



## A new microendemic frog species of the genus *Blommersia* (Anura: Mantellidae) from the east coast of Madagascar

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### Abstract

Field surveys in northeastern Madagascar have revealed the existence of a new *Blommersia* frog species (Anura: Mantellidae), populations of which were recorded within a 30 km radius of the town of Maroantsetra. We combined morphological, bioacoustic and molecular techniques and show that it is indeed a distinct evolutionary lineage which we describe as *Blommersia variabilis* **sp. nov.** from the type locality Ambodivoahangy near Maroantsetra. This new species is morphologically most similar to *B. wittei* by the presence of vomerine teeth and relatively small, well-delimited femoral glands, but differs from that species by advertisement call consisting of only 2–6 notes of comparatively longer duration, and a wider separation of femoral glands in males. It is associated with dense secondary vegetation fringing lentic water bodies. Anecdotal evidence suggests its life history is similar to other congeners. The restricted range of this species implies that it is microendemic, being possibly confined to the Antainambalana watershed. Mitochondrial and nuclear DNA variation show that its closest known relatives are *Blommersia galani* and *B. dejongi*, both of which also have restricted ranges on the east coast. A putative hybrid between a *B. galani* female and *B. dejongi* male with intermediate morphology was identified based on nuclear and mitochondrial DNA variation.

**Key words:** Amphibia, tropical biodiversity, integrative taxonomy, herpetology

### Introduction

Anuran species diversity in the eastern rainforests of Madagascar rivals the amphibian species richness of other biodiversity hotspots of the Neotropics or southern Asia (Andreone *et al.* 2008). However, the inventory of Madagascar's anuran fauna is far from complete. The genus *Blommersia* (Mantellidae; Mantellinae), separated from *Mantidactylus* on account of morphological and molecular differences (Glaw & Vences 2006), harbors several candidate species in need of proper taxonomic description (Vieites *et al.* 2009). This genus encompasses small, semi-arboreal mantellid frogs that lay eggs in small clutches usually over standing water; their tadpoles drop into the water and complete development as tadpoles of a generalized type (Blommers-Schlösser 1979; Glaw & Vences 2007). These aspects of their life history contrast with those of many other mantellids which have riverine, often highly specialized tadpoles (e.g. *Mantidactylus*, *Boophis*), or are nidicolous with endotrophic development (*Gephyromantis*).

*Blommersia* species are restricted to Madagascar and the island of Mayotte of the archipelago of the Comoros. They are typical residents of swamps and disturbed habitats fringing primary vegetation and can be common in degraded environments such as rice fields as long as these are bordered by some remains of natural vegetation. Although the calls of these frogs are commonly heard in the more humid areas of Madagascar, individuals are difficult to locate due to their predisposition to extremely dense vegetation bordering standing water. Moreover, all