

Squamata, Serpentes, *Micrurus silviae* Di-Bernardo, Borges-Martins and Silva, 2007: Presence confirmation in Paraguay

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ABSTRACT: *Micrurus silviae* is a coralsnake with a triadal pattern, and is one of the eight species found in southern South America. In Paraguay there are six taxa recorded: *M. altirostris*, *M. baliocoryphus*, *M. frontalis*, *M. pyrrhocryptus*, *M. corallinus*, and *M. lemniscatus carvalhoi*. Here we present a record of *M. silviae*, an additional and seventh species for the country. Previously *M. silviae* was known only from Rio Grande do Sul state, in southern Brazil. The specimen was found in South American Mesopotamian Grasslands ecoregion, with natural grassland in the Department of Itapúa.

Micrurus silviae Di-Bernardo, Borges-Martins and Silva, 2007, is a triadal coralsnake, one of eight species known from southern South America (Di-Bernardo *et al.* 2007). Having the middle black ring wider than the two external in the triad suggests that this species is related to the *M. baliocoryphus*-*M. pyrrhocryptus* group (Di-Bernardo *et al.* 2007) of the *Micrurus frontalis* complex (Silva and Sites 1999).

Cacciali (2009) recorded six species for Paraguay: *Micrurus altirostris* (Cope, 1860), *Micrurus baliocoryphus* (Cope, 1860), *Micrurus frontalis* (Duméril, Bibron and Duméril, 1854), *Micrurus pyrrhocryptus* (Cope, 2862), *Micrurus corallinus* (Merrem, 1820), and *Micrurus lemniscatus carvalhoi* (Roze, 1967). Here we present a record of *M. silviae* from Paraguay, adding a seventh species of coralsnake to the country.

Until now, *M. silviae* was known only from Rio Grande do Sul, in southern Brazil (Di-Bernardo *et al.* 2007). Nevertheless, in the original description of the species the authors state that "It is possible that its range includes Misiones, part of NE-E Corrientes (Argentina) and SE-E of Departamento Itapúa (Paraguay)" (Di-Bernardo *et al.* 2007). With this report we confirm the presence of *M. silviae* in the Department of Itapúa, Paraguay.

Our specimen of *M. silviae* was found on 24 July 2010 at 14:30 h on a road in a natural grassland formation at Kanguery, Guyra Retã Private Reserve, San Rafael, Departamento Itapúa, Paraguay (26°30'17" S, 55°47'54" W) (Figure 1).

The specimen was an adult male vouchered through photographs (Figure 2) and released where it was found. The specimen was released because it was found in a protected area requiring a special collecting permit. Additional photos are available upon request from one of us (SCV), from the Photographic Database of Guyra Paraguay. The specimen showed a mark on the head, an old wound, and loss of the right eye. New wounds were seen in the head, the specimen was found on a road and

probably was run over by a motorbike.

Micrurus silviae can be distinguished from other coralsnakes in southern South America by features of coloration. The species has the snout and head mostly black, the middle black ring is one and a half times longer than the external rings; and the gular region is white with black markings. Our specimen fits with this diagnosis, but its gular region is white and red (Figure 3). With

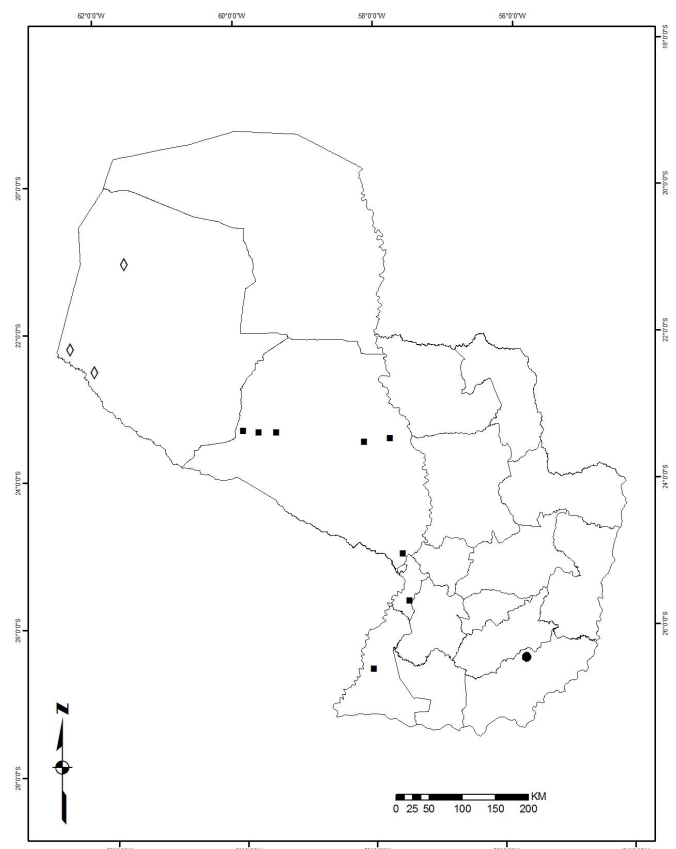


FIGURE 1. Map of Paraguay showing the distribution of *M. pyrrhocryptus* (white diamonds), *M. baliocoryphus* (black squares), and *M. silviae* (black dot).



FIGURE 2. Dorsal and ventral view of specimen of *M. silviae* recorded in Paraguay; note partially everted right hemipenis.

respect to the Figure 2 of the original description, two last supralabials are red (gray in the picture), and white gulars, as our specimen (Figure 3). According to Di Bernardo *et al.* (2007) there are four species of coral snakes with the middle black ring wider than the external ones in each triad: *M. pyrrhocryptus*, *Micrurus tricolor* (Hoge, 1956), *M.*



FIGURE 3. Lateral (above) and ventral (below) views of the head of the specimen of *M. silviae* from Paraguay, note head injuries.

baliocoryphus, and *M. silviae*. Both *M. pyrrhocryptus* and *M. tricolor* have the middle ring more than two times wider than the external ones (one and a half in *M. silviae*). Finally, a black snout in *M. silviae* (and our specimen, Figure 3) distinguishes this species from *M. baliocoryphus*, with a white snout. In Paraguay the two other species with wide black middle rings, *M. baliocoryphus* and *M. pyrrhocryptus*, are present mainly in western Paraguay, west of the Paraguay River and in the Chaco region, but the former also occurs in the east, near the Paraguay River and its tributaries (Figure 1; Silva and Sites 1999; Cacciali 2009).

The specimen was found in a grassland habitat, part of the South American Mesopotamian Grasslands ecoregion, characterized by natural grasses resistant to winter freezing, and mixed with patches of Atlantic Forest. This environment coincides with the habitat described for the species in Brazil (Di-Bernardo *et al.* 2007). Bencke (2009) states that the species is endemic to the natural grasslands of Southern Brazil.

This is an important record for the country, and highlights the conservation importance of the San Rafael Reserve, the only place where *M. silviae* is found in Paraguay. We would like to note that even though the specimen has been found with the head damaged and probably would die anyway, it was released because the authors lack a collection permit, which, in Paraguay, is needed to collect even dead animals or their parts (bones, skins, etc.). Anyway, the photographs taken allow an unambiguous identification of the specimen as *Micrurus silviae*, as discussed above.

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