



Molecular and bioacoustic differentiation of *Boophis occidentalis* with description of a new treefrog from north-western Madagascar

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Abstract

We describe a new species of the *Boophis albilabris* group (Anura: Mantellidae) from north-western Madagascar. *Boophis tsilomaro* **sp. nov.** is most similar to *B. occidentalis* from the Isalo Massif, but differs by substantial genetic differentiation, larger size, absence of a turquoise iris colour, presence of a more distinct white stripe along upper lip in life, and longer note duration and lower pulse repetition rate in advertisement calls. Due to its small known range and continuing decline in the extent and quality of its habitat we propose to classify this new species as "Critically Endangered" according to the IUCN criteria. We also describe the advertisement calls of *B. occidentalis* for the first time.

Key words: Amphibia, Mantellidae, *Boophis tsilomaro* **sp. nov.**, *Boophis occidentalis*, Madagascar, Isalo, Tsingy de Bemaraha, Sahamalaza Peninsula

Introduction

The genus *Boophis* comprises 70 described and a considerable number of undescribed species of treefrogs from Madagascar (Cadle 2003; Vieites *et al.* 2009; Glaw *et al.* 2010). *Boophis* belongs to the family Mantellidae, a radiation endemic to Madagascar and the Comoro island of Mayotte. The genus is monophyletic and composed of two main clades that correspond to primarily stream-breeding and pond-breeding species (Glaw & Vences 2006, 2007), and the stream breeders are further divided into eight phenetic species groups.

One clearly monophyletic species group is the *Boophis albilabris* group, with currently three described species: *Boophis albilabris*, *B. occidentalis*, and *B. praedictus* (Glaw *et al.* 2010). These are moderately sized to large treefrogs of mostly green (but sometimes brown) dorsal colour. One of their main characteristics is that after preservation in alcohol, the dorsal colour of many specimens turns purple. In addition, males are characterized by a strong prepollex with a sharp terminal (prepollical) spine, and in breeding condition by distinct keratinized warts or spicules on both the dorsal and ventral surfaces of the body (Andreone 1993; Cadle 1995; Andreone *et al.* 2002). Furthermore, different from most other *Boophis*, males appear to be of same body size or larger than females, suggesting male-male combats during the breeding period which indeed have been observed in one population from Berara forest in north-western Madagascar, assigned to *B. occidentalis* (Andreone *et al.* 2002).

Boophis occidentalis was originally described (Glaw & Vences 1994) on the basis of two specimens (probably both subadult females) from Isalo, a sandstone massif in south-western Madagascar with humid relict forests along streams and canyons (Mercurio *et al.* 2008). The species was originally considered to be a subspecies of *Boophis albilabris* (as *B. albilabris occidentalis*) from which it differs by a distinctly smaller body size, presence of dorsolateral yellow stripes, turquoise iris and blue outer iris area. Later, Andreone *et al.*