



## Two new species of shrub frogs (Rhacophoridae: *Pseudophilautus*) from Sri Lanka

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### Abstract

Two new species of Sri Lankan shrub frogs of the genus *Pseudophilautus* are described. These species are diagnosed from their congeners on the basis of morphology, morphometrics and mitochondrial DNA sequence data. *Pseudophilautus schneideri*, new species, is distinguished from all Sri Lankan *Pseudophilautus* by its small size (< 22.8 mm SVL), distinct tympanum and supratympanic fold, sharp canthal edges, granular throat, chest and belly, and absence or presence of a vomerine ridge. *Pseudophilautus hankeni*, new species, is distinguished by its diminutive size (< 21.9 mm SVL), distinct tympanum, rounded canthal edges, tuberculated outer edge of lower arm, tuberculated dermal fold on outer edge of foot, granular throat, chest and belly, and the absence of a vomerine ridge. *Pseudophilautus schneideri* inhabits shrubs in open areas of the low to mid-elevations of the island's south-western 'wet zone' (rainfall > 2,000 mm·yr<sup>-1</sup>), including anthropogenic habitats, while *P. hankeni* is found on shrubs in the understorey of montane forests of the highest peaks (c. 1,200–1,600 m elevation) of the Knuckles region. These descriptions bring the total number of valid species of Sri Lankan *Pseudophilautus* to 67, 48 of which are extant.

**Key words:** Rhacophorinae, taxonomy, molecular systematics, Knuckles Hills, conservation

### Introduction

Following the discovery in Sri Lanka of a large radiation of Oriental tree frogs of the genus *Pseudophilautus* (Meegaskumbura *et al.* 2002), 39 new species have been described as part of an on-going effort to document this fauna (Manamendra-Arachchi & Pethiyagoda 2005; Meegaskumbura & Manamedra-Arachchi 2005; Meegaskumbura *et al.* 2007; Meegaskumbura *et al.* 2009). The review and description of 27 new species by Manamendra-Arachchi & Pethiyagoda (2005), though informed by a phylogeny, was based purely on morphology (given the unavailability of molecular data for the older type material). Meegaskumbura & Manamendra-Arachchi (2005), however, described eight more new species using the General Lineage concept (de Queiroz, 1998), where species are considered as independent evolutionary lineages based on multiple criteria (in this case molecular divergence, morphology, ecology and vocalization). Meegaskumbura *et al.* (2007) added two additional new but extinct species discovered in historical museum collections, again adopting a purely morphological approach. More recently Meegaskumbura *et al.* (2009) described two new species from the lowlands of Sri Lanka using molecular, morphological and morphometric data. The island's inventory of *Pseudophilautus* now stands at 67 species, of which 48 are extant. Surveys in Sri Lanka since the early 1990s suggest that 19 species, known only from museum specimens collected in the 19th and early 20th centuries, have since disappeared (Manamendra-Arachchi & Pethiyagoda 2005; Meegaskumbura *et al.* 2007); these extinctions, together with the high number of Critically Endangered (11) and Endangered (36) species, highlights the urgent need to describe and name the remaining new species of shrub frogs discovered by us in Sri Lanka, so that they can be included in the conservation planning process.

Here we continue to document the new species discovered in Sri Lanka as a result of our explorations on the island up to 2005. The species descriptions are based on morphological, morphometric and molecular data, in the context of the General Lineage concept of species.