



Description of two new species of torrent frog, *Amolops Cope* (Anura: Ranidae) from a degrading forest in the northeast Indian state of Nagaland

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Abstract

Two distinctive new species of torrent frogs, *Amolops nidorbellus* sp. nov. and *Amolops kohimaensis* sp. nov. are described from the state of Nagaland in northeast India. Both species are compared with all known congeners. *Amolops nidorbellus* sp. nov. morphologically belongs to a group of torrent frogs including *A. caelumnoctis*, *A. splendissimus*, *A. kaulbacki* and *A. viridimaculatus* and is unarguably the most spectacularly coloured species in the genus. *Amolops kohimaensis* sp. nov. appears most similar to *A. granulatus*, each with extensive dorsal spinulation. The two new species are sympatrically occurring and currently known only from the type locality, about 5 kilometers west of Kohima town, Nagaland. The small forest fragment is in the process of extensive destruction from local quarrying activities, thus these species may already be threatened. Additional taxonomic comments are provided for *A. caelumnoctis*, *A. splendissimus*, *A. daorum* and *A. mengyangensis*.

Key words: *Amolops*, torrent frog, new species, northeast India, biodiversity, conservation

Introduction

Northeast India is considered as part of two of the world's major Biodiversity Hotspots – Indo-Burma and Himalayan regions (Mittermeier *et al.* 2004), despite this, our current knowledge on the amphibian diversity and distribution in this region is considerably poor (Pawar *et al.* 2007). Currently, 128 species have been reported from northeast India (Frost 2009—online accessed 16/9/2009; Mathew & Sen 2009). This figure, however, includes numerous reported species that are likely a result of misidentifications [e.g., *Rhacophorus appendiculatus* and *R. reinwardtii* (Sarkar *et al.* 1992; Dutta 1997)], thus referred specimens require reexamination. Many other recently described, but inadequately diagnosed species are in need of a detailed taxonomic comparison and review to assess their validity with respect to congeners from neighbouring regions and their relevant synonyms, e.g., *Chirixalus senapatiensis*, *Philautus manipurensis*, *Polypedates assamensis*, *P. subansiriensis*, *Rhacophorus subansiriensis*, *Xenophrys serchhipii*, *X. zunhebotoensis*, and additionally with regards to the Bufonidae, their generic status, e.g., *Bufo kiphirensis*, *B. mamitensis*, *B. manipurensis*, *B. mizoramensis*, *B. nagalandensis*, *B. wokhaensis*. (Mathew & Sen 2007, 2009). Within northeast India, the state of Nagaland is poorly represented in literature with only 32 amphibian species recorded (Ao *et al.* 2003). Recent amphibian field collections in the state have led to the discovery of two distinctive *Amolops* species, described herein as new.

The genus *Amolops* Cope, is composed of a group of torrent dwelling ranids characterised by their tadpoles possessing a gastromyzophorus adhesive disk (ventral sucker) and dorsal and ventral poison glands (Yang 1991). Adults of all species in this genus possess expanded disks with circummarginal grooves on the tips of the digits (with the exception of the first finger on approximately half of the species), an adaptation to waterfall and torrent habitats. This latter character is however present on members of several other ranid genera such as *Hylarana*, *Meristogenys*, *Huia*, *Odorrana* and *Staurois*, and has caused significant confusion