Beautiful bright belly: A distinctive new microhylid frog (Amphibia: Stumpffia) from eastern Madagascar

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Abstract

We describe a new red-bellied species of the microhylid frog genus Stumpffia from the Andasibe region (18°56′ S, 48°25′ E, ca. 900 m elevation) in central-eastern Madagascar. Stumpffia kibomena sp. nov. differs from all other described Stumpffia species in coloration, morphology, and by genetic differentiation in the mitochondrial 16S rRNA gene (≥8.6% uncorrected p-distance to all other nominal species of the genus). It is furthermore distinguished from most other Stumpffia species by its advertisement calls. The new species is reliably known only from a few specimens collected in the Andasibe region and based on the limited knowledge we suggest its IUCN Red List classification as "Data Deficient".

Key words: Amphibia, Anura, Cophylinae, Madagascar, Microhylidae, Stumpffia kibomena sp. nov.

Introduction

Within the Malagasy microhylid subfamily Cophylinae two major ecological groups can be distinguished: arboreal species with dilated finger tips and terrestrial species, usually without terminal finger discs (Andreone et al. 2005). Terrestrial cophylines include the genera Madecassophryne, Rhombophryne, Stumpffia and most species of the genus Plethodontohyla (Wu 2003). Species of Stumpffia are relatively well characterized by small to very small body size (adult snout-vent length 10–28 mm) and the absence of maxillary and vomerine teeth (Guibé 1978; Blommers-Schlösser & Blanc 1991; Köhler et al. 2010), a character combination shared only with Madecassophryne. As primarily terrestrial frogs, most Stumpffia species have no terminal finger discs, although exceptions with well developed finger discs are known from Stumpffia helena (Vallan 2000) and several cave dwelling species from karstic habitats (Köhler et al. 2010). The majority of Stumpffia species form a well-supported monophyletic group sister to Rhombophryne but S. helena is only poorly supported in this clade, and some yet undescribed lineages from south-eastern Madagascar might represent a phylogenetically independent radiation of miniaturized cophylines (Wollenberg et al. 2008).

Stumpffia currently contains 15 described taxa (Köhler et al. 2010; Klages et al. 2013; Ndriantsoa et al. 2013), which are generally characterized by tiny distribution ranges. In Madagascar, a high degree of miniaturization and microendemism is paralleled by a high species diversity in some organism groups (Wollenberg et al. 2011; Glaw et al. 2012). Thus it is not surprising that many undescribed species and lineages of Stumpffia have been identified (Glaw & Vences 2007; Wollenberg et al. 2008; Vieites et al. 2009; Perl et al. 2014). Most of the undescribed species are morphologically similar to each other as well as to described taxa and their taxonomic description requires a careful revision of the genus, which is currently in progress.

In this paper we describe a new red-bellied species that can be distinguished easily from all other Stumpffia
Madagascar. This might indicate that the habits of \textit{S. kibomena} are rather cryptic or seasonal, or that the species is indeed rare and restricted to a relatively small distribution range. The presence of \textit{S. kibomena} in the rather well-protected reserve Analamazaotra might assure its survival. Because \textit{S. kibomena} is known only from two locations (situated close to each other) and a few specimens, we suggest its inclusion in the IUCN category "Data Deficient" (DD) according to the IUCN Red List criteria (IUCN 2001).

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References


