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A novel third species of the Western Ghats endemic genus *Ghatixalus* (Anura: Rhacophoridae), with description of its tadpole

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Abstract

The Western Ghats biodiversity hotspot is a recognized center of rhacophorid diversity as demonstrated by several recent studies. The endemic genus *Ghatixalus* is represented by two species from two separate high-elevation regions within the Ghats. Here, we describe a third species that can be distinguished by morphological and larval characters, as well as by its phylogenetic placement.

Key words: Rhacophoridae; *Ghatixalus;* New species; Tadpole; Western Ghats; India

Introduction

The rhacophorid genus *Ghatixalus* Biju et al., 2008 was erected to accommodate a phylogenetically distinct clade of two foam-nesting frog species endemic to the montane plateaux of the southern part of the Western Ghats in India. The type species (*Polypedates* [*Ghatixalus*] *variabilis* Jerdon, 1853) had a long history of being taxonomically problematic due to its lack of distinct morphological synapomorphies and the presence of high degree of homoplasy (Biju, Roelants & Bossuyt, 2008). However, recent phylogenetic studies have alluded to its unique generic placement, although maintaining close relationships with other foam nesting genera like *Polypedates* and the Sri Lankan *Taruga* (Biju, Roelants & Bossuyt, 2008; Abraham et al., 2013; Li et al., 2013).
The two currently recognized species of *Ghatixalus* occur respectively on two sides of a prominent 35 km wide geological divide in the Western Ghats, the Palakkad Gap. *Ghatixalus variabilis* occurs in the Nilgiri Hills north of the gap, while *G. asterops* Biju, Roelants & Bossuyt, 2008 is found south of the gap in the Eravikulam and Devikulam Plateaux as well as in the Palni Hills. Both species occupy the highest reaches (1700–2695m ASL) of their respective ranges (Biju, Roelants & Bossuyt, 2008).

The tadpole of *Ghatixalus variabilis* was first described and figured by Annandale (1918), mistakenly identified as that of *Nyctibatrachus pygmaeus* Boulenger, 1882. However, he was quick to rectify his error and rightly called attention to its actual identity (Annandale, 1919), and pointed out that it is one of the most abundant tadpoles in the hill-streams of the higher elevations of the Nilgiri Hills.

During the period of our fieldwork in the southern Western Ghats, we observed a large, distinct hitherto undescribed rhacophorid frog, which was encountered in mid-elevation hill forests. Based on a unique combination of molecular, morphological and larval characteristics, we ascribe this novel species here to the genus *Ghatixalus*. We also furnish here comparative descriptions of its tadpole with those of its congeners.

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