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A new species of chameleon (Squamata: Chamaeleonidae) from the Aberdare Mountains in the central highlands of Kenya

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Abstract

We describe a new species of chameleon, *Trioceros kinangopensis* **sp. nov.**, from Kinangop Peak in the Aberdare mountains, central highlands of Kenya. The proposed new species is morphologically and genetically distinct from other member of the *bitaeniatus*-group. It is morphologically most similar to *T. schubotzi* but differs in the lack of sexual size dimorphism, smaller-sized females, smoother, less angular canthus rostrales, smaller scales on the temporal region and a bright orange gular crest in males. Mitochondrial DNA indicates that the proposed new taxon is a distinct lineage that is closely related to *T. nyirit* and *T. schubotzi*. The distribution of *T. kinangopensis* **sp. nov.** appears to be restricted to the afroalpine zone in vicintiy of Kinangop Peak and fires may pose a serious threat to the long-term survival of this species.

Key words: endemism, East Africa, phylogenetics, rift vally, species diversity, systematics

Introduction

The highlands of East Africa represent a regional hotspot for chameleon species diversity in mainland Africa. Five genera and over fifity species are present in the region, the majority of which are restricted to montane biotopes (Spawls *et al.* 2002, Tilbury 2010). Surveys of some of the more remote and biologically understudied mountain ranges in the region continue to reveal hitherto undiscovered species diversity (Menegon *et al.* 2002, Necas *et al.* 2003, Necas *et al.* 2005, Mariaux & Tilbury 2006, Menegon *et al.* 2009, Necas 2009, Necas *et al.* 2009, Krause & Böhme 2010, Lutzmann *et al.* 2010, Stipala *et al.* 2011). Molecular techniques have also been used to investigate several groups of East African chameleons that have a complex taxonomic history, providing valuable insights into their the phylogenetic relationships and the historical geological and climatic processes that have driven their diversification (Matthee *et al.* 2004, Measey & Tolley 2011, Tolley *et al.* 2011). Molecular studies have also revealed that many geographically widespread species with fragmented distributions contain deep phylogenetic splits, indicating prolonged periods of isolation among populations and the presence of cryptic species (Matthee *et al.* 2004, Mariaux & Tilbury 2006, Mariaux *et al.* 2008, Menegon *et al.* 2009, Barej *et al.* 2010, Stipala *et al.* 2011).

Among the East African chameleons the genus *Trioceros* is a species diverse lineage that has been included in several phylogenies (Townsend & Larson 2002, Raxworthy *et al.* 2002, Tilbury & Tolley 2009, Krause & Böhme 2010, Stipala *et al.* 2011) but is in need of further detailed investigation. Within the genus is a sub-clade known as the *bitaeniatus*-group (Rand 1963) that consists of small bodied, live-bearing species with montane distributions. They are a morphologically distinctive group that display the following characteristics: prominent tubercular cranial crests including a raised parietal crest, which forms a triangular casque at the back of the head; prominent dorsal and gular crests; and heterogeneous body scalation. A few species possess a single, short rostral process and one species, *T. jacksonii*, possesses three long annular horns. The taxonomic history of the *bitaeniatus*-group is complex and has been subject to several major revisions with conflicting views on species and sub-species groupings (Werner 1911, Mertens 1966, Rand 1963). A detailed study of the external morphology of the *bitaeniatus*-group by Rand (1963)

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