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A new species of the highland frog genus *Holoaden* (Amphibia, Strabomantidae) from cloud forests of southeastern Brazil

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Abstract

A new species of the genus *Holoaden* is described from the Atlantic forest of the state of São Paulo, Brazil, being restricted to primary or slightly disturbed high altitude cloud forests along the northeastern portion of the Serra do Mar. The type-locality is determined as Estação Ecológica de Bananal, in the Municipality of Bananal, State of São Paulo, Brazil. The new species is characterized by its moderate body size (female 42.6–44.2 mm SVL; male 37.2–38.5 mm SVL) with long and slender limbs, a head wider than long, a highly glandular dorsum, covered by well developed macroglands that extend to the internasal region, thigh and tibia, and an intense dark brown dorsal coloration and dark grey ventral surface.

Key words: New species, *Holoaden*, Holoadeninae, Atlantic forest

Introduction

The Highland frog genus *Holoaden* Miranda-Ribeiro, 1920 belongs to the subfamily Holoadeninae of the family Strabomantidae that currently includes other five South American genera — *Barycholos* Heyer, 1969, *Bryophryne* Hedges, Duellman & Heinicke, 2008, *Euparkerella* Griffiths, 1959, *Noblella* Barbour, 1930, and *Psychophrynella* Hedges, Duellman & Heinicke, 2008 (Hedges *et al.* 2008; Frost 2011).

The genus *Holoaden* is endemic to the Atlantic forest of Southeastern Brazil, where it is known to occur only in high altitude cloud forests and open formations (between 1,200 and 2,500 meters), in the states of São Paulo, Minas Gerais, and Rio de Janeiro (Lutz 1958; Pombal *et al.* 2008; Martins 2010). The genus is currently known to include three species: *Holoaden luederwaldti* Miranda-Ribeiro, 1920, *Holoaden bradei* B. Lutz, 1958, and *Holoaden pholeter* Pombal, Siqueira, Dorigo, Vrcibradic & Rocha, 2008. All three species show markedly distinct body sizes (Martins 2010), with *H. pholeter* reaching the largest size (Pombal *et al.* 2008) when compared to the medium-sized *H. luederwaldti* (Martins 2010) and the diminutive *H. bradei* (Lutz 1958; Caramaschi & Pombal 2006). *Holoaden luederwaldti* and *H. bradei* share the same diploid number ($2n = 18$) and very similar karyotypes, (Lucca *et al.* 1974; Campos *et al.* 2012).

Recent surveys along the eastern portion of the Atlantic forest of the State of São Paulo revealed the presence of a population of medium-sized individuals of *Holoaden* that are morphologically distinct from the former three species of the genus, and which we describe herein as a new species.

Material and methods

We analyzed specimens of the following collections (institutional acronyms in parenthesis): Museu de Zoologia, Universidade de São Paulo, São Paulo, Brazil (MZUSP), Museu Nacional, Universidade Federal do Rio de Janeiro, Rio de Janeiro, Brazil (MNRJ); Coleção Científica do Laboratório de Zoologia da Universidade de Taubaté, Taubaté, São Paulo, Brazil (CCLZU/IAM). The type series was deposited in the collection of the Museu de Zoologia da Universidade de São Paulo.