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A new species of lowland karst dwelling *Cnemaspis* Strauch 1887 (Squamata: Gekkonidae) from northwestern Peninsular Malaysia

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Abstract

A new species of lowland karst dwelling *Cnemaspis* Strauch 1887, *C. grismeri* **sp. nov.** is described from the southeastern base of the Banjaran Bintang in northern Peninsular Malaysia. It is differentiated from its congeners by a unique combination of characters including size, coloration and scalation. *Cnemaspis grismeri* **sp. nov.** is most closely related to *C. mcguirei*, an upland species endemic to the Banjaran Bintang. This phylogeographic pattern is also seen in the upland and lowland Banjaran Bintang species of *Cyrtodactylus bintangtinggi* and *C. bintangrendah*, respectively (Grismer *et al.* 2012). The discovery of yet another endemic gekkonid in the poorly explored karst regions of Peninsular Malaysia underscores the necessity for concentrated collecting efforts in these unique landscapes.

Key words: new species, taxonomy, karst, *Cnemaspis grismeri*, Gekkonidae, herpetofauna, Malaysia

Introduction

The gekkonid genus *Cnemaspis* Strauch 1887 currently contains 103 species from three non-monophyletic groups (Africa, South-Asia, and Southeast Asian [see Gamble *et al.* 2012; Uetz 2013]). The Southeast Asian clade (*sensu* Grismer *et al.* 2010a,b,c) comprises a group of scansorial forest dwelling lizards with numerous adaptations for moving about on flat surfaces (vegetation and rocks) during low levels of illumination. In the past, this conserved morphology and behavior lead to considerable taxonomic confusion that was ultimately disentangled with a morphological review of the entire genus and a series of new, reliable diagnostic characters (Grismer *et al.* 2010a,b,c). This has, in part, resulted in a rapid increase in the number of species in this genus (surpassed only by the genera *Cyrtodactylus* ~170 spp. and *Hemidactylus* ~114 spp. [Uetz 2013]) with 23 of the currently recognized 34 species having been described in the last 11 years (Chan & Grismer 2008; Chan *et al.* 2010; Das & Grismer 2003; Grismer 2010; Grismer & Chan 2008, 2009, 2010; Grismer & Das 2006; Grismer & Ngo 2007; Grismer *et al.* 2008a,b; 2009; 2010a,b,c; J. Grismer *et al.* 2010). Many of these new species were discovered during expeditions into previously unexplored karst forests or karst outcroppings, resulting in the acquisition of a number of new specialized lineages with highly restrictive substrate specificity, namely limestone (Grismer & Chan 2009; Grismer *et al.* 2008a,b, 2009, 2010a; J. Grismer *et al.* 2010). We report here another new lowland karst-adapted species of gecko from the limestone forests of the Lenggong Valley, Perak, in northern Peninsular Malaysia (Fig. 1). We assign the individuals of this population to the genus *Cnemaspis* in that they all have the unique combination of broad, flattened heads; large, somewhat forward and upwardly directed eyes with round pupils; dorsoventrally compressed bodies; and long, widely splayed limbs bearing long, inflected digits—adaptations for climbing on flat surfaces in all planes or orientations. A molecular analysis using the mitochondrial gene NADH dehydrogenase subunit 2 (ND2) indicates they have a 7.3–11.7% sequence divergence from their closest upland relative *C. mcguirei* (L. Grismer *et al.* unpublished). Additionally, they have a unique combination of color pattern and scale characteristics that differentiate them from all other known species of *Cnemaspis*. Therefore, this population is described below as a new species.