



A revision and redescription of the rock gecko *Cnemaspis siamensis* (Taylor 1925) (Squamata: Gekkonidae) from Peninsular Thailand with descriptions of seven new species

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Abstract

A taxonomic revision of *Cnemaspis siamensis* (Smith 1925) revealed it to be a complex composed of four species: *C. siamensis* (Smith 1925) which occurs on Ko Tao Island, Surat Thani Province and on the peninsula ranges from Khao Mod, Surat Thani Province in the south, northward east of the Tenasserim Mountains to Kaeng Krachan National Park, Phetchaburi Province; *C. chanardi* **sp. nov.** ranging from Tai Rom Yen National Park, Surat Thani Province in the north, southward through the western foothills of the Nakhon Si Thammarat and Sankalakhiri Mountains to Phuphaphet Cave, Satun Province and westward to Khlong Thom District, Krabi Province; *C. vandeventeri* **sp. nov.** ranging from Kapur District, Ranong Province southward to at least Khlong Had Sompem, District, Ranong Province west of the Tenasserim and Phuket Mountains and possibly all the way to Phuket Island; and *C. kamolnorranathi* **sp. nov.** restricted to the northwestern section of the Isthmus of Kra, ranging from Tham Khao Sonk, Thachana District, Surat Thani Province southward to Tai Rom Yen National Park, Surat Thani Province. These species are easily separated from one another on the basis of their unique combination of having or lacking preloacal pores, dark gular markings, a series of lightly colored bars on the flanks, and a lightly colored, prescapular crescent as well as other aspects of squamation. Four additional new species from western and southern Thailand are also described: *C. huaseesom* **sp. nov.** from Sai Yok National Park, Kanchanaburi Province; *C. punctatonuchalis* **sp. nov.** from Thap Sakae District, Prachuap Khiri Khan Province; *C. narathiwatensis* **sp. nov.** ranging from Waeng District, Narathiwat Province south to Bang Lang, Yala Province; and *C. niyomwanae* **sp. nov.** from Thum Khao Ting, Palean District, Trang Province, Thailand. These species are differentiated from each other and all other *Cnemaspis* on the basis of their unique combinations of color pattern and squamation characters. This brings the total number of species of *Cnemaspis* in Thailand from five to 12 and continues to illustrate that the unrealized diversity in this group is a function of unfocused collecting efforts coupled with poor taxonomy.

Key words: Squamata, Gekkonidae, *Cnemaspis*, Thailand, new species

Introduction

The monophyletic Southeast Asian genus *Cnemaspis* (*sensu* Bauer *et al.*, 2007 and whose use is restricted here to exclude African and *kandiana* group taxa of South Asia and the western Malay Peninsula and Mentawi Archipelago) contains 31 species of rock geckos that collectively range from Laos, southern Vietnam, Cambodia, and Thailand, southward through the Malay Peninsula to Borneo and their adjacent archipelagos (Chan *et al.*, 2010; Grismer, 2010; Grismer & Chan *et al.*, 2010; Grismer *et al.*, 2010a,b). *Cnemaspis* are usually relatively small, cryptically colored species inhabiting primary and old secondary rainforests. They are inherently difficult to find and to collect, being that they are agile, secretive, microhabitat specialists that generally restrict their movements to the shaded surfaces of rocks, trees and caves during the day, or are nocturnal. Their restrictive body plan of having a broad, flattened head; large, somewhat forward and upwardly directed eyes; a flattened body; and long, widely splayed limbs bearing long, inflected digits are adaptations for climbing on flat surfaces in all planes or orientations and show extreme conservatism across all species. This combination of cryptic behavior, microhabitat specialization, and morphological conservatism has often made it difficult to delimit species boundaries and has generated considerable taxonomic confusion within the group as a whole (see Bauer & Das, 1998; Chan & Grismer, 2008; Das & Bauer 1998; Dring, 1979; Grismer *et al.*, 2008a,b, 2009). In the past, this confluence of circumstances meant that many species simply went unnoticed, unrecognized, or existed as synonyms of previously described species. Researchers now, however, have a better understanding of how and where to look for *Cnemaspis* and what characters to use to differentiate the various lineages from one another. Furthermore, access into previously unexplored territories and unique landscapes has greatly increased the rate at which new species are being discovered (J. Grismer *et al.*, 2010; Grismer, 2010; Grismer & Chan, 2008, 2009; Chan *et al.* 2010; Grismer & Ngo, 2007; Grismer *et al.*, 2008a,b, 2009; Grismer *et al.*, 2010b).

The highest diversity of *Cnemaspis* occurs in the southern one-third of the Malay Peninsula, namely Peninsular Malaysia, where 20 species have been recorded, 14 of which having been described within the last six years (Chan & Grismer, 2008; Chan *et al.*, 2010; Das & Grismer, 2003; Grismer & Chan, 2008; Grismer & Das, 2006; Grismer *et al.*, 2008a,b; Grismer *et al.*, 2009, 2010b). The low diversity of *Cnemaspis* in Borneo