## Larval development, stages and an international comparison of husbandry parameters of the Vietnamese Mossy Frog *Theloderma corticale* (Boulenger, 1903) (Anura: Rhacophoridae)

Rauhaus<sup>1</sup>, A., Gawor<sup>1</sup>, A., Perl<sup>1,2</sup>, R. G. B., Scheld<sup>1,2</sup>, S., van der Straeten<sup>1</sup>, K., Karbe<sup>1</sup>, D., Pham<sup>3</sup>, C. T., Nguyen<sup>3</sup>, T. Q. & T. Ziegler<sup>1,2,\*</sup>

<sup>1</sup>Cologne Zoo, Riehler Straße 173, 50735 Köln, Germany <sup>2</sup>Cologne Biocenter, University of Cologne, Zülpicher Strasse 47b, 50674 Cologne, Germany <sup>3</sup>Institute of Ecology and Biological Resources, Vietnam Academy of Science and Technology, 18 Hoang Quoc Viet, Hanoi, Vietnam \*Corresponding Author's E-mail: ziegler@koelnerzoo.de

(Accepted November 30, 2012)

## ABSTRACT

We describe the larval development and stages of the locally threatened Vietnamese Mossy Frog *Theloderma corticale*, which is endemic to northern Vietnam. Diagnostic morphological characters are provided for Gosner (1960) larval stages 1-46. This is to our knowledge the first larval staging for the rhacophorid anuran genus *Theloderma* in general. As guideline for further breeding engagement with *Theloderma* representatives in an international scale, based on the species *T. corticale* as husbandry analogue, we further oppose larval development, captive reproduction and husbandry management both achieved under tropical conditions at the Amphibian breeding station of the Institute of Ecology and Biological Resources in Hanoi (Vietnam), and in Europe, at the amphibian breeding unit at Cologne Zoo (Germany). Observed ovipositions at Cologne Zoo took place from March to September and were initiated after increase of temperatures and humidity (increased spraying) subsequent to a hibernation phase in combination with raised water levels. The developmental time observed for *T. corticale* at 20°C was about 4.5 months. For providing a recent captive management overview, we furthermore compare our husbandry experiences and data on the reproductive biology of *T. corticale* with data from the literature.

Key words: Amphibia, mossy frogs, captive breeding, tadpole staging, developmental biology