A taxonomic study of whiyehead’s torrent frog, Meristogenys whiteheadi, with descriptions of two new species (Amphibia: Ranidae)

Abstract

The genus Meristogenys (Anura: Ranidae), endemic to Borneo, presents serious taxonomic problems despite being one of the commonest frogs in the mountainous regions of this island. We investigated molecular and morphological variations in Meristogenys whiteheadi (Boulenger, 1887) using larval and adult specimens from Sabah and Sarawak (Malaysia). We found three allopatric lineages in this species. We regard each of these as a distinct species because they are separated by a large genetic distance, and do not form any monophyletic group. Their morphological characters indicate that the distributional range of M. whiteheadi s.s. is divided into two disjunct areas: Mt Kinabalu (northern Sabah) and northern Sarawak. The two other lineages occupy ranges between those of M. whiteheadi, and represent undescribed cryptic species. One of these, Meristogenys stigmachilus sp. nov., collected from the northern part of the Crocker Range, is distinguished from M. whiteheadi by black spots on the upper lip and dark dots scattered on the back. A second undescribed species, Meristogenys stenocephalus sp. nov., was collected mainly from the southern part of the Crocker Range, and is characterized by the large body size of males and a relatively narrow head. Meristogenys stenocephalus sp. nov. also differs from M. stigmachilus sp. nov. and M. whiteheadi in larval morphology, but larvae of the latter two cannot be differentiated morphologically. We discuss relative tibia length, a diagnostic specific characteristic in the genus Meristogenys, and the relationships between body size and sexual size dimorphism in this genus.© 2011 The Linnean Society of London, Zoological Journal of the Linnean Society, 2011, 161, 157-183. © 2011 The Linnean Society of London.