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## Resolving an enigma by integrative taxonomy: *Madagascarophis fuchsi* (Serpentes: Lamprophiidae), a new opisthoglyphous and microendemic snake from northern Madagascar

FRANK GLAW<sup>1,6</sup>, CHRISTOPH KUCHARZEWSKI<sup>2</sup>, JÖRN KÖHLER<sup>3</sup>,  
MIGUEL VENCES<sup>4</sup> & ZOLTÁN T. NAGY<sup>5</sup>

<sup>1</sup>Zoologische Staatssammlung München, Münchhausenstraße 21, 81247 München, Germany. E-mail: Frank.Glaw@zsm.mwn.de

<sup>2</sup>Museum für Naturkunde, Leibniz Institute for Research on Evolution and Biodiversity at the Humboldt University Berlin, Invalidenstr. 43, 10115 Berlin, Germany. E-mail: C.Kucharzewski@gmx.de

<sup>3</sup>Hessisches Landesmuseum Darmstadt, Friedensplatz 1, 64283 Darmstadt, Germany. E-mail: joern.koehler@hlmd.de

<sup>4</sup>Division of Evolutionary Biology, Zoological Institute, Technical University of Braunschweig, Mendelssohnstr. 4, 38106 Braunschweig, Germany. E-mail: m.vences@tu-bs.de

<sup>5</sup>Royal Belgian Institute of Natural Sciences, JEMU, Rue Vautier 29, B-1000 Brussels, Belgium. E-mail: lustimaci@yahoo.com

<sup>6</sup>Corresponding author

### Abstract

Herpetological surveys in the dry forests of the limestone massif Montagne des Français in the far north of Madagascar have recently yielded a number of undescribed reptile species. Here we describe an additional new and potentially microendemic species of the snake genus *Madagascarophis* (Squamata: Serpentes: Pseudoxyrhopiinae) which lives in this massif syntopically with *M. colubrinus septentrionalis* and differs distinctly from *M. colubrinus* and *M. meridionalis* in its mitochondrial and nuclear DNA sequences. Morphologically *Madagascarophis fuchsi* **sp. nov.** is characterized by a broad contact between the posterior inframaxillaries (genials), 25 dorsal scale rows at midbody, and a low number of ventrals (171–172). We re-describe the holotype of *M. ocellatus* and present new data on the morphological variation of the northern subspecies *M. c. septentrionalis* and *M. c. citrinus*. Although Montagne des Français has recently been included into the network of nature reserves in Madagascar, continuous deforestation is strongly threatening this important center of reptile endemism. In line with the assessment of other microendemic reptiles of this massif we suggest to consider the new species as Critically Endangered according to the IUCN criteria and encourage new efforts to protect this area more efficiently.

**Key words:** Squamata, Montagne des Français, microendemism, conservation, *Madagascarophis colubrinus citrinus*, *Madagascarophis colubrinus septentrionalis*, *Madagascarophis ocellatus*

### Introduction

The snake genus *Madagascarophis* Mertens, 1952 is endemic to Madagascar (e. g. Guibé 1954; Domergue 1987) and part of the subfamily Pseudoxyrhopiinae, a large group considered as "colubrid" snakes until recently when it was attributed to the family Lamprophiidae (Vidal *et al.* 2007). Pseudoxyrhopiine snakes underwent a remarkable radiation in Madagascar with currently about 80 nominal species which occupy a wide array of ecological niches and habitats all over the island (Cadle 2003). A few pseudoxyrhopiine genera also occur on the Yemenite island of Socotra (*Dityophis vivax*; see Nagy *et al.* 2003) and the sub-Saharan African mainland (three species of *Duberria* and *Amplorhinus multimaculatus*; see Vidal *et al.* 2008; Kelly *et al.* 2009; Pyron *et al.* 2011). Zaher *et al.* (2009) recognized one morphological synapomorphy of the group (spines reduced to spinules on the hemipenial lobes), which however still has to be confirmed in additional representatives of the group.

*Madagascarophis* consists of three recognized species and several subspecies and represents a remarkable example that rather deeply divergent mitochondrial haplotypes can co-occur within populations of the same species