



A new species of big-headed, fanged dicroglossine frog (Genus *Limnonectes*) from Thailand

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Abstract

A new species of the dicroglossine genus *Limnonectes* from eastern Thailand and its tadpole are described. Analysis of DNA sequence data from 2518 base-pairs of the mitochondrial 12S and 16S gene regions places the species within the complex of frogs currently referred to as *Limnonectes kuhlii* and demonstrates it to be a separate lineage (>18% sequence divergence from type-material of *L. kuhlii* from Java). The new species differs from *L. kuhlii* by having nuptial pads, a greater snout–vent length, and different relative finger lengths than specimens from Java. It has more extensive toe webbing, a different arrangement of nuptial pads, and a greater snout–vent length than *Limnonectes laticeps*. The new species, which lacks vocal slits, also can be distinguished from the morphologically similar *Limnonectes namiyei* from Japan, which possesses vocal slits.

Key words: dicroglossine, *Limnonectes*, mitochondrial DNA, morphology, new species, Thailand

Introduction

Among the Asian and Southeast Asian dicroglossine frogs, the fanged frogs of genus *Limnonectes* comprises a group of species that usually exhibits strong, male-biased sexual dimorphism, unusual secondary sexual characteristics such as greatly enlarged odontoid processes (“fangs”) on the lower jaw, and a great deal of phenotypic similarity (Emerson, 1994; Emerson *et al.*, 2000). Dubois (1987; Dubois, 1992) proposed two variants of a phenetic classification of the fanged frogs and their relatives. In the latter of these classifications, Dubois recognized three species groups (*grunniens*, *kuhlii*, and *microdiscus*) within the subgenus *Limnonectes*, which contain 26 species. Emerson and Berrigan (1993) provided morphological evidence to support the monophyly of the fanged frogs, assigning them to the genus *Limnonectes*, but found no support for Dubois’ phenetic species groups. Emerson *et al.* (2000) corroborated the monophyly of *Limnonectes* with molecular data and recognized five monophyletic species groups within this genus. These results were supported further by Evans *et al.* (2003) and Frost *et al.* (2006).

In 2003 and 2004, a large-bodied species of *Limnonectes*, phenotypically similar to *Limnonectes kuhlii*, was collected from three locations in eastern Thailand. *Limnonectes kuhlii* Tschudi (1838), as currently recognized, seems to be a complex of species, which is found in southern China, in two small areas of northeastern India, and throughout Southeast Asia (including Cambodia, Bryan Stuart, pers. comm.), but which has not been reported from Singapore (IUCN *et al.*, 2006). The relational complexity within the “*kuhlii*” group and among its relatives is a topic beyond the scope of this paper but is interesting enough to warrant significant attention elsewhere (McLeod, in prep.).

The purpose of this paper is to elucidate the diversity within the “*kuhlii*” complex and recognize the uniqueness of this new species of *Limnonectes*. To this end, I utilize a phylogenetic hypothesis based on mito-