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A new species of *Hemiphyllodactylus* (Reptilia: Gekkonidae) from northern Laos

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Abstract

A new species of the genus *Hemiphyllodactylus* is described from Luang Prabang Province, northern Laos. *Hemiphyllodactylus kiziriani* sp. nov. is distinguished from the remaining congeners by morphology, coloration, and a significant genetic divergence of greater than 20% (ND2 gene). The new species from Laos is characterized by the following features: SVL of adult males 35.1–40.1 mm, of adult females 36.3–40.8 mm; dorsal scale rows 18–27; ventral scale rows 11–15; chin scales bordering mental and first infralabial distinctly enlarged; digital lamellae formulae 3-4-4-4 (forefoot) and 4-4/5-4/5-4 (hindfoot); femoral pores 0–4, total precloacal pores 10–13 in males, 8–10 pitted precloacal scales in females; cloacal spurs present in both sexes; dorsal trunk pattern dark brown with two rows of irregular transverse bands; dark lateral head stripe distinct; upper zone of flank with a dark brown stripe; caecum and gonadal ducts unpigmented.

Key words: Slender Gecko, karst forest, phylogeny, taxonomy, Luang Prabang Province

Introduction

Molecular phylogenetic studies of specimens from recent, intense fieldwork in Southeast Asia have revealed that the previously reported low species diversity of the gecko genus *Hemiphyllodactylus* was false. Zug (2010) recognized only nine species in this genus, but by the end of 2013, 23 species, described and undescribed, had been identified including one new species by Nguyen *et al.* (2013) and 11 by Grismer *et al.* (2013). Nguyen *et al.* (2013) described a new species of the *Hemiphyllodactylus yunnanensis* complex from northern Vietnam, namely *H. zugi* Nguyen, Lehmann, Le, Duong, Bonkowski & Ziegler. In addition, two other new species of the *H. typus* group (fide Grismer *et al.* 2013) were just recognized: *H. Chiangmaiensis* Grismer, Wood Jr. & Cota, 2014 from northwestern Thailand and *H. banaensis* Ngo, Grismer, Pham & Wood Jr., 2014 from Central Vietnam. Grismer *et al.* (2013) discovered a new species of the *H. harterti* group, *H. tehtarik* Grismer, Wood Jr., Anuar, Muin, Quah, McGuire, Brown, Ngo & Pham, from Malaysia. Furthermore they removed *H. larutensis* (Boulenger) from the synonymy of *H. harterti* (Werner), and elevated three subspecies, *H. yunnanensis longlingensis* Zhou & Liu (in Zhou *et al.* 1981), *H. y. jinpingensis* Zhou & Liu, and *H. y. dushanensis* Zhou & Liu, to full species status based on molecular phylogenetic and morphological data.

Etymology. We name the new species in honour of Dr. David A. Kizirian, American Museum of Natural History (New York, USA), in recognition of his contribution to herpetological research in the Indochina region. As common names we suggest Kizirian's Slender Gecko (English), Kizirians Halbblattfingergecko (German), and Thạch sùng đẹp ki-zi-ri-an (Vietnamese).

Natural history. *Hemiphyllodactylus kiziriani* inhabits disturbed secondary limestone forests near a residential area at elevations between 590 and 640 m. Specimens were found at night on tree bark and limestone cliffs near cave entrances or on a limestone boulder near a forest path, ca. 0.2–1.2 m above the ground. Two female paratypes (IEBR A.2014.5, NUOL R-2014.2) were gravid with two shelled eggs each.

Distribution. The species is currently known only from Luang Prabang Province in northern Laos (Fig. 4).

Discussion

Our molecular analysis shows that the new species is strongly supported as a member of the clade, containing *H. yunnanensis* and *H. dushanensis* from China, and *H. zugi* from northern Vietnam. However, it is only weakly corroborated as a sister taxon of *H. dushanensis* + *H. zugi*.

Morphologically, *Hemiphyllodactylus kiziriani* is most similar to *H. zugi*, a recently described species by Nguyen *et al.* (2013) from Cao Bang Province, northern Vietnam, approximately 550 km distant from Luang Prabang Province in Laos. Both species were found in disturbed secondary limestone forests near residential areas at elevations below 700 m. Based on the zoogeographic regions established by Bain & Hurley (2011), the type locality of *H. kiziriani* is located in the Northwest Uplands subregion of Indochina. This subregion covers an area of 132,140 km², and harbours the highest diversity of reptiles and amphibians in Indochina with 259 recorded species (or 42.8% of the total recorded species in Indochina), including 48 of 166 species of lizards (Bain & Hurley 2011). A major factor for the high species diversity in this subregion is the presence of limestone karsts in northern Laos and northwestern Vietnam as well as the Hoang Lien Range, which represents the highest mountain range in Indochina and the southernmost extension of the Himalayas (Sterling *et al.* 2006). In addition, karst systems usually provide a variety of distinct microhabitats, and are well known for their high levels of endemism (Clements *et al.* 2006). Hence, further studies are needed to fill the knowledge gap of the herpetofauna in this subregion.

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APPENDIX. Specimens examined.

- Hemiphyllodactylus titiwangsaensis*: Malaysia: Pahang Province: ZFMK 32284–33286.
- H. typus*: Indonesia: Nias Island: ZFMK 20734; Mauritius: Maskaren Island ZFMK: 25350.
- H. yunnanensis*: China: Yunnan: BMNH (NHM) 1904.1.26.1 (holotype), BMNH 1904.1.26.2.
- H. yunnanensis* complex: Cambodia population: Siem Riep Province: Phnom Kulen: ZFMK 92571. China: BMNH 0411291–0411299, 112910A–N; FMNH 07716–07717, MCZ 018967, MNHN 8178, MNMH 912295, 12295A, 12296A, NMB 009541, USNM 310819, CMS8153. China: Hong Kong population: MCZ 182874–182876, MNMH 912293. Laos: Champasak population: FMNH 14451–14452. Myanmar population: USNM 570733–570735. Vietnam: Sa Pa population: MNHN 1948.43–1948.44
- H. zugi*: Vietnam: Cao Bang: Ha Lang: IEBR A.2013.20 (holotype), IEBR A.2013.21, ZFMK 94781–94782 (paratypes).