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Two additional treefrogs of the *Boophis ulftunni* species group (Anura: Mantellidae) discovered in rainforests of northern and south-eastern Madagascar

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Abstract

We describe two new frog species of the endemic Malagasy-Comoroan genus *Boophis*. One species, described as *Boophis baetkei* **sp. n.**, originates from Forêt d'Ambre Special Reserve in northernmost Madagascar, whereas *Boophis lilianae* **sp. n.** was discovered near Ifanadiana and Ranomafana in the Southern Central East of the island. Both new species have very deep genetic divergences in the 16S rRNA gene that complicate the assessment of their phylogenetic affinities but are here tentatively assigned to the recently defined *Boophis ulftunni* species group based on phenetic similarity and preliminary results of analyses of other genes. All three species known in this group share a green dorsum with translucent shade in life, a pigmented venter and, most characteristic, pink markings in life and in preservative. *Boophis lilianae* **sp. n.** is the smallest species of *Boophis* known so far (SVL of adult male 18.3 mm, ovigerous female 20.0 mm). Phylogenetic relationships, distribution and threat status of the new species are discussed.

Key words: Amphibia, Anura, Mantellidae, *Boophis ulftunni* group, new species, phylogeny, Madagascar

Introduction

Malagasy frogs of the genus *Boophis* Tschudi constitute a species-rich endemic radiation, occurring in almost all types of habitats known on the island. The genus has recently been partitioned in the two subgenera *Boophis* and *Sahona* (Glaw & Vences 2006). Within the subgenus *Boophis*, these authors defined eight species groups, among them six groups of predominantly green-coloured species: the *Boophis albipunctatus* group, *B. luteus* group, *B. mandraka* group and *B. rappiodes* group, which all have a green dorsal ground colour with a translucent shade; and the *B. albilabris* group and *B. microtympanum* group, both with an opaque green dorsal colour and including individuals of brownish colour. All of these groups contain morphologically similar cryptic species, which mostly differ by bioacoustic and genetic characters (e.g. Glaw & Vences 2002, Vences & Glaw 2005, Köhler *et al.* 2007). Recently, Wollenberg *et al.* (2008) described a green species of *Boophis* from the Masoala peninsula, with translucent shade and with a pinkish colour pattern, which turned out to represent an independent phylogenetic lineage: it did not belong to any of the above mentioned species groups, but instead appeared to be related to the *B. microtympanum* group. Consequently, Wollenberg *et al.* (2008) erected a new species group for this single species, the *B. ulftunni* group.

During fieldwork in 2006 and 2007, we discovered two additional undescribed species of green *Boophis* in northern and south-eastern Madagascar which were not immediately assignable to any of the species

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