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A new species of the genus *Liuxalus* (Anura: Rhacophoridae) from southern China

JIAN-HUAN YANG^{1,2}, DING-QI RAO³ & YING-YONG WANG^{1,4}

¹State Key Laboratory of Biocontrol/The Museum of Biology, School of Life Sciences, Sun Yat-sen University, Guangzhou 510275, Guangdong, China. E-mail: jhyang@kfbg.org

²Present address: Kadoorie Conservation China, Kadoorie Farm and Botanic Garden, Lam Kam Road, Tai Po, Hong Kong, China. E-mail: jhyang@kfbg.org

³State Key Laboratory of Genetic Resources and Evolution, Kunming Institute of Zoology, Chinese Academy of Sciences, Kunming 650223, Yunnan, China

⁴Corresponding author. E-mail: wangyy@mail.sysu.edu.cn

Abstract

A new tree frog species of the genus *Liuxalus* was described from Heishiding Nature Reserve, Guangdong Province, China based on a combination of morphological characters and molecular phylogenetic analyses. *Liuxalus feii* sp. nov. is distinguished from its congeners by a combination of following characters: small size (SVL 16.2–17.6 mm in adult males and 18.0–18.7 mm in adult females); snout obtusely pointed; tympanum distinct, about half size of eye diameter; nostril closer to eye than to the tip of snout; fingers free of webbing; toe III longer than toe V; toes weakly webbed; tibiotarsal articulation reaching the naris or loreal; dorsal skin smooth and scattered with fine granulars; a subtle longitudinal median ridge present on dorsum; weak skin folds present on dorsal surface of body and thighs; supratympanic fold distinct and curved; ventral surface dull white with more or less irregular dark spots; iris bicolored. The new species appears to be forest-dependent and to date has only been found on the forest floor in primary forests at elevations between 350–800 m. Based on our molecular analyses, we consider *Liuxalus catbaensis* as a junior synonym of *L. calcarius*. Thus, with the description of the new species, the genus *Liuxalus* hitherto contains five recognized species, four of which are endemic to China.

Key words: Rhacophoridae, *Liuxalus*, new species, taxonomy, China

Introduction

The genus *Liuxalus* of the family Rhacophoridae was established by Li *et al.* (2008) on the basis of the monophyly of *Chiromantis romeri* (Smith 1953) and its placement as sister clade to remaining rhacophorines. This newly established genus is currently recognized as a well-supported monophyletic group by subsequent molecular phylogenetic analyses which have proposed the addition of two members from Hainan Island, *L. hainanus* (Liu & Wu 2004) and *L. ocellatus* (Liu & Hu 1973), to the genus (Li *et al.* 2009, 2013; Yu *et al.* 2008, 2009; Pyron & Wiens 2011). Milto *et al.* (2013) described a new species, *Liuxalus calcarius* from Cat Ba Island in northeastern Vietnam, which represents the first record of the genus *Liuxalus* from Vietnam; and they also provided the first morphological diagnosis for the genus *Liuxalus* and discussed its distribution. Shortly thereafter, another new species of the genus, *L. catbaensis*, was described by Nguyen *et al.* (2014) based on a single juvenile specimen also collected from Cat Ba Island, Vietnam; and they also claimed that it was the first report of the genus *Liuxalus* species from Vietnam. Apparently, *L. calcarius* and *L. catbaensis* may be conspecific and therefore *L. catbaensis* was preliminarily listed as a junior synonym of *L. calcarius* by Frost (2015). Thus, at present, four species within the genus are hitherto recognized, i.e., *L. calcarius*, *L. hainanus*, *L. ocellatus* and *L. romeri*. The taxonomic status of *L. catbaensis* remains unclear.

The first record of *Liuxalus* from Guangdong Province of China was reported by Kadoorie Farm and Botanic Garden (2004), from Heishiding Nature Reserve, which identified as “*Philautus ocellatus*” (= *Liuxalus ocellatus*).