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Papuan frogs of the genus *Cophixalus* (Anura: Microhylidae): new synonyms, new species, and a dichotomous key

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Abstract

Cophixalus represents the most diverse genus of microhylid frogs. Within this group I show that two recently described species are in fact synonyms of species described in the 19th Century. Proper recognition of one of these has been hindered by the poor state of the syntypes and confused information presented in earlier literature. The second species was simply not diagnosed against other members of the genus. I also describe five new species: one of these is known only from a single specimen from far western New Guinea, two occupy the Papuan Peninsula in the east of that island, and two are restricted to Woodlark Island off the southeastern tip of New Guinea. One of these new species had earlier been mis-identified as *C. pipilans*, requiring me to herein provide a corrected comparison of features that distinguishes *C. desticans* from *C. pipilans*. These taxonomic changes bring the number of *Cophixalus* species to 61, of which 42 inhabit New Guinea and immediately adjacent islands. But much of this region remains poorly surveyed, and, undoubtedly, many additional species remain to be described. I provide the first dichotomous key for the Papuan members of this genus, which should facilitate description of additional species.

Keywords: Milne Bay, Morobe, Owen Stanley Mountains, East Papuan Composite Terrane

Introduction

The microhylid frogs of the Papuan region (New Guinea, Solomon Islands, Bismarck Islands, Admiralty Islands, and associated satellite islands) are placed in the subfamily Asterophryinae, include 21 genera, and are thought to comprise a monophyletic lineage (Savage, 1973; Frost et al., 2006; van Boxclaer et al., 2006; van der Meijden et al., 2007). The largest genus in this radiation is *Cophixalus* Boettger, 1892. It currently contains 58 species, of which 39 occur on New Guinea and its satellite islands, 18 in northeastern Australia, and one on Halmahera (Günther and Richards, 2011; Hoskin and Aland, 2011; Frost, 2012; Hoskin, 2012). The taxonomy of this genus remains poorly known, and some molecular evidence (Köhler and Günther, 2008) and its large morphological diversity both suggest that the genus is not monophyletic. Furthermore, many species remain to be described, and many others no doubt remain to be discovered in the large areas of New Guinea that are unsurveyed. Although important morphological divergence between terrestrial and scansorial species is evident, the relationship between this divergence and phylogenetic history is uncertain. Hence, although the genus is remarkably diverse, it remains poorly known at this time.

In continuing research on this genus within New Guinea I have discovered several new species of *Cophixalus* (some described in Kraus and Allison, 2006, 2009), and it has also become evident that two recently described species are synonyms of earlier-named forms that have been poorly understood and little reported on since their descriptions (Boulenger, 1898). Herein I correct these earlier taxonomic mistakes, describe additional new species, and present a key for all *Cophixalus* species from New Guinea and immediately adjacent islands. A key for most of the Australian members of this genus was provided by Hoskin (2008).