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

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Running title: *Amphisbaena prunicolor* in Paraguay

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 his distribution 60 km west of the closest record located at Itapúa department, also the rediscovering of the species after 35 years.

Keywords: conservation, distribution, South America, Yacyreta.

The worm-lizards genus *Amphisbaena* Linnaeus 1758 are distributed from Central to South America and form the most diverse genus of Amphisbaenia Gray, 1844, 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 *A. angustifrons* Cope, 1861, *A. prunicolor* (Cope, 1885), *A. leeseri* Gans, 1964, and *A. steindachneri* (Strauch, 1881) have only a few records (Cacciali et al., 2016), which make the knowledge of the distribution of these species poorly known. Amongthese poorly known Paraguayan species, *Amphisbaena prunicolor* (Cope, 1885) is a medium-size worm-lizard distributed in northern Argentina, in Corrientes and Misiones Province, also, in the south of Brazil, from Río Grande to Espírito Santo States and south of Paraguay (Perez *et al*. 2012, Cacciali *et al*. 2016). The only know record for Paraguay was reported from Itapúa department, 3km northeast of Encarnación (Montero & Terol 1999, Cacciali *et al*. 2016), and was last collected in 1984 by I. Gamarra. The specimen is housed at the Carnigie Museum of Natural History (Pittsburgh, USA) with catalog number CM 109119 (Montero & Terol, 1999). This species was long ago synonymized with *A. darwini* by Boulenger (1885), and included in the *A. darwini* complex by Gans (1966), with encompasses eight species: *Amphisbaena albocingulata* Boettger 1885, *A. darwini* Duméril & Bibron 1839, *A. heterozonata* (Burmeister 1861), *A. hogei* Vanzolini 1950, *A. munoai* Klappenbach 1960, *A. nigricauda* Gans, 1966, *A. prunicolor* (Cope 1885) and *A. trachura* Cope 1885. Initially, two subspecies were recognized for *A. prunicolor*: *A. p. prunicolor* and *A. p. albocingulata* Boettger,1885. However, Perez *et al*. (2012) analyzed the variation of both subspecies and find diagnostic characters and elevated to full species, *A. prunicolor* and *A. albocingulata*, which also has historical taxonomic problems, once its type locality is not precise (cited only as Paraguay).

In this contribution, we present a new record of *Amphisbaena prunicolor* from Paraguay, which would be the second record for the country. Also, this new record represents the rediscovered of this species in Paraguay, after 35 years. The new specimen was found dead (probably road killed) on 6 December 2017 in a pavemented road near the Yacyretá Dam in the Itapúa department, southern Paraguay (-27.316498, -56.471752) (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). This record represents the most western record of the species to date.

According to Perez et al. (2012) *A. 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, and the absence of the postmalar row is the main difference for differentiate from *A. albocingulata*. Also, it differs from this species by presenting a venter light checkerboard colouration pattern. All diagnose characters are present in the new collected individual, confirming its specific identification. The specimen collected has 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, we observed, the venter light colouration pattern. This match with the diagnosis presented by Peres et al (2012) for differentiated *Amphisbaena prunicolor* from *A. albocingulata*.

The habitat where the specimen was found corresponds to the ecoregion Mesopotamian pastures according to Cacciali et al. (2016). This ecoregion in Paraguay harbors rare species of reptiles in the country, such *Atractus thalesdelemai* Passos, Fernandaes & Zanella, 2005, *Micrurus silviae* Di-Bernardo, Borges-Martins & Silva Jr 2007, and *Liolaemus azarai* Avila, 2003 (Cacciali *et al*. 2016). The ecoregion is characterized by grasslands (sometimes flooded) with small forest patchs. Also, private rice crops ranches predominate in the ecoregion, which make the anthropic presence strong (Cacciali et al. 2016). This species has already been associated with open areas with anthropic intervention (Machado et al. 2016).

Given that, since 1984 only one specimen has been known in Paraguay, leading Motte *et al*. (2009) to classify this species under Data Deficient category. Despite the new record, we are not able to infer about its conservation status in Paraguay and the national status of the species should still be classify as Data Deficient until more records be recorded. Here, we provided a new locality and more information about the distribution of the species, which seems to be, in the Paraguay, restricted to the south portion of the country. However, the fossorial habits of the species make the studies on its ecology difficult, and consequently, the knowledge about its distribution in the country poorly know 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 managed by the Entidad Binacional Yacyreta (EBY) that highlights the importance of private reserves to protect the biodiversity. However, we cannot be sure that this reserve contemplate the conservation of suitable habitats in order to ensure the correct protection of this species. The area were the specimen was found represent one of best sampled areas in Paraguay for reptiles (Cacciali *et al*. 2015), nevertheless this record highlights the importance of continue the scientific expeditions in order to fill the distribution gaps of other reptiles species in Paraguay, especially with fossorial habits, which are often poorly represented in scientific collections.

ACKNOWLEDGMENTS

We would like to thank Francisco Brusquetti for allowing have access to specimen under their care. HC would like to thank the Consejo Nacional de Ciencia y Tecnología (CONACYT), for financial support through the Programa Nacional de Incentivo a Investigadores (PRONII), and Coordenação de Aperfeiçoamento Pessoal de Nível Superior (CAPES, Brazil), Programa de Estudantes-Convênio de Pós-Graduaçao (PEC-PG), for a fellowship. MF thanks to Programa para el desarrollo de la Ciencia y Tecnología (PROCIENCIA) of CONACYT for financing scientific projects. DJS thanks Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq) for his research fellowship (311492/2017-7).

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Figure legends

Figure 1. Map showing the two records of *Amphisbaena prunicolor* in Paraguay. White dot represents the record in Cacciali *et al*. (2016), black dots represent the new record Yacyreta Dam.

Figure 2. A) Lateral view of the head of *A. prunicolor*, B) 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.