Larval morphology of two species of the genus *Theloderma* (Tschudi, 1838) from Vietnam (Anura: Rhacophoridae: Rhacophorinae)

ANNA GAWOR1, SIMONE CHAPUIS2, CUONG THE PHAM1, TRUONG QUANG NGUYEN3,
ANDREAS SCHMITZ4 & THOMAS ZIEGLER1,5

1Cologne Zoo, Riehler Str. 173, D-50735 Köln, Germany
2Zoologisches Forschungsmuseum Alexander Koenig, Adenauerallee 160, D-53113 Bonn, Germany
3Institute of Ecology and Biological Resources, 18 Hoang Quoc Viet, Hanoi, Vietnam
4Muséum d’Histoire naturelle, Department of Herpetology and Ichthyology, C.P. 6434, 1211 Geneva 6, Switzerland
5Corresponding author. E-mail: ziegler@koelnerzoo.de

The genus *Theloderma* (Rhacophoridae: Rhacophorinae) was first described by Tschudi (1838) based on the type species *T. leporosa* from Sumatra. This genus is diagnosed by having, e.g., numerous calcified warts on the dorsum and Y-shaped terminal phalanges (Liem 1970; Manthey & Grossmann 1997). According to Frost (2011), Rowley et al. (2011) and Orlov et al. (2012) the genus *Theloderma* currently contains 23 species.


The Amphibian Breeding Station of the Institute of Ecology and Biological Resources (IEBR) in Hanoi (Vietnam) is focused in particular in the captive keeping and breeding of anurans of the family Rhacophoridae (Ziegler & Nguyen 2008; Nguyen et al. 2009; Ziegler et al. 2011). In the following, we provide detailed descriptions of external larval morphology of *Theloderma bicolor* and *T. corticale* which were successfully bred at the station recently, and for which larval descriptions are still lacking to date.


**Abbreviations:**

- BH = maximum body height
- BL = body length
- BW = maximum body width
- ED = maximum diameter of eye (horizontal)
- IND = interanial distance (measured between centers of narial apertures)
- IP = interpupilar distance (measured between centers of pupils)
- LF = maximum height of lower tail fin
- LTRF = Labial Tooth Row Formula
- MTH = maximum tail height
- NK = number of keratodonts (per 0.5 mm of the A3 keratodont row)
- NP = number of papillae around mouth
- NPD = naro-pupilar distance (measured between the center of the nostril and the center of the pupilla)
- ODW = oral disc width
- RND = terminal phalanges (Liem 1970; Manthey & Grossmann 1997)

Prior to preservation, a piece of the lower tail fin and tail musculature was taken from each tadpole and preserved in a 98 % ethanol solution for further genetic analysis.

The measurements were taken with a dial calliper to the nearest 0.1 mm. Abbreviations are as follow: BH = maximum body height; BL = body length; BW = maximum body width; ED = maximum diameter of eye (horizontal); IND = interanial distance (measured between centers of narial apertures); IP = interpupilar distance (measured between centers of pupils); LF = maximum height of lower tail fin; LTRF = Labial Tooth Row Formula with A (number of rows on anterior labium) and P (number of rows on posterior labium); MTH = maximum tail height; NK = number of keratodonts (per 0.5 mm of the A3 keratodont row); NP = number of papillae around mouth; NPD = naro-pupilar distance (measured between the center of the nostril and the center of the pupilla); ODW = oral disc width; RND =