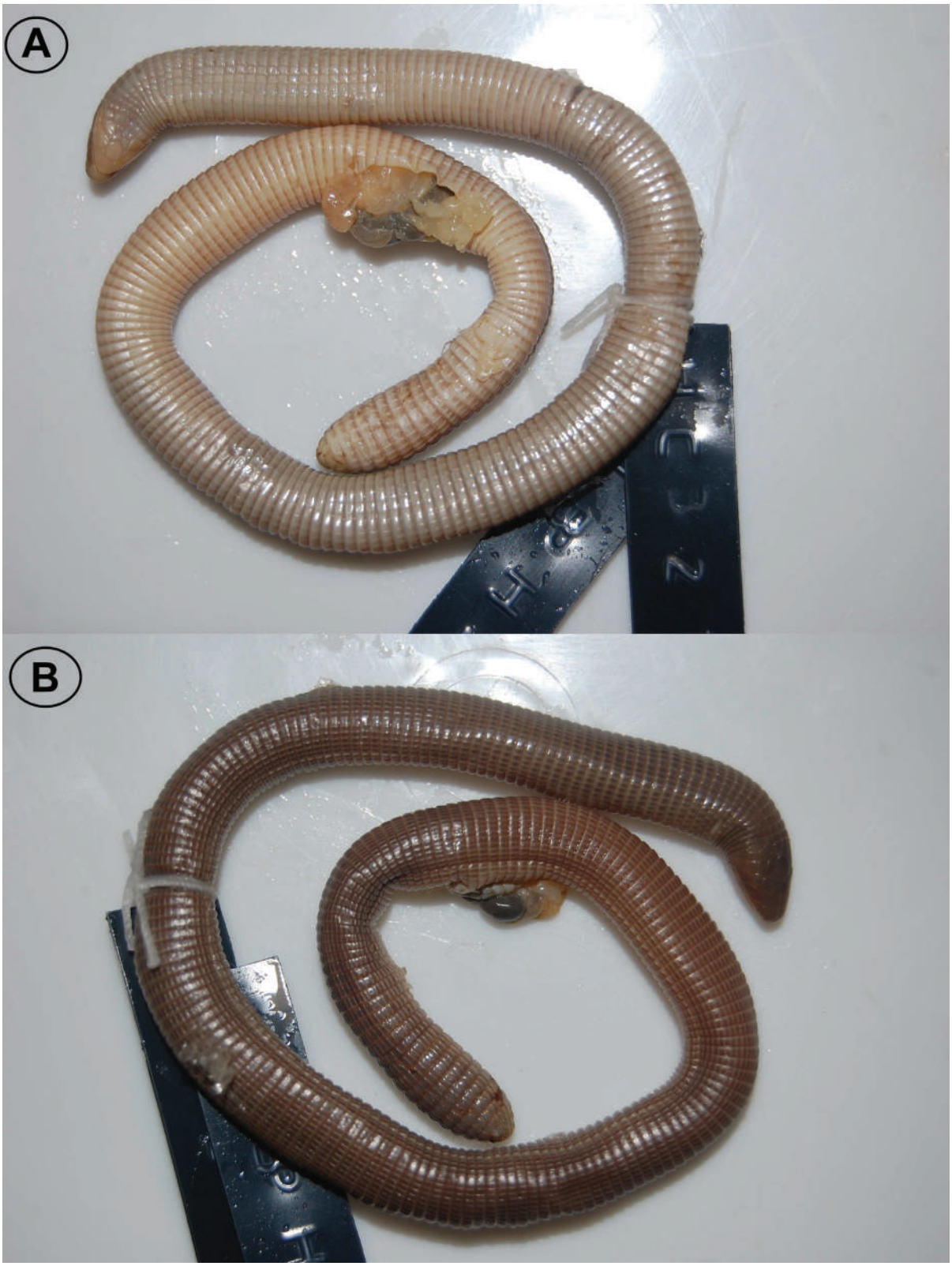

Figure 3. A) Ventral view of *Amphisbaena prunicolor*, IIBP-H 4460, B) dorsal view of *A. prunicolor* showing the coloration of the body.

The habitat where the specimen was found corresponds to the ecoregion Mesopotamian grasslands according to Avila *et al.* (2018). This ecoregion in Paraguay harbors rare species of reptiles in the country, such *Atractus thalesdelemai*, *Micrurus silviae*, and *Liolaemus azarai* (Cacciali *et al.* 2016). The ecoregion is characterized by grasslands (sometimes flooded) with small forest patches. Also, private rice crop ranches predominate in the ecoregion, which produce a strong anthropic presence impact (Cacciali *et al.* 2016). The presence of *Amphisbaena prunicolor* in open areas with anthropic intervention was already reported (Entiauspe-Neto *et al.* 2016).

The fact that only one specimen of *A. prunicolor* has been known in Paraguay since 1987 led Motte *et al.* (2009) to classify *A. prunicolor* under Data Deficient category. Despite the new record, we are not able to infer about its conservation status in Paraguay and the species should still be classified as Data Deficient until more records or biological information can be obtained. Here, we provided a new locality record, contributing to the knowledge of the distribution of *A. prunicolor* in Paraguay. Given the proximity of this record with the previous one, we cannot add much information about its ecological affinities, and the species seems to be restricted to the southern portion of the country. However, the absence of collection effort makes the study on its ecology, conservation and natural history difficult, and consequently, the knowledge about its distribution in the country is poorly known as for most amphisbaenians.

It is important to mention that this new record is inside a small protected unit, the Guazu Puku Natural Reserve, which comprising around 3.000 ha. Currently, this reserve is administrated by the Entidad Binacional Yacyreta (EBY) and highlights the importance of private reserves to protect the biodiversity (Bingham *et al.* 2017). However, we cannot be sure that this reserve includes the conservation of suitable habitats in order to ensure the correct protection of this species (Cacciali *et al.* 2015), especially because of the rapid expansion of rice, soybean and *Eucalyptus* plantation (Codesido & Fraga 2009) representing a thread for natural grasslands habitats. The area where the specimen was found represents one of the best-sampled areas in Paraguay for reptiles (Cacciali *et al.* 2015), nevertheless this record proves the importance of continuous scientific monitoring in order to fill the distribution gaps of several taxa, especially those with fossorial habits, which are often poorly represented in scientific collections.

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