



A third species of *Gegeneophis* Peters (Amphibia: Gymnophiona: Indotyphlidae) lacking secondary annular grooves

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Abstract

A new species of indotyphlid caecilian amphibian, *Gegeneophis primus* sp. nov., is described based on a series of eight specimens from the state of Kerala in the southern region of the Western Ghats, India. This species is distinguished from all other *Gegeneophis*, except *G. seshachari* and *G. pareshi*, in lacking secondary annular grooves and scales. It differs from *G. seshachari* and *G. pareshi* in several features, including having fewer primary annuli and lacking a well-developed unsegmented terminal shield.

Key words: caecilians, herpetology, India, Kerala, taxonomy, Western Ghats

Introduction

In the latest comprehensive caecilian amphibian (Gymnophiona) classification (Wilkinson *et al.*, 2011; see also Kameil *et al.* 2012), the family Indotyphlidae comprises two African, three Seychellean and two Indian genera previously included within the non-monophyletic and heterogenous Caeciliidae. Indotyphlids represent more than 10% of the c. 190 nominal caecilian species globally, and more than 60% of nominal indotyphlid species are from India — 10 species of *Gegeneophis* Peters, 1879 and two of *Indotyphlus* Taylor, 1960. The tremendous increase in the number of indotyphlid species recognized from the Western Ghats region of peninsular India in the last dozen years has resulted entirely from new species described from the states of Karnataka, Goa and Maharashtra (Bhatta & Prasanth, 2004; Bhatta & Srinivasa, 2004; Bhatta *et al.*, 2007a, 2007b; Giri *et al.* 2003, 2004, 2011; Pillai & Ravichandran, 1999; Ravichandran *et al.*, 2003). Here we describe the first new species of *Gegeneophis* from the state of Kerala since Taylor (1964) described *G. ramaswamii* from the southern part of the state. The new species is from the northern part of Kerala and is distinctive in being the only *Gegeneophis* lacking scales and secondary annular grooves without also having a well-developed terminal shield. The new species is referred to *Gegeneophis* on the basis of the molecular phylogenetic analyses of Gower *et al.* (2011; see Discussion). What we know of the morphology of the new species is consistent with it being an indotyphlid (as are all non-ichthyophiid caecilians known from the Western Ghats) and, among indotyphlids, its eyes under bone additionally serve to identify it as a species of *Gegeneophis* (see Wilkinson *et al.*, 2011).

Materials and methods

All specimens were fixed in 5–10% formalin following lethal anaesthesia (MS222), washed in water and stored in 70% ethanol. Following Kamei *et al.* (2009) and Wilkinson & Kok (2010) we use the following abbreviations for features and ratios of measurements: AG = annular groove; AM = anteromedial limit of the mouth on the upper