



The stream-dwelling larva of the Ruwenzori River Frog, *Amietia ruwenzorica*, its buccal cavity and pathology of chytridiomycosis

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Abstract

Tadpoles of *Amietia ruwenzorica* (Pyxicephalidae, Cacosterninae) were collected in the Ruwenzori Mountains, Uganda (identified by DNA barcoding). The ventrally directed enlarged oral disc with a high number of labial tooth rows (LTRF 9(4)/9(1)) and the narrow tail with robust caudal musculature characterise them as stream-dwellers. We name this morphotype the 'common or standard type of stream-adaptation', because special additional adhesive organs are missing in *A. ruwenzorica*. The uniseriably arranged oral teeth of the spoon-shaped type with 16 to 18 cusps per tooth are known from other anuran larvae, especially from pyxicephalids. The buccal morphology resembles generalized tadpoles with some restrictions and all features of a suspension-feeding pyxicephalid larva are present in *A. ruwenzorica*. This leads us to the conclusion that tadpoles of this species are suspension-feeders scraping periphyton off the surface and ingesting bottom and deposit particles. Histopathological and scanning electron microscopy investigations demonstrated the presence of the amphibian chytrid fungus (*Batrachochytrium dendrobatidis*) in part of our material resulting in signs of chytridiomycosis indicated by the loss of labial teeth and by corrosion of jaw sheaths.

Key words: Amphibia, *Batrachochytrium dendrobatidis*, DNA barcoding, larval morphology, Pyxicephalidae, Uganda

Introduction

Amietia ruwenzorica (Laurent, 1972) is a cacosternine frog of the family Pyxicephalidae known from the Ruwenzori Mountains in eastern Democratic Republic of Congo and adjacent Uganda. Little is known about this species, which is categorized 'Data Deficient' under the IUCN Red List of Threatened Species. Altitudinal records range 700–2,500 m above sea level in forested habitat, where *A. ruwenzorica* can be found associated with streams (Laurent 1972, Channing & Howell 2006, Stuart *et al.* 2008). The reproductive biology and larval stages of this species are little known; only Channing and Howell (2006) mentioned that tadpoles tentatively referred to *A. ruwenzorica* have high numbers of labial tooth rows.

Tadpoles were found in lentic waters. They were always in close contact to the substrate suggesting a benthic larva. In tadpoles' vicinity, adult *A. ruwenzorica* were found and larvae were allocated via DNA barcoding to this taxon. We asked whether *A. ruwenzorica* showed morphological adaptations to fast running water, as different degrees of stream-adaptation do occur among anuran larvae (Lamotte & Lescure 1989a, b, Altig & McDiarmid 1999c, Hoff *et al.* 1999, Wells 2007). Furthermore, our study focussed on the tadpole ectodermal-esophageal filter apparatus, enabling them to feed on suspended particles, as this aspect is poorly studied in tadpoles from lotic environments (e.g. Seale & Wassersug 1979, Seale & Beckvar 1980, Viertel 1990, 1992).