



Description of two tadpoles of Malagasy treefrogs, *Spinomantis* sp. aff. *peraccae* and *Spinomantis tavaratra* (Anura: Mantellidae)

SERGE HERILALA NDRIANTSOA¹, ROGER-DANIEL RANDRIANIAINA^{1,2},
OLGA RAMILJAONA RAVOAHANGIMALALA^{†1}, MIGUEL VENCES², JULIAN GLOS^{3,4}

¹Département de Biologie Animale, Université d'Antananarivo, Antananarivo, Madagascar

²Technical University of Braunschweig, Mendelssohnstr. 4, 38106 Braunschweig, Germany

³Zoological Institute, University of Hamburg, Martin-Luther-King Platz 3, 20146 Hamburg, Germany

⁴Corresponding author. E-mail: julian.glos@uni-hamburg.de

The aim of this study is to present morphological descriptions of the tadpoles of two species of Malagasy treefrogs of the genus *Spinomantis* (Anura: Mantellidae). The first of these, *Spinomantis* sp. aff. *peraccae*, from Ambohitantely is an unconfirmed candidate species (not included in Vieites *et al.* 2009) of which no adult specimen was collected so far but which is distinguished by a substantial genetic divergence of 6% to *S. peraccae*, Genbank accession AY848415, from Antoetra in the 16S rRNA gene. This candidate species is thus far taxonomically undescribed, but describing its tadpole contributes to the understanding of larval diversity in the genus *Spinomantis* and might prove to be important for a future revision of the *S. peraccae* complex, once that the larvae of *S. peraccae* and other related candidate species from northern Madagascar become known.

The second tadpole from Marojejy National Park is here assigned to *S. tavaratra*. It is genetically identical to specimens from the same locality that have previously been referred to as *S. fimbriatus* by Glaw & Vences (2007) but differed from topotypical individuals of this species by a high genetic divergence (5.3% in the 16S rRNA gene; Vieites *et al.* 2009). We here conclude that this population belongs to the recently described species *S. tavaratra* because it occurs in the same geographical region (north-eastern Madagascar) as this species and morphologically fully agrees with its original description (Cramer *et al.* 2008): smaller body size, similar iris coloration, bluish outer iris area.

Tadpoles of *Spinomantis* sp. aff. *peraccae* were collected by R. D. Randrianiaina, L. Raharivololoniaina, M. Vences and L. Du Preez in the Special Reserve of Ambohitantely, Northwest of Antananarivo (18.11967° S, 47.16853° E, 1580 m above sea level) on the 17 and 19 January 2005 in a stream (maximal depth: 120 cm; maximal width: 5 m) with clear water. The ground substrate of the river was sand, leaf litter and bedrock. Tadpoles of *Spinomantis tavaratra* were collected by R. D. Randrianiaina, F. Glaw and M. Vences at Camp Simpona of Marojejy National Park (14.26199° S, 49.44601° E, 1326 m above sea level) on 17 February 2005 in a small stream inside primary forest (maximal depth: 50 cm; maximal width: 1 m) with clear water. Ground substrate was rock, gravel, leaf litter, tree trunks and stalks with roots. Tadpoles were preserved in 5% formalin and deposited in the Zoologische Staatssammlung München, Germany (ZSM 1931/2007: three specimens of *Spinomantis* sp. aff. *peraccae* with field number FGZC 2205; ZSM 1909/2007: seven specimens of *Spinomantis tavaratra* with field number FGZC 2293). For identification of the tadpoles, a fragment of the mitochondrial 16S rRNA gene was amplified, sequenced and compared with homologous fragments of adult specimens. Genbank accession numbers are GU244487-GU244488. Tadpole stages, descriptive terminology, labial tooth row formula (LTRF) and morphometric variables follow Altig & Mc Diarmid (1999). Measurements were taken with a stereo-microscope and a graduated ocular: BH (maximum height of body), BL (body length), BW (maximum width of body), ED (maximum diameter of eye), IOD (interocular distance from center to center of eye), MTH (maximum tail height), IND (internarial distance from center to center), ODW (oral disk width), RN (rostrom-narial distance, to naris center), TAL (tail length), TMH (tail muscle height), TMW (tail muscle width), TL (total length), NED (naris-eye distance from center to center), SND (snout-naris distance), SS (distance from tip of snout to center of spiracle opening). Detailed morphological descriptions below refer to the specimens for which a DNA sequence was determined.

Description of the tadpole of *Spinomantis* sp. aff. *peraccae*: Refers to one tadpole in developmental stage 25. In dorsal view, body elliptical, snout rounded. In lateral view, body depressed, BW 117% of BH. Eyes of moderate size, ED 12% of BL, not visible in ventral view, positioned dorsally and directed laterally, situated at about 1/5 of body length. Nostrils elliptical, moderately sized, positioned dorsally, oriented anteriorly and nearer to snout than to eye. RN 88% of