



Redescription of *Leptotalax gracilis* (Günther, 1872) from Borneo and taxonomic status of two populations of *Leptotalax* (Anura: Megophryidae) from Peninsular Malaysia

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Abstract

A number of populations of *Leptotalax* from Borneo and Peninsular Malaysia have been assigned to *Leptotalax gracilis* in the past, rendering it a supposedly morphologically variable and widespread species. Whereas some of the Bornean populations have since been described as distinct species, many lowland populations from Borneo and montane populations from Peninsular Malaysia remain assigned to *L. gracilis*. Several distinct species appear to be hidden under this nominal taxon. In order to resolve the identity of *L. gracilis* and clarify the character states and their variation within the topotypic population, the species is redescribed based on examination of the holotype and recently collected topotypic material. Furthermore, the taxonomic status of two populations from Peninsular Malaysia (Gunung Benom, Gunung Tahan) that have been assigned to *L. gracilis* is reassessed. Reexamination of the corresponding vouchers revealed strong morphological differences between the two populations and between each population and *L. gracilis* from Borneo. The population from Gunung Benom differs from all species of the genus and is apparently undescribed. The population from Gunung Tahan is represented only by two not fully metamorphosed juveniles and cannot be assigned unambiguously to any of the described species of the genus. It is possibly another undescribed species but more specimens, especially adults, need to be collected.

Key words: Amphibia, Matang Range, Gunung Serapi, Gunung Benom, Gunung Tahan, endemism, cryptic species

Introduction

The genus *Leptotalax* Dubois, 1980 currently contains 33 species which are distributed from India and southern China through Indochina to Peninsular Malaysia and Borneo (Ohler *et al.* 2011). Six species have been described from Borneo, which makes the island one of the diversification centres of the genus. Prior to 1987, all Bornean populations of *Leptotalax* were considered as belonging to a single species, *Leptotalax gracilis* (Günther, 1872). Confusion about the taxonomic identity of populations of *Leptotalax* from Borneo and Peninsular Malaysia resulted from specimens of several biological species being assigned to this single taxon, rendering it a supposedly morphologically very variable and widespread species (Boulenger 1908a, 1908b, Inger 1966, Grandison 1972, Dring & Kiew 1982, Inger & Stuebing 1992). Within the last 25 years, however, the Bornean populations have been partly revised and several of them have been shown to represent distinct species based on differences in morphology and bioacoustics, i.e. *Leptotalax dringi* Dubois, 1987, *L. pictus* Malkmus, 1992, *L. arayai* Matsui, 1997, and *L. hamidi* Matsui, 1997. Many populations from lowland rainforests in Borneo and those from the Malay Peninsula remained assigned to *L. gracilis*.

During recent field work at different sites in lowland rainforest in Borneo, I collected a number of specimens from populations that are assignable to *L. gracilis* when using the current diagnosis for the species (spotted venter, bicoloured forearm; Inger *et al.* 1995, Matsui 1997). Specimens of some of these populations, however, differ significantly from topotypic specimens in morphological traits, bioacoustics, and genetics (unpubl. data). Before the taxonomic status of the different populations currently assigned to *L. gracilis* can be assessed it is crucial to resolve the identity of *L. gracilis* and clarify the character states and their variation within the topotypic population. This will also facilitate taxonomic work on other species of *Leptotalax* because although *L. gracilis* is the type species