



Description of tadpoles of five frog species in the subgenus *Brygoomantis* from Madagascar (Mantellidae: *Mantidactylus*)

HEIKE SCHMIDT¹, AXEL STRAUB¹, FRANK GLAW², MEIKE TESCHKE³ & MIGUEL VENCES^{1,4}

¹Zoological Institute, Technical University of Braunschweig, Spielmannstr. 8, 38106 Braunschweig, Germany

²Zoologische Staatssammlung München, Münchhausenstr. 21, 81247 München, Germany

³Max-Planck Institute for Evolutionary Biology, Department of Evolutionary Genetics, 24306 Plön, Germany

⁴Corresponding author. E-mail m.vences@tu-bs.de

Abstract

We describe the larval stages of five frog species classified in the Madagascan subgenus *Brygoomantis* of the genus *Mantidactylus*, which were identified by DNA barcoding: *Mantidactylus alutus*, *Mantidactylus curtus*, and three taxonomically undescribed species here named *Mantidactylus* sp. aff. *biporus* "Ranomafana", *M.* sp. aff. *biporus* "Marojejy", and *M.* sp. aff. *curtus* "Ankaratra". The larvae of *M. alutus*, and of *M.* sp. aff. *curtus* "Ankaratra", had been described before, and we confirm and complement the previous studies. Our data confirm that *Brygoomantis* tadpoles are benthic, of a rather generalized body shape and oral disc morphology. All species for which tadpoles are known so far have a large dorsal gap of marginal papillae, a labial tooth row formula of 3-5 rows on the anterior labium of which only the first is continuous and the others have distinct medial gaps, and three rows of labial teeth on the posterior labium of which the first usually has a very small medial gap which however can sometimes be undetectable. Total number of marginal and submarginal papillae ranges from 50 to 103 and density of labial teeth (on the second upper row) from 19 to 76 per mm.

Key words: Amphibia, Anura, *Mantidactylus alutus*, *Mantidactylus curtus*, *Mantidactylus* sp. aff. *biporus*, *Mantidactylus* sp. aff. *curtus*, tadpole descriptions, DNA barcoding

Introduction

Madagascar harbours a fascinating variety of anuran amphibians that are still incompletely inventoried. Even less complete is the inventory of their larval forms, although these may be relevant to understand the adaptations in the endemic radiations of Malagasy frogs (e.g., Randrianiaina *et al.* 2007). Within the family Mantellidae, endemic to Madagascar, *Mantidactylus* Boulenger is one of the most species-rich lineages. The genus is subdivided into five subgenera (Glaw & Vences 2006). Species in one of these subgenera, *Brygoomantis* Dubois, were formerly known as the *Mantidactylus ulcerous* species group (Blommers-Schlösser 1979; Blommers-Schlösser & Blanc 1991). *Brygoomantis* are small to medium-sized frogs of usually brownish dorsal colour and inconspicuous appearance. These frogs are characterised by riparian to semiaquatic habits, i.e., they are usually found along streams and many of them typically escape by diving into the water. They can be found throughout Madagascar along streams, occasionally occurring also in lentic waters like swamps, displaying diurnal and nocturnal activity (Blommers-Schlösser 1979; Blommers-Schlösser & Blanc 1991; Glaw & Vences 1994, 2007).

Some larvae assigned to species of *Brygoomantis* have been described by Arnoult & Razarihelisoa (1967) and Blommers-Schlösser (1979). However, due to the large number of cryptic, yet undescribed species in this subgenus (e.g., Glaw & Vences 2007), the exact assignment of the described tadpoles to species is in some cases questionable. In addition, some of these previous descriptions were based on series from different