



<http://dx.doi.org/10.11646/zootaxa.3646.4.6>

<http://zoobank.org/urn:lsid:zoobank.org:pub:C038F8A1-BD93-4FF1-B52D-02F650371733>

A new treefrog (Hylidae: *Litoria*) from Kroombit Tops, east Australia, and an assessment of conservation status

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Abstract

The *Litoria phyllochroa* species-group are small hylid frogs that occur in wet forests of south-east Australia. This group has had a long history of taxonomic confusion and has received little attention in the last decade. A population of this species-group at Kroombit Tops, several hundred kilometers north of all other populations, has been recognised for some time as being genetically highly distinct. Here we describe this population as a new species, *L. kroombitensis* **sp. nov.** This species is most similar to *L. barringtonensis* and *L. pearsoniana* but is readily distinguished based on differences in morphology, colour pattern, mating call and genetics. *Litoria kroombitensis* **sp. nov.** is restricted to Kroombit Tops, an isolated area of wet forest in south-east Queensland. The species inhabits slow and intermittently flowing streams in rainforest and adjoining wet sclerophyll forest. The tadpole of *L. kroombitensis* **sp. nov.**, described herein, is similar in morphology and behaviour to the tadpoles of other species within the *Litoria phyllochroa* species-group, in particular *L. pearsoniana*. *Litoria kroombitensis* **sp. nov.** has a very small distribution, with all records coming from the headwaters of five streams. Extensive surveys since the mid-1990s have revealed population declines, attributable to amphibian chytrid fungus (*Batrachochytrium dendrobatidis*). Other threats include degradation of riparian habitat due to invasive weeds, feral pigs and livestock, and fire. Further, the extent of wet forest habitats at Kroombit Tops is likely to be reduced by climate change impacts. *Litoria kroombitensis* **sp. nov.** meets IUCN Red List criteria for critically endangered CR B1ab (i–v) due to its small geographic range, naturally fragmented distribution, and observed and projected decline in populations. In this paper we also assess the validity of the names *L. barringtonensis*, *L. pearsoniana* and *L. piperata*. We conclude that the names *L. barringtonensis* and *L. pearsoniana* are valid but the validity of *L. piperata* requires further investigation.

Key words: *L. kroombitensis*, *L. pearsoniana*, *L. barringtonensis*, rainforest, endangered species, Australia

Introduction

The *Litoria citropa* species-group is a group of small to medium-sized stream-breeding frogs of the wet forests of south-east Australia (Tyler & Davies 1978; Tyler & Davies 1985; Donnellan *et al.* 1999; Mahony *et al.* 2001). The group consists of two subgroups: three larger species (*L. citropa* Duméril & Bibron, 1841; *L. subglandulosa* Tyler & Anstis, 1983; *L. daviesae* Mahony, Knowles, Foster & Donnellan, 2001) and a group of smaller species, the *L. phyllochroa* species-group (Tyler & Davies 1978; Tyler & Davies 1985). The *L. phyllochroa* species-group comprises *L. phyllochroa* (Günther, 1863), *L. barringtonensis* (Copland, 1957), *L. pearsoniana* (Copland, 1961), *L. nudidigitus* (Copland 1962) and *L. piperata* Tyler & Davies, 1985. The *L. phyllochroa* species-group appears to be monophyletic (Rosauer *et al.* 2009), although definitive material for *L. piperata* has not been included in genetic analyses (Donnellan *et al.* 1999). There has been considerable confusion over how many species comprise the *L. phyllochroa* species-group, the validity of names applied to these species, and the distribution of particular species (Ingram & Covacevich 1981; Tyler & Davies 1985; McDonald & Davies 1990; Donnellan *et al.* 1999).