



A new cryptic *Phrynobatrachus* species (Amphibia: Anura: Phrynobatrachidae) from Ghana, West Africa

MARK-OLIVER RÖDEL^{1,4}, CALEB OFORI BOATENG², JOHANNES PENNER¹ & ANNIKA HILLERS³

¹Museum of Natural History, Herpetology, Humboldt University Berlin, Invalidenstr. 43, 10115 Berlin, Germany.

E-mail: mo.roedel@museum.hu-berlin.de; johannes.penner@museum.hu-berlin.de

²Department of Wildlife and Range Management, Faculty of Renewable Natural Resources, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana. E-mail: calebofori@gmail.com

³Institute for Biodiversity and Ecosystem Dynamics, University of Amsterdam, Kruislaan 318, 1098 SM Amsterdam, The Netherlands. E-mail: a.p.hillers@science.uva.nl

⁴Corresponding author. E-mail: mo.roedel@museum.hu-berlin.de

Abstract

A new medium-sized *Phrynobatrachus* species from primary forest in south-western Ghana is described. *Phrynobatrachus intermedius* **sp. nov.** exhibits a combination of unique morphological and color characters including: compact body, short and pointed snout, a conspicuous dark face mask that covers the loreal and the tympanal area, a relatively smooth dorsum with only very feebly developed dorsal ridges, a black throat with few small white spots, a breast with blackish vermiculation, and moderately developed webbing. Furthermore, the analysis of mitochondrial 16S rRNA revealed that this new species differs from other West African species of the genus by a minimum distance of 3.4%. The new species is morphologically most similar to *P. liberiensis* (genetic distance 3.4–5.8 %) and *P. plicatus* (> 10% difference in the 16S rRNA fragment examined). *P. liberiensis* from the type locality of the new species are genetically more distant to the new species than those from other West African localities.

Key words: *Phrynobatrachus intermedius* **sp. nov.**, *Phrynobatrachus liberiensis*, *Phrynobatrachus plicatus*, primary forest, Upper Guinea Forest zone

Introduction

The genus *Phrynobatrachus* Günther, 1862, family Phrynobatrachidae Laurent, 1941, currently comprises 77 species and is endemic to savannas and forests in sub-Saharan Africa (Poynton 1999; IUCN *et al.* 2004; Frost 2007; Uyeda *et al.* 2007; Hillers *et al.* 2008). Eighteen valid species are recognized to occur in West Africa west of the Dahomey Gap, the majority living in forest habitats (Guibé & Lamotte 1963; Perret 1988; Rödel & Ernst 2002b; Rödel *et al.* 2005a). The Global Amphibian Assessment database lists 15 Ghanaian *Phrynobatrachus* species (IUCN *et al.* 2004). However, *P. albolabris* (Ahl, 1925 “1924”) and *P. vogti* Ahl, 1924 seem to be conspecific with *P. accraensis* (Ahl, 1925 “1923”) (types examined by M.-O. Rödel, unpublished data), as is *P. latifrons* Ahl, 1924 (Rödel & Agyei 2003). In addition, the record of the Central African *P. batesii* (Boulenger, 1906) is most likely based on a misidentification. Hence, 12 *Phrynobatrachus* species are currently known to occur in Ghana (Schiøtz 1964; Hughes 1988; Rödel & Agyei 2003; Rödel *et al.* 2005b; Leaché *et al.* 2006). During a recent survey in the southern Ghanaian forests (Hillers *et al.* 2009 in press) we detected a forest *Phrynobatrachus* that, in the field, was tentatively assigned to *P. liberiensis* Barbour & Loveridge, 1927. However, subsequent morphological and genetic analyses revealed that it represents an unknown species that we describe herein.