

Apostolepis intermedia Koslowsky, 1898 (Serpentes: Xenodontinae: Elapomorhini): First records for Paraguay

Omar Machado Entiauspe-Neto¹, Thales de Lema² and Hugo Enrique Cabral Beconi³

1 Instituto Federal de Educação, Ciência e Tecnologia Sul Rio Grandense, Campus Pelotas Visconde da Graça, Av. Engenheiro Ildefonso Simões Lopes, 2791, CEP 96060-290, Pelotas, RS, Brazil.

2 Southern Herpetology Office, Museu de Ciências e Tecnologia, Pontifícia Universidade Católica do Rio Grande do Sul, P. O. Box 1429, CEP 90619-900, Porto Alegre, RS, Brazil.

3 Instituto de Investigación Biológica del Paraguay, Del Escudo 1607, Asunción, Paraguay.

* Corresponding author. E-mail: omarentiauspe@hotmail.com

ABSTRACT: The fossorial snake *Apostolepis intermedia* is an Elapomorhini species currently known by two specimens from Brazil. In this study, we report the first records of the species in Paraguay, based on two female specimens from the Reserva Natural Laguna Blanca, Departamento San Pedro, Paraguay. These records occurred 376 km south from the previously southernmost record, in Anastácio, Mato Grosso do Sul, Brazil. We also provide data on the species morphological variation.

DOI: 10.15560/10.3.600

The Elapomorhini species, *Apostolepis intermedia* Koslowsky, 1898 was described based on a single specimen from Miranda, Mato Grosso do Sul, Brazil. In its original description, Koslowsky (1898) did not mention the institution in which the holotype was deposited. Accordingly to Lema (1993) and Ferraro and Williams (2006), the holotype was lost or discarded in the early 1990's. Until now, only one additional specimen of *Apostolepis intermedia* is known, also from Brazil. Albuquerque and Lema (2012) provided a description of the second specimen and a key to the striped species of the genus *Apostolepis*.

Following Albuquerque and Lema (2012), *Apostolepis intermedia* can be distinguished from its congeners based on the following combination of characters: (1) three infralabials in contact with first pair of anterior chinshields; (2) five stripes on dorsal region of body (paravertebral stripes reduced, at least in adult specimens); (3) six supralabials; (4) four maxillary teeth separated from pair of enlarged fangs by short diastema; (5) snout projected; (6) 33–37 subcaudals. While examining specimens identified as *A. dimidiata* in the herpetological collection of Museo Nacional de Historia Natural del Paraguay (MHNP), two atypical specimens were observed, which revealed to be *A. intermedia*. In this study, we report two new specimens of *A. intermedia* representing the first records of the species outside Brazil in Paraguay, based on the specimens MHNP 11533 and MHNP 11636 from Reserva Natural Laguna Blanca, Departamento San Pedro, Paraguay (23°47'56" S, 56°17'32" W, 204 m asl), collected in a typical Cerrado savanna under permit 03/11 issued by the Secretaría del Ambiente.

Both specimens are female, presenting projected snout and complete caudal bands. The specimen MHNP 11533 has 242 ventrals, 31 subcaudals, 6 supralabials, and 6 infralabial scales; snout-vent length (SVL) 319 mm and tail length (TL) 32 mm (Figure 1). The specimen MNHNP

11636 has 241 ventral, 28 subcaudal, 6 supralabial, and 6 infralabial scales; SVL 105 mm and TL 13 mm.

Even though both referred specimens present larger ventral scale counts than the other known specimens of *Apostolepis intermedia* (211 – 217 ventral scales), and a slightly smaller subcaudal scale count (33 – 37 subcaudal scales), it matches the other diagnostic features presented in the diagnosis of Albuquerque and Lema (2012). Also, this variation might be explained by sexual dimorphism, considering that both (MHNP 11533, and 11636) are females, and the other two known specimens are males,



FIGURE 1. Lateral, dorsal and ventral views of the anterior portion of the body including the head and lateral view of the midbody of *Apostolepis intermedia* (MNHNP 11533).

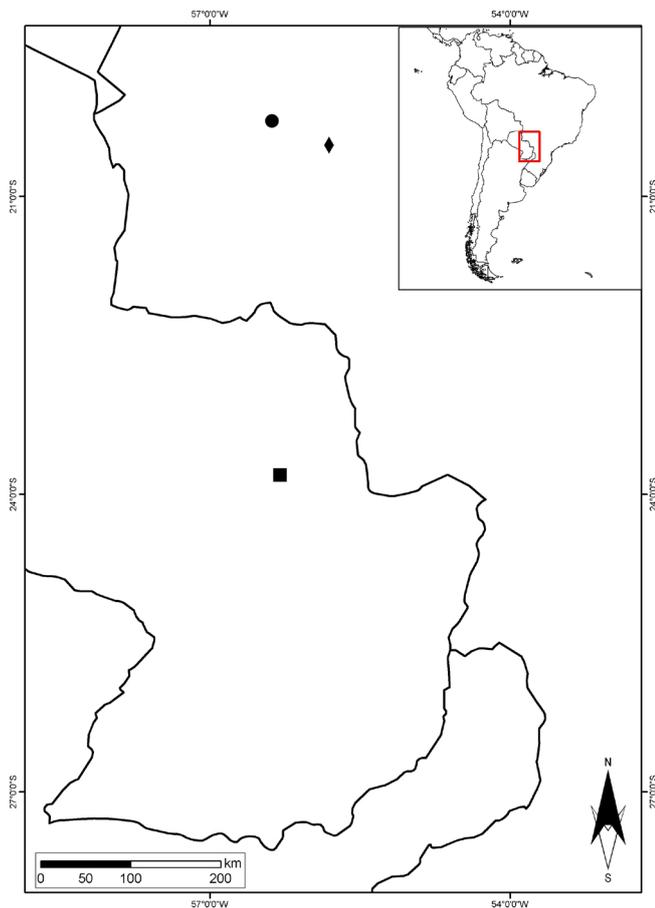


FIGURE 2. Presently known records of *Apostolepis intermedia*. The black circle represents the type locality; the black triangle is the second recorded specimen, described by Albuquerque and Lema (2012); and the black square represents the new record, from this study.

agreeing with the sexual dimorphism found in other *Apostolepis* species (e.g. Lema and Renner, 1998). However, we highlight that further studies in *Apostolepis* taxonomy are needed due to the presence of polymorphism and intraspecific variation (as shown in Lema, 1993), as well as species described based on few specimens, which lack information on the mentioned variations.

The possibility of occurrence in Paraguay was mentioned by Albuquerque and Lema (2012), who considered the lack of records a matter of “collecting or

taxonomic misidentification”. Also, the Reserva Natural Laguna Blanca, locality where the specimens were collected, is located in a region dominated by flora of Cerrado (Cacciali *et al.* 2013), the same vegetation where the second specimen (ZUFMS-REP 1269) was collected, and possibly, the same as the holotype. This paper provides the first records of *Apostolepis intermedia* in Paraguay, new data on its morphological variation, and extends our knowledge on the species distribution to 376 km south from the previously southernmost record (ZUFMS-REP 1269, Figure 2) in Anastácio, Mato Grosso do Sul, Brazil (Albuquerque and Lema 2012).

ACKNOWLEDGMENTS: We thank Martha Motte (Museo Nacional de Historia Natural del Paraguay) for allowing the revision of specimens under her care. Also to Karina Atkinson, Helen Pheasey and other researchers in the Biological Station of “Para La Tierra” for the effort on investigation and conservation of the Reserva Natural Laguna Blanca. We also are grateful to Davi L. Pantoja and an anonymous reviewer, who provided very important insights to our article, and to Pier Cacciali (Instituto de Investigación Biológica del Paraguay), who we are deeply indebted to for his review and help in this paper.

LITERATURE CITED

- Albuquerque, N.R. and T. Lema. 2012. Description of the second known specimen of *Apostolepis intermedia* (Serpentes, Colubridae, Xenodontinae). *Zootaxa* 3325: 53–58.
- Cacciali, P., P. Smith, A. Källberg, H. Pheasey and K. Atkinson. Reptilia, Squamata, Serpentes, *Lygophis paucidens* Hoge, 1952: First records for Paraguay. *Check List* 9(1): 131–132 (<http://www.checklist.org.br/getpdf?NGD201-12>).
- Ferraro, D.P. and J.D. Williams. 2006. Material tipo de la Colección de Herpetología del Museo de La Plata, Buenos Aires, Argentina. *Cuadernos de Herpetología* 19: 19–36 (http://sedici.unlp.edu.ar/bitstream/handle/10915/6430/Documento_completo.pdf?sequence=1).
- Koslowsky, J. 1898. Ofidios de Matto-Grosso (Brasil). *Revista del Museo de La Plata* 8: 25–32.
- Lema, T. 1993. Polimorfismo em *Apostolepis dimidiata* (Jan, 1862) com a invalidação de *Apostolepis villaricae* Lema, 1978 e *Apostolepis barrioi* Lema, 1978 (Serpentes: Colubridae: Xenodontinae: Elapomorhini). *Acta Biológica Leopoldensia* 15: 35–52.
- Lema, T. and M.F. Renner. 1998. O status de *Apostolepis quinquelineata* Boulenger, 1896, *A. pyimi* Boulenger, 1903, e *A. rondoni* Amaral, 1925 (Serpentes: Colubridae: Elapomorphiinae). *Biociências* 6(1): 99–121.

RECEIVED: July 2013

ACCEPTED: June 2014

PUBLISHED ONLINE: JULY 2014

EDITORIAL RESPONSIBILITY: Davi Pantoja