



## A new mid-altitude rainforest species of *Typhlops* (Serpentes: Typhlopidae) from Madagascar with notes on the taxonomic status of *T. boettgeri* Boulenger, *T. microcephalus* Werner, and *T. capensis* Rendahl

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### Abstract

We describe a new *Typhlops* species from mid-altitude rainforest (ca. 950 m elevation) of the Andasibe region in central eastern Madagascar. *Typhlops andasibensis* **sp. nov.** is a medium-sized species (up to 340 mm total length) and can be separated from all other Malagasy typhlopids by the combination of 26 midbody scale rows, less than 400 middorsals, and a T–V supralabial imbrication pattern. *Typhlops microcephalus* is confirmed as a valid species, *T. boettgeri* is resurrected from the synonymy of *T. arenarius*, and *T. capensis* is synonymized with *Ramphotyphlops exocoeti*. Keys to the three genera and 14 described species of Madagascar and Comoro typhlopids are provided.

**Key words:** *Typhlops*, *Ramphotyphlops*, *Xenotyphlops*, Madagascar, Comoros, taxonomy, morphology, visceral anatomy

### Introduction

The non-marine snake fauna of Madagascar consists of three families, Boidae (3 species), Colubridae sensu lato (76 species), and Typhlopidae (11 species). Many recent descriptions of new species (e. g. Cadle, 1996a–b, 1999; Nussbaum & Raxworthy, 2000; Glaw *et al.*, 2005a–b, 2007, 2009; Mercurio & Andreone 2005; Wallach *et al.*, 2007; Franzen *et al.*, 2009) indicate that the inventory of Malagasy snakes is still far from complete. All Malagasy snake species except the probably introduced cosmopolitan *Ramphotyphlops braminus* Daudin (1803) are naturally endemic to Madagascar. The claimed occurrence of *Acrantophis dumerilii* and *Liophidium vaillanti* on Reunion Island (Guibé, 1958) might be erroneous (see Vences & Glaw, 2003), the occurrence of *Leioheterodon madagascariensis* on Grande Comoro is due to introduction (Meirte, 1992a), and the claimed presence of *Ithycyphus miniatus* and *Stenophis gaimardi* on the Comoro Islands (e. g. Boulenger, 1915) has never been confirmed. The endemism of Malagasy snakes is also remarkably high at the genus level. The two boid and most of the colubrid genera are endemic to Madagascar and the few remaining genera are only shared with the Comoro Islands (Blanc, 1971; Cadle, 2003). Furthermore, all Malagasy colubrids except the genus *Mimophis* belong to a monophyletic radiation (Nagy *et al.*, 2003).

The level of endemism appears to be lower for the Malagasy typhlopids, which include three genera: *Ramphotyphlops* with one probably introduced species, the cosmopolitan genus *Typhlops* with currently eight endemic species, and the endemic genus *Xenotyphlops* of unknown relationships and with two species. *Xenotyphlops* may be only distantly related to the rest of the Malagasy fauna and its affinities may be instead with *Letheobia* of Africa (Wallach & Ineich, 1996). Whether the occurrence of the cosmopolitan, non-endemic genus *Typhlops* in Madagascar is an artifact due to a lower level of taxonomic splitting in typhlopids or due to a different biogeographic history of typhlopids remains to be studied.

In contrast to colubrids and most other reptile and amphibian groups, Malagasy typhlopids have received