Zootaxa 4032 (1): 055–080
www.mapress.com/zootaxa/

Article

ISSN 1175-5326 (print edition)
ZOOTAXA
ISSN 1175-5334 (online edition)

http://dx.doi.org/10.11646/zootaxa.4032.1.3
http://zoobank.org/urn:lsid:zoobank.org:pub:5368E4BD-2AA0-46C6-B532-A60DE6CFDA57

Two new *Phrynobatrachus* species (Amphibia: Anura: Phrynobatrachidae) from the Republic of the Congo

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Abstract

We describe two new species of puddle frogs, genus *Phrynobatrachus,* from the south-western Republic of the Congo. One of them, *P. horsti* **sp. nov.**, occurs also in neighbouring Gabon and is morphologically most similar to the Cameroonian *P. ruthbeateae*. It differs from the latter species by smaller males with longer thighs and shanks. The new species comprises various colour morphs but always has less conspicuous black borders between flanks and belly than *P. ruthbeateae*. The distinct and large black axillary blotch of *P. ruthbeateae* is either much smaller in *P. horsti* **sp. nov.**, or broken into numerous irregularly shaped smaller dots. Similarly, a black transversal line at the anterior ventral border of thighs and the black face mask is less distinct and irregularly delimitated in *P. horsti* **sp. nov.** when compared to *P. ruthbeateae.* The mean genetic difference in the sampled region of the 16S rRNA gene between *P. horsti* **sp. nov.** and 40 other western African congeners range from 3.66-18.10%. The second new species, *P. mayokoensis* **sp. nov.**, differs from all other known congeners by the combination of a compact and warty body, the absence of a spiny eyelid tubercle and pedal webbing, a conspicuous black triangle on throat and anterior part of the belly, and a distinct large red blotch on the anterior-proximal surface of the thighs. It exhibited a mean genetic difference in the 16S rRNA to 40 other western African congeners ranging from 1.34-16.98%. The genetically most similar sequence stems from a GenBank entry of a Gabonese frog, determined as *P. ogoensis*. A comparison of the new species with *P. ogoensis* syntypes confirmed their specific distinctiveness, most convincingly underlined by the absence of pedal webbing in the new species and the pronounced pedal webbing in *P. ogoensis.* The GenBank entry thus most likely is based on a misidentification and *P. mayokoensis* **sp. nov.** may also occur in neighbouring Gabon. The discovery of the two new frog species is further evidence of the huge gap in our knowledge concerning the species richness in the Guineo-Congolian rainforests.

Key words: Biogeography, climatic hinge, forest refugia, *Phrynobatrachus ruthbeateae*, *Phrynobatrachus horsti* **sp. nov.**, *Phrynobatrachus mayokoensis* **sp. nov.**, Central Africa, rainforest, riverine barrier

Introduction

The sub-Saharan frog family Phrynobatrachidae comprises one genus, *Phrynobatrachus* Günther, 1862, occurring from lowlands to alpine mountain peaks and from rainforest to dry savannahs (Zimkus *et al.* 2010). Currently 87 species are regarded as valid (Frost 2015), but it is known that many cryptic species remain to be described (Zimkus *et al.* 2010; Rödel *et al*. unpubl. data). Furthermore many African regions are still very poorly sampled for amphibians and new discoveries from these areas are very likely. This concerns more or less the entire Congo basin (Andreone *et al.* 2008). For instance whereas 19 valid *Phrynobatrachus* species have become known from Cameroon (Frétey 2008; Zimkus 2009; Rödel *et al.* 2012a; Zimkus & Gvoždík 2013), only eight to nine species of that genus are reported from the neighbouring countries Gabon and the Republic of the Congo (Frétey & Blanc 2000; Pauwels & Rödel 2007; Frétey *et al.* 2012; Zimkus & Larson 2013a, b; Frost 2015; Larson & Zimkus 2015).

Accepted by M. Vences: 18 Sept. 2015; published: 14 Oct. 2015