



Morphological variation, polymorphism, and Taxonomy of the *Atractus torquatus* complex (Serpentes: Dipsadidae)

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Abstract

The taxonomic status of *Atractus torquatus* is revised on the basis of concordance between quantitative and qualitative analyses of morphological characters (meristic, morphometric, colour pattern, and hemipenis) throughout its geographical distribution. We propose the synonymy of *Atractus davidhardi*, *A. janethae*, and *A. lucilae* based on wide overlap of morphological characters (qualitative and quantitative). Despite some differences in the frequency of the number of supralabials, infralabials and maxillary teeth among *A. torquatus* populations, we find that these characters exhibit a high level of polymorphism and therefore cannot unambiguously diagnose Guiana Shield and Amazon Basin populations. Additionally, we discuss the polymorphism and geographical variation in *A. torquatus* and its appropriateness for hypotheses of landscape evolution in Amazonia.

Key words: *Atractus davidhardi*, *Atractus janethae*, *Atractus lucilae*, Morphological variation, Polychromatism

Introduction

The cryptozoic snake genus *Atractus* Wagler is widely distributed in the Neotropics, occurring from Panama to Argentina (Giraudo & Scrocchi 2000; Myers 2003). *Atractus* is the most speciose Alethinophidian snake genus, with about 130 valid species, most of them known only from few specimens and localities (Passos *et al.* 2010c). Despite several studies focusing on the taxonomy of the genus in the past five years (Kok, 2006; Myers & Schargel 2006; Prudente & Santos-Costa 2006; Passos *et al.* 2007 a,b; Passos & Fernandes 2008; Prudente & Passos 2008, 2010; Passos & Arredondo 2009; Passos *et al.* 2009a,b,c,d,e), additional efforts must be made to address problems of morphological variation, geographic ranges, polymorphism, sexual dimorphism, and ontogenetic change of coloration for most *Atractus* species (Passos *et al.* 2010 a,b,c). Consequently, only studying in detail all these aspects may shed more light on the species diversity of this complex and poorly known genus (Passos *et al.* 2010a; Passos & Lynch 2011).

Boie (1827) described *Brachyorrhos torquatum*, but as he did not present a formal description of the species, this combination became a *nomen nudum* (Hoogmoed 1980). Schlegel (1837) proposed to synonymize *B. torquatum* with *Calamaria badia* (Boie). Duméril *et al.* (1854) revalidated *B. torquatum* Boie as *Rabdosoma torquatum*, and reported eight individuals for the species. Seven specimens are from Surinam and one from Santa Cruz de La Sierra in Bolivia. All belong to the series of syntypes of *R. torquatum* (Hoogmoed 1980). Jan (1862) described *R. varium*, apparently on the basis of one of the syntypes of *R. torquatum* (RMNH 114; Hoogmoed 1980). Boulenger (1894) transferred *R. torquatum* to the genus *Atractus* and synonymized *R. varium* with the former species. Savage (1960) designated the specimen from Santa Cruz de La Sierra in Bolivia as the lectotype of *A. torquatus*. Dixon & Soini (1977) reported a series of specimens of *A. torquatus* as *Atractus* sp. from Iquitos region in Peru. Later, Dixon & Soini (1986) identified these specimens as *A. torquatus*.

Hoogmoed (1980) rediscovered seven of the syntypes of *R. torquatum* and pointed out that Savage's (1960) designation of a lectotype was an invalid action (see Hoogmoed 1980 for details). Hoogmoed (1980) designated