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# Revision of Afro-Malagasy *Otomops* (Chiroptera: Molossidae) with the description of a new Afro-Arabian species

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## Abstract

The paucity of data for the molossid bat *Otomops* throughout its range has hindered our ability to resolve the number of *Otomops* species present within the Afro-Malagasy region (including the Arabian Peninsula). This paper employed an integrative approach by combining morphometric (cranial morphology) and molecular (mitochondrial cytochrome *b* and D-loop sequences, nuclear intron sequences and microsatellites) data to identify the number of *Otomops* taxa occurring in the Afro-Malagasy region. Three taxa were identified, two of which could be assigned to existing species, i.e. *O. martiensseni* and *O. madagascariensis*. The third taxon, previously recognised as *O. martiensseni* (Matschie 1897), is described herein as a new species, *Otomops harrisoni* **sp. nov.**, and can be differentiated from *O. martiensseni* s.s. based on both molecular and morphometric data. Locality data of specimens belonging to *O. harrisoni* suggest that its distribution range extends from the Arabian Peninsula through to Eritrea and south to Ethiopia and Kenya.

**Key words:** systematics, molecular genetics, morphometrics, ecological niche modelling, northeastern Africa

## Introduction

The Palaeotropical genus *Otomops* Thomas, 1913 (Molossidae) currently includes seven recognised species (Simmons 2005; Hutcheon & Kirsch 2006). Five of these are distributed in the Oriental region, including southern India, Java, Papua New Guinea, Cambodia, the Philippines and Indonesia (Alor Island), which suggests that this genus may have an Oriental origin (Lamb *et al*. 2008). The other two species have a wide but somewhat sparse distribution throughout the Afro-Malagasy region, including the Arabian Peninsula (Peterson *et al*. 1995; Simmons 2005). *Otomops martiensseni* (Matschie 1897) is known from Yemen on the Arabian Peninsula (Al-Jumaily 1999) and the African mainland from South Africa in the south, to Ethiopia and Eritrea in the northeast (Kock & Zinner 2004) and Ivory Coast to the west (Lamb *et al*. 2008). *Otomops madagascariensis* Dorst, 1953 mostly occurs on the drier, western parts of Madagascar (Goodman & Raherilalao 2014).

*Otomops martiensseni* and *O. madagascariensis* are considered to be separate species (Simmons 2005; Lamb *et al*. 2008) although *O. madagascariensis* was formerly classified as a subspecies of *O. martiensseni* (Long 1995). Historically, there has also been debate regarding the existence of *O. icarus* Chubb 1917 (Meester *et al*. 1986; Simmons 2005). *Otomops martiensseni* is the only mainland African species, although *O. icarus* (Durban, South Africa) was once considered a species, subspecies or synonym of *O. martiensseni* (Chubb 1917; Long 1995; Mickleburgh *et al*. 2008). Lamb *et al*. (2006) showed that populations from east Africa and South Africa are distinct but have low divergences in mitochondrial cytochrome *b* (2.50%) and D-loop sequences. Nuclear data (PCR-RAPDs), however, revealed an opposing result with high genetic similarities between east African and South African individuals (Lamb *et al*. 2006). Fenton *et al*. (2002) reported morphological differences between

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