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A new species of wolf snake (Colubridae: *Lycodon* Fitzinger, 1826) from Phnom Samkos Wildlife Sanctuary, Cardamom Mountains, southwest Cambodia

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Abstract

A new species of the genus *Lycodon* Fitzinger, 1826 is described from the Cardamom Mountains of southwest Cambodia. *Lycodon zoosvictoriae* distinctly differs from all other species of *Lycodon* in Southeast Asia by a combination of its morphometric characters and unique coloration. The new species has 17 dorsal scales at midbody; 2+2 temporals; 8 supralabials; 10 infralabials; loreal separated from internasal and orbit; 213 ventrals; 85 subcaudals; pale tan brown ground color; irregular dark brown blotches on anterior part, 31 transverse blotches on posterior part of body and 26 blotches on tail. Given its submontane type locality, the new species could prove to be endemic to the Cardamom Mountains of southwest Cambodia and probably Southeast Thailand.

Key words: Diagnosis, herpetofauna, Pursat, Indochina, systematics, morphology, etymology, *Lycodon*

Introduction

The colubrid wolf snakes of the genus *Lycodon* Fitzinger, 1826 are characterized by (1) their strongly arched maxillary bone bending inwards anteriorly, having three to six enlarged and fang-like anterior maxillary teeth without venomous grooves, increasing in size posteriorly, separated by a diastema from the posterior seven to fifteen teeth, posteriorly increasing in size, the last two being enlarged; (2) rounded orbit with vertical elliptic pupil; (3) smooth or weakly keeled dorsal scales in rows of 15–21 (Smith 1943; Taylor 1965; Lanza 1999; Stuebing *et al.* 1999; Daltry & Wüster 2002; Das 2010; Vogel & David 2010; Vogel *et al.* 2009, 2012); (4) most wolf snakes have a distinct or indistinct white or pale brown nuchal collar followed posteriorly by a black to blackish-brown ground color with various white, cream or yellow bands, blotches and speckles (some without pale coloration) on body and tail; (5) the anal plate varies from divided to undivided (Lanza 1999; Daltry & Wüster 2002; Das 2010). The most recent phylogenetic revisions by Siler *et al.* (2013) and Guo *et al.* (2013) indicate that the genus *Dinodon* Duméril, 1853 is morphologically and genetically a closely related genus and a junior synonym of *Lycodon*, a view we follow herein.

Herpetofaunal field investigations and examination of museum specimens in recent years have yielded descriptions of 14 new species of *Lycodon*, six of which were reported from the Philippines: *L. alcalai* Ota & Ross, 1994; *L. bibonius* Ota & Ross, 1994, *L. chrysoprateros* Ota & Ross, 1994, *L. solivagus* Ota & Ross, 1994, *L. ferroni* Lanza, 1999 and *L. fausti* Gaulke, 2002; three from China: *L. synaptor* Vogel & David, 2010, *L. gongshan* Vogel & Luo, 2011 and *L. liuchengchaoi* Zhang, Jiang, Vogel & Rao, 2011; two from India: *L. zawi* Slowinski, Pawar, Win, Thin, Gyl, Oo & Tun, 2011 and *L. flavicollis* Mukherjee & Bhupathy, 2007; one from Cambodia: *L. cardamomensis* Daltry & Wüster, 2002; one from southern Thailand: *L. ophiophagus* Vogel, David, Pauwels, Sumontha, Norval, Hendrix, Vu & Ziegler, 2009; and one from Laos: *L. davidi* Vogel, Nguyen, Kingsada & Ziegler, 2012. As a consequence, the genus *Lycodon* has now become one of the most diverse genera within the

crossbands on body); color of body blotches dark brown (vs. whitish); color of body pale tan brown (vs. black); ventral color pattern white with dark pigments (vs. grayish).

Discussion

Morphologically, wolf snakes of the genus *Lycodon* were traditionally diagnosed by their inwardly bent maxillary bone with 3–6 anterior teeth, and, following a diastema, 7–15 posterior teeth (Smith, 1943; Taylor, 1965). Although the diagnostic value of teeth is still questionable (Siler *et al.* 2013; Guo *et al.* 2013), many recently described species, including a Cambodian specimen (CBC00678, see appendix 1), indicate that this is not always correct as the number of posterior teeth can be as low as four or five (Lanza 1999; Daltry & Wüster 2002; Vogel & David 2010; Vogel *et al.* 2012).

The new species appears to be a cryptic, arboreal and probably terrestrial snake. It likely benefits by its dull pale tan brown coloration which may act as camouflage from predation on similarly colored tree bark which are largely covered with moss at the type locality due to the continually wet conditions that prevail there. As such, it is unsurprising that the species has eluded the intensive herpetological sampling effort in Cambodia over the last decade. This peculiar coloration renders *Lycodon zoosvictoriae* **sp. nov.** highly distinct from its congeners and permits its specific recognition on morphological differences alone. Nevertheless, since the species is presently known only from a single specimen, future molecular studies would be of great interest. Additional samples are needed to evaluate genotype variation within the species population and its appropriate position in existing phylogenetic trees (Siler *et al.* 2013). Further, the fusion of the preocular on the left side causes the third supralabial to contact the orbit in the existing specimen and this character may prove to be variable when additional specimens are found. Given its unique coloration, submontane habitat and altitudinal separation (1,284 m a.s.l.) from other wolf snakes of *Lycodon* genus in the region, the species could prove to be endemic to the Cardamom Mountains of Cambodia and probably Thailand.

The discovery of *Lycodon zoosvictoriae* **sp. nov.** from Cambodia raises the total number of *Lycodon* currently recognized to 48 species and the number described in the last two decades to 15 species (see introduction). It also increases the number of snake species described from Cambodia in the last 12 years to eight (Daltry & Wüster 2002; David *et al.* 2008a,b; Malhotra *et al.* 2011; Murphy *et al.* 2012; Neang *et al.* 2012). Our latest finding is an additional proof of the critical importance of the herpetofauna of Cambodia's Cardamom Mountains for IUCN Red List assessments and conservation oriented research. On the basis of our single specimen description, we suggest inclusion of this species in the IUCN Red List of Threatened Species as Data Deficient (DD) until additional data are available and thoroughly assessed.

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