



## Larval morphology in four species of Madagascan frogs of the subgenus *Brygoomantis* (Mantellidae: *Mantidactylus*)

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### Abstract

We describe the tadpole morphology of four species of frogs classified in the endemic Madagascan subgenus *Brygoomantis* of the genus *Mantidactylus*, based on larval specimens identified by DNA barcoding: *Mantidactylus betsileanus* and *M. biporus*, and two so far undescribed species that are here named *M. sp. aff. betsileanus* "very slow calls" and "Vohidrazana" referring to their bioacoustic features or collecting locality. The tadpoles of these four species are brown to yellowish benthic forms with a depressed body shape, dorsally directed eyes and relatively low fins. The oral discs are generalised and all species exhibit a wide gap in dorsal papillae. There is variation among different developmental stages with regard to the keratodont row formulae. In *Mantidactylus betsileanus*, younger stages (25 and 26) exhibit the formula 1:3+3/1+1:2, whereas it is 1:4+4/1+1:2 in older stages (36 and 38). In *M. sp. aff. betsileanus* "very slow calls", keratodont row formulae vary within one developmental stage (25–26) from 1:3+3/3 to 1:4+4/3, whereas it seems to be constantly 1:4+4/3 in all examined developmental stages of *M. sp. aff. betsileanus* "Vohidrazana". In general, the larvae of the different *Brygoomantis* species studied are morphologically similar to each other. Differences between species mainly concern colouration, shape of body and the number of keratodonts per millimetre, which is approximately 38 in *M. betsileanus*, 50 in *M. biporus*, and 60 in the two undescribed species.

**Key words:** Amphibia, Mantellidae, *Mantidactylus*, *Brygoomantis*, *Mantidactylus betsileanus*, *M. biporus*, tadpole descriptions, DNA barcoding

### Introduction

The anuran family Mantellidae comprises a large number of species endemic to Madagascar and the Comoros. Among them is the subfamily Mantellinae which was considered to contain two genera: *Mantella* Boulenger, 1882 and *Mantidactylus* Boulenger, 1895 (Vences & Glaw 2001). Recently, a molecular phylogenetic analysis revealed the paraphyly of the genus *Mantidactylus* which consequently was partitioned into seven monophyletic genera (Glaw & Vences 2006), plus a further genus described subsequently (Glaw *et al.* 2006). According to this new proposal for classification, the genus *Mantidactylus* sensu stricto contains six clades of subgeneric rank: *Brygoomantis* Dubois, 1992, *Hylobatrachus* Laurent, 1943, *Chonomantis* Glaw & Vences, 1994, *Maitsomantis* Glaw & Vences, 2006, *Ochthomantis* Glaw & Vences, 1994 and *Mantidactylus*.

Species placed in the subgenus *Brygoomantis* by Dubois (1992) were formerly known as the *Mantidactylus*-