Cnemaspis rammalensis sp. nov., Sri Lanka’s largest day-gecko
(Sauria: Gekkonidae: Cnemaspis) from Rammalakanda Man and Biosphere Reserve in southern Sri Lanka

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Abstract

A new species of rock dwelling gecko belonging to the genus Cnemaspis is described from Sri Lanka based on a suite of morphological features. The species is the largest of its genus described from Sri Lanka so far (snout-vent length 52–54 mm) and is the second largest of the Western Ghats-Sri Lanka Biodiversity Hotspot. It may be diagnosed in details of both scalation (ventrals 186–207; mid-subcaudals large; absence of precloacal pores; 15 femoral pores on each side; 22–23 and 23–25 subdigital lamellae on finger IV and on toe IV, respectively; smooth scales on tail dorsum) and colouration (five prominent trilobate shaped cream markings pointing towards head and extending from neck to vent). The species is found in a unique habitat in the Rammalakanda Forest, where it is threatened by deforestation.

Key words: Cnemaspis, gecko, new species, Rammalakanda, Sri Lanka

Introduction

The Old World gecko genus Cnemaspis Strauch, 1887, comprises more than 100 species in Tropical Africa, South Asia and South-east Asia (Uetz & Hallermann 2013). These disjunct populations, although grouped into one genus, each constitute a separate clade according to molecular phylogenetic data (Bauer et al. 2007; Gamble et al. 2012). Geckos in the genus Cnemaspis are characterized by a diminutive, slender body, large forward and upwardly directed eyes with round pupils, and elongate slender digits bent at an angle with entire subdigital lamellae (Das 2005; Bauer et al. 2006, 2007; Giri et al. 2009). These cryptically coloured geckos are microhabitat specialists mainly showing diurnal behavior (Giri et al. 2009; Grismer et al. 2009).

Morphological conservatism among Cnemaspis species has obscured estimates of diversity in the past, but the use of new characters and re-analysis of older types has helped to stabilize the taxonomy of the group (Bauer et al. 2007). The genus has grown in numbers rapidly during the past decade, especially the South and South-east Asian clades, emphasizing the species richness of the genus as well as the richness of the herpetofauna of the tropical habitats where it occurs (Das & Bauer 2000; Das & Sengupta 2000; Bauer 2002; Das & Grismer 2003; Das 2005; Grismer & Das 2006; Grismer & Ngo 2007; Bauer et al. 2006, 2007; Giri et al. 2009). These cryptically coloured geckos are microhabitat specialists mainly showing diurnal behavior (Giri et al. 2009; Grismer et al. 2009).

The herpetofauna of Sri Lanka includes 43 species in the family Gekkonidae, with 34 endemics belonging to eight genera; Calodactylodes Strand, Cnemaspis Strauch, Cyrtodactylus Gray, Geckoella Gray, Gehyra Gray, Hemidactylus Oken, Hemiphyllodactylus Bleeker, and Lepidodactylus Fitzinger. Of these, 21 species (49%) belong to genus Cnemaspis, all of which are endemic to the island (Wickramasinghe, 2012).

The genus Cnemaspis was represented by only four nominal species in Sri Lanka a decade ago, namely C. kandiana (Kelaart, 1852), C. tropidogaster (Boulenger, 1885), C. scalpensis (Ferguson, 1877), C. podihuna
situated 8 km northwest and Panilkanda Forest Reserve, 9.5 km northward (Anonymous1988). The occurrence of such a large species in a small forest patch at the edge of the wet zone is unexpected. Other Cnemaspis occurring closest to the study area are C. molligodai Wickramasinghe & Munindradasa 2007 from Deniyaya, C. silvius Manamendra-Arachchi, Batuwita & Pethiyagoda 2007 from south eastern part of Sinharaja and C. pulchra Manamendra-Arachchi, Batuwita & Pethiyagoda 2007 from Panilkanda forest (Figure 1), all of much smaller size. Considering both its morphology and biogeography we suggest that C. rammalensis has a relatively isolated taxonomic position among Sri Lankan Cnemaspis.

Illegal tree felling to cultivate tea has become a major threat in the area. Tea plantations and human settlements in the surrounding areas are slowly expanding, and are encroaching towards the forest, slowly destroying the habitat of this species.

Acknowledgments

The authors wish to acknowledge the Biodiversity Secretariat of the Ministry of Environment, Sri Lanka for funding and collaborating the project, Mr. R.H.S.S. Samarathunga (Secretary-Ministry of Environment), Mr. Gamini Gamage (Additional Secretary-Policy Planning), Ms. Padma Abayakoon (Director), Mr. N.K.G.K. Nannawaththa (Additional Secretary-Natural Resources), Mr. R.A.R. Roopasinghe (Additional Secretary-Administrations), Mr. Ajith de Silva (Former Director), Mrs. Dakshini Perera, and Mrs. Hasula Wickramasinghe for all the support rendered. To the Nagao Natural Environment Foundation for part funding, to the Department of Wildlife Conservation for permission granted (Permit no. WL/3/3/354), the Director General Mr. R.M. Rathnayake, the Deputy Director Mr. P. M. Darmathilaka, Dr. U.K.L. Peers and Mr. S.R.B. Dissanayake (Former Deputy Director Research and Training) for all the support. Mr. Saman Gamage, Mr. Chaminda Pushpakumara, Mr. Jagath Krishantha, Mr. Ruwan Chinthaka are thanked for their immense help in the field, and late Dr. Amith Munindrasada fondly remembered for his support and encouragements. The authors wish to acknowledge the contributions of Mr. Chamara Hettiarachchi, and Mr. Amila Chanaka in preparing the location illustrations, to Mr. Ravidu Heshan for preparing images. The authors wish to thank the Directorate National Museum of Sri Lanka, Mrs. Sanuja Kaththirarachchi and staff members (Assistant Directress Mrs. Manori Nandasena, Mrs Chandrika Munasinghe and Mrs. Manaram de Silva), are gratefully acknowledged for their assistance in museum reference work. Dr. David Gower, Mr. Patrick Campbell, Dr. Barry Clarke, and Dr. Mark Wilkinson of the Natural History Museum, London are gratefully acknowledged for assisting the last author during his visit to the BMNH, also to Mr. Roshan Rodrigo, Mr. Nanaka Aththanayaka and Mr. Naalin Perera for their hospitality extended. The authors also like to thank their colleagues at Herpetological Foundation of Sri Lanka (HFS), for various courtesies. Mr. Asanka Abayakoon and Ms. Chamila Weerathunga for the encouragements, Dr. Aaron M. Bauer and anonymous reviewers whose invaluable comments undoubtedly improved the quality of the paper. Finally to our Principal Sponsors Dilmah Conservation, for funding project activities.

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APPENDIX 1. Comparative material examined.

**Cnemaspis alwisi.** Holotype NMSL 2004.9.1 (male); Paratype NMSL 2004.9.2 (female), Dolukanda, Kurunegala, Sri Lanka.

**Cnemaspis amith.** Holotype BMNH 63.3.19.1066A (female); Paratypes BMNH 63.3.19.1066B (male), BMNH 63.3.19.1066C (female), Ceylon (Sri Lanka).

**Cnemaspis australis.** Holotype BMNH 82.5.22.67 (male), Tinnevelly (Tirunelveli District), Tamil Nadu State, India.

**Cnemaspis beddomei.** Lectotype BMNH 1946.9.4.83 (male); Paralectotypes BMNH 1946.9.4.82 (female), BMNH 1946.9.4.84 (male), BMNH 1946.9.4.85 (male), South Tinnevelly (Tirunelveli, southern Tamil Nadu State, India) and Travankor Hills (Travancore, Kerala State, India).

**Cnemaspis boiei.** Lectotype BMNH 1962.181A (male); India; Paralectotypes BMNH 1962.181B (female), BMNH 1962.181C (female), India.

**Cnemaspis clivicola.** Holotype WHT 7204 (male); Paratypes WHT 7178 (male), WHT 7179 (male), WHT 7180 (male), WHT 7205 (male), WHT 7215 (female), NanuOya, Nuwara Eliya District, Central Province of Sri Lanka.

**Cnemaspis gemsu.** Holotype AMB 7495 (male), Hakgala Botanical Gardens, Nuwara Eliya District, Central Province, Sri Lanka; Paratypes AMB 7507 (female), 2nd milepost from Borangamuwa, Balangoda, Ratnapura District, Sabaragamuwa Province, Sri Lanka; BMNH 74.4.29.400 (female), South Tinnevelly (Tirunelveli, southern Tamil Nadu State, India) and Travankor Hills (Travancore, Kerala State, India).

**Cnemaspis gracilis.** Lectotype BMNH 74.4.29.393 (male), Palghat Hills (Kerala, India); Paralectotypes BMNH 74.4.29.394 (female), BMNH 74.4.29.397 (male), Palghat hills (Kerala, India).

**Cnemaspis indica.** Lectotype BMNH 46.11.22.22b (male), Madras, India; Paralectotype BMNH 46.11.22.22a (male), Madras, India.

**Cnemaspis kallima.** Holotype WHT 7245 (male); Paratypes WHT 7222 (female), WHT 7228 (male), WHT 7227 (female), WHT 7229 (female), WHT 7230 (male), WHT 7239 (female), WHT 7249 (male), WHT 7251 (male), WHT 7252 (female), WHT 7253 (female), WHT 7254 (male), WHT 7255 (female), Gammaduwa Estate, Gammaduwa near Rattota, Matale District, Sri Lanka.

**Cnemaspis kandiana.** Lectotype BMNH 53.4.1.1 (female), Ceylon (Sri Lanka); Paralectotypes BMNH 80.2.2.119 (male), Ceylon (Sri Lanka).

**Cnemaspis kumarasinghei.** Holotype NMSL 20061301 (male), Paratype NMSL 20061302 (male), Maragala, Monaragala, Sri Lanka.

**Cnemaspis latha.** Holotype WHT 7214 (male), Bandarawela, Badulla District, Central Province, Sri Lanka.

**Cnemaspis menikay.** Holotype WHT 7219 (male); Paratype WHT 2218 (male), WHT 7349 (male), Ihala Kalugala, Allawua, Kegalle District, Sabaragamuwa Province of Sri Lanka.

**Cnemaspis melligodai.** Holotype NMSL 20061401 (male); Paratypes NMSL 20061402 (male), NMSL 20061403 (male), NMSL 20061404 (male), NMSL 20061405 (male), Waratagoda, Ratnapura, Sri Lanka; NMSL uncatalogued male (No bottle and specimen number), Hunuwela, Ratnapura, Sri Lanka (This specimen was erroneously identified as the Holotype of Cnemaspis podihuna by Manamendra-Arachchi et al. 2007)

**Cnemaspis monticola.** Holotype BMNH 74.4.29.372 (female), Wynnaad (Kerala State, India); Paralectotypes BMNH 74.4.29.373 (female), BMNH 74.4.29.374 (female), Wynnaad (Kerala State, India).

**Cnemaspis nilagirica.** BMNH 74.4.29.729 (female), Nilgiries (Nilgiri), Tamil Nadu State, India.

**Cnemaspis ornata.** Lectotype BMNH 74.4.29.400 (male), South Tinnevelly Hills, Tamil Nadu, India; Paralectotypes BMNH 74.4.29.401 (male), BMNH 74.4.29.402 (male), BMNH 74.4.29.405 (female), South Tinnevelly Hills (Tirunelveli), Tamil Nadu State, India.

**Cnemaspis pava.** Holotype WHT 7286 (male); Paratypes WHT 7282 (female), WHT 7285 (female), WHT 7289 (male), WHT 7290 (male), WHT 7291 (male), WHT 7292 (male), WHT 7293 (female), WHT 7296 (male), WHT 7297 (male), WHT...