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A new frog species (Microhylidae: *Cophixalus*) from boulder-pile habitat of Cape Melville, north-east Australia

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Abstract

In Australia, microhylid frogs are found almost exclusively in the tropical north-east, but in this region diversity is high. Sixteen species occur in the Wet Tropics region and a further six species are found further north on Cape York Peninsula. Most Australian microhylid species belong to the genus *Cophixalus* (18 species). The majority of these have highly localized distributions, with two-thirds being found on single mountain ranges. While most *Cophixalus* are small (10–29 mm snout to vent length) rainforest species, four differ dramatically in morphology and ecology, being large (30–53 mm) species that inhabit isolated areas of jumbled boulder-pile habitat. Here I describe a new species of *Cophixalus* from boulder-pile habitat in the Melville Range on Cape Melville, north-east Cape York Peninsula. *Cophixalus petrophilus* **sp. nov.** is highly distinct from all congeners in morphology, colour pattern and mating call. This species is restricted to deeply piled granite boulder habitat that is largely devoid of vegetation. As for the other four boulder-pile *Cophixalus*, *C. petrophilus* **sp. nov.** is large and shows other similar morphological adaptations to this unique habitat (e.g., long limbs, large finger discs). However, it is notable in that it is the smallest of the boulder-pile species (26–32 mm) and it has particularly large eyes. I speculate that the latter trait is an adaptation to dimly lit conditions deep within the boulder-field. *Cophixalus petrophilus* **sp. nov.** was only found in exposed boulder habitat, whereas the co-occurring boulder species, *C. zweifeli*, was found using forested areas on and adjacent to the boulder-fields at night. Cape Melville is the only boulder-field with two co-occurring boulder *Cophixalus* and it appears that there is habitat partitioning between them. *Cophixalus petrophilus* **sp. nov.** has a highly localised distribution but appears common within this and is probably secure.

Key words: *Cophixalus zweifeli*, *Cophixalus saxatilis*, boulder, granite, Cape York

Introduction

The family Microhylidae is represented in Australia by two genera: *Cophixalus* Boettger, 1892 (18 species) and *Austrochaperina* Fry, 1912 (5 species) (Zweifel 1985, 2000; Hoskin 2004, 2012). These frogs are almost exclusively restricted to the tropical north-east, with 22 species occurring in the Wet Tropics and Cape York regions of north-east Queensland. Just one species occurs outside this area, *Austrochaperina adelphe* (Zweifel 1985), which is restricted to the far north of the Northern Territory. The Wet Tropics is the center of microhylid diversity in Australia, with 16 species. In this region microhylid frogs comprise >50% of rainforest frog diversity (Hoskin & Hero 2008). Most of these species are found in upland rainforests and many are highly localized to single mountain ranges (Hoskin 2004, 2012). Six microhylid species are found further north on Cape York Peninsula: two are rainforest species of McIlwraith Range, three are restricted to isolated boulder-field mountains, and one is widespread across a variety of habitats (Zweifel 1985, 2000; Hoskin 2004; Hoskin & Aland 2011). This latter species (*A. gracilipes* Fry, 1912) is unusual in occurring in open forest habitats and is the only microhylid species shared between Australia and New Guinea, occurring in savannas and rainforests of northern Cape York and southern New Guinea (Zweifel 1985).

Most Australian microhylid species are restricted to rainforest. These rainforest species occupy the lower levels of the forest, living amongst leaf-litter, logs, rocks and low vegetation, and are of small body size (snout to vent length, SVL 10–29 mm) (Zweifel 1985; Hoskin 2004, 2008, Hoskin 2012). Four species (*C. saxatilis* Zweifel