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The six-eyed sand spiders of the genus *Sicarius* (Araneae: Haplogynae: Sicariidae) from the Brazilian Caatinga

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Abstract

In this paper we revise the species of *Sicarius* (Araneae: Sicariidae) from the Brazilian Caatinga, the largest tropical dry forest nucleus in the world. We redescribe, designate a neotype and provide new records for *Sicarius tropicus* (Mello-Leitão, 1936), the only species previously known from the region, and describe three new species: *S. cariri* **n. sp.**, *S. diadorim* **n. sp.** and *S. ornatus* **n. sp.** We report high intraspecific variation in the genitalic morphology of these species, especially in females. We also provide anecdotal observations on natural history and behavior of these species, including diet, mating behavior and clutch size. We include an identification key for Brazilian Caatinga species of *Sicarius*.

Key words: Araneomorphae, endemism, Neotropics, new species, seasonally dry tropical forests, semi-arid, *Sicarius tropicus*, xeric environments

Introduction

The spider family Sicariidae is relatively small, containing 124 species distributed in two genera, *Loxosceles* Heineken & Lowe, 1832 and *Sicarius* Walckenaer, 1847 (Platnick 2012). Most species of the family were described in *Loxosceles*, which is relatively well known due to its medical importance. This genus currently includes 103 described species, and is mainly distributed in the Americas, Africa and the Mediterranean region. Its sister genus, *Sicarius*, is much less diverse, presenting 21 species and one subspecies in South America and Africa. Although the monophyly of the family is well established on morphological grounds (Platnick *et al.* 1991; Ramírez 2000; Labarque & Ramírez 2012), recent molecular analyses failed to recover *Loxosceles* and *Sicarius* as sister groups, although both seem to be monophyletic (Binford *et al.* 2008). The two genera also share sphingomyelinase D in their venom, a protein not yet detected in other haplogyne spiders (Binford & Wells 2003).

The geographic distribution of *Sicarius* is particularly interesting. The genus is only known from xeric environments in southern Africa and South and Central America, mostly in deserts and seasonally dry tropical forests (Binford *et al.* 2008). This results in a highly disjunct distribution of the genus in the New World, with different species scattered throughout the different dry forest nuclei of tropical America (see Werneck 2011) and in deserts of Argentina, Chile and Peru (Fig. 1).

There is a recent phylogenetic hypothesis for *Sicarius* (Binford *et al.* 2008), and these spiders have great potential as models for historical biogeography and biotechnology (Duncan *et al.* 2007; Binford *et al.* 2008; Binford *et al.* 2009; Zobel-Thropp *et al.* 2010). Despite that, the taxonomy of the genus remains poorly resolved. Most, if not all, described species are unrecognizable due to incomplete or inadequate original descriptions and/or loss of type material. A revision of the African species was recently published (Lotz 2012), and the revision of the New World species is currently on course by the authors of this paper. A small revision of three Argentinian species was made by Gerschman de Pikelin & Schiapelli (1979), but they did not illustrate males, making identification difficult.

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