



Article

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Description of a new pygmy chameleon (Chamaeleonidae: *Brookesia*) from central Madagascar

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Abstract

We describe a new *Brookesia* species from a forest fragment located 13 km south of Ambalavao in the southern part of Madagascar's central high plateau. *Brookesia bruno* **sp. nov.** is one of the few arid-adapted *Brookesia* species inhabiting deciduous forests on the western slope of the central high plateau of the island (around 950 m a.s.l.). So far the species has only been observed in the private Anja Reserve. The species belongs to the *Brookesia decaryi* group formed by arid-adapted *Brookesia* species of western Madagascar: *B. bon*si Ramanantsoa, *B. perarmata* (Angel), *B. brygo*oi Raxworthy & Nussbaum and *B. decaryi* Angel. *Brookesia bruno* differs from the other four species of the group by a genetic divergence of more than 17.6% in the mitochondrial ND2 gene, and by a combination of morphological characters: (1) nine pairs of laterovertebral pointed tubercles, (2) absence of enlarged pointed tubercles around the vent, (3) presence of poorly defined laterovertebral tubercles along the entire tail, (4) by the configuration of its cephalic crest, and (5) hemipenial morphology. Based on our molecular phylogeny this species is sister to a clade containing *B. brygo*oi, *B. decaryi*, and probably *B. bon*si for which no ND2 sequences were available. Our molecular data also confirm the presence of a divergent mitochondrial lineage in the Tsingy de Bemaraha, which might be assigned to either *B. bon*si or *B. decaryi*, and point to the need of more research on this population.

Key words: Squamata, Chamaeleonidae, *Brookesia*, new species, central Madagascar, Ambalavao, Anja Reserve

Introduction

Madagascar's flora and fauna have been shaped by a long history of isolation and successive colonization events followed by clade diversification, leading to an extraordinary degree of endemism (Goodman & Benstead 2003; Crottini *et al.* 2012). The Old World family Chamaeleonidae is one of the groups with a center of diversity in Madagascar, and the Madagascar-endemic pygmy chameleons of the genus *Brookesia* Gray are considered as the most basal of all extant chameleons (Rieppel 1987; Townsend & Larson 2002; Townsend *et al.* 2009). The genus contains 31 described species and yet undescribed candidate species (Townsend *et al.* 2009; Glaw *et al.* 2012), and thereby is one of the largest genera of Malagasy squamates (Raxworthy & Nussbaum 1995).

Brookesia typically are of a dull brownish coloration, and in contrast to other chameleons, their ability to change color is limited. Generally the females have larger body sizes than males, the tail is short and not prehensile but rather used as a walking aid (Boistel *et al.* 2010), and several species bear laterovertebral tubercles on the body (Brygo 1978). As all other chameleons they have diurnal habits, but in contrast to the mainly arboreal species of the other Malagasy genera *Calumma* and *Furcifer* they mostly inhabit the forest leaf litter and climb up to a roosting position at dusk (Glaw & Vences 2007).