



Maluti Mystery: A systematic review of *Amietia vertebralis* (Hewitt, 1927) and *Strongylopus hymenopus* (Boulenger, 1920) (Anura: Pyxicephalidae)

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Abstract

The taxonomic status of *Amietia vertebralis* and *Strongylopus hymenopus*, two frogs restricted to the Maluti-Drakensberg highlands in southern Africa, is unclear. Here, morphological examination and phylogenetic analyses elucidate the systematic position of these two species. Type specimens of both species were examined and compared with more recent collections to clarify their identity. These comparisons revealed discrepancies between the original application of these names and their current usage. The holotype and original description of *A. vertebralis* match specimens from an extant population at that species' type locality that are currently assigned to *S. hymenopus*. Furthermore, the type specimen of *S. hymenopus* is of uncertain provenance and does not match well with either of the forms currently associated with these names. We assessed both intraspecific and interspecific variability using DNA sequence data. Broad sampling of the form currently assigned to *A. vertebralis* revealed very little genetic variation thereby dispelling the hypothesis that this is a compound taxon. The generic placement of both species within the family Pyxicephalidae was resolved using a combined dataset of mitochondrial 16S rDNA and nuclear RAG1 gene sequences. The form currently recognised as *S. hymenopus* was excluded from the otherwise monophyletic genus *Strongylopus*, and was placed instead within *Amietia*. Based on these data a revised application of both species names is recommended here. Populations currently assigned to *Amietia vertebralis* are referred to *Amietia umbraculata* and those attributed to *Strongylopus hymenopus* are referred instead to *Amietia vertebralis*.

Key words: *Amietia*, Drakensberg, Lesotho, morphometrics, phylogenetics, Pyxicephalidae, South Africa, taxonomy

Introduction

The Aquatic River Frog, *Amietia vertebralis* (Hewitt, 1927) and the Berg Stream Frog, *Strongylopus hymenopus* (Boulenger, 1920) are two relatively poorly known high-altitude species with restricted ranges within the Maluti-Drakensberg Mountains and Lesotho highlands of southern Africa (Fig.1). This study demonstrates that the current usage of these scientific names is incorrect and identifies the correct names for these species. For clarity in presenting this argument, however, the current use of these names is maintained through the article, with inverted commas to show that these are names of convenience, subject to our nomenclatural conclusions.

'*Amietia vertebralis*' (*non* Hewitt) is a high-altitude montane species, recorded between 1680 – 3400 m above sea level, in most of the major rivers of Lesotho, as well as, historically, in the upper reaches of the Thukela and Mzimkulu rivers in KwaZulu-Natal, the Elands River in the Free State, and the Bell River in the Eastern Cape (Bates 2002). This species is mainly found in rivers that flow south-westward across Lesotho. '*Strongylopus hymenopus*' (*non* Boulenger) is recorded at altitudes between 1800 – 3200m, and is restricted to