



<http://dx.doi.org/10.11646/zootaxa.3736.1.5>

<http://zoobank.org/urn:lsid:zoobank.org:pub:735AE69A-1444-46A8-8461-3EB4BDA5E253>

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

TRUONG QUANG NGUYEN^{1,2,8}, TANJA LEHMANN³, MINH DUC LE^{4,5,6},
HA THUY DUONG⁷, MICHAEL BONKOWSKI² & THOMAS ZIEGLER^{2,3}

¹ Institute of Ecology and Biological Resources, Vietnam Academy of Science and Technology, 18 Hoang Quoc Viet, Hanoi, Vietnam.
E-mail: nqt2@yahoo.com

² Department of Terrestrial Ecology, Zoological Institute, University of Cologne, Zùlpicher Strasse 47b, D-50674 Cologne, Germany.
E-mail: m.bonkowski@uni-koeln.de

³ AG Zoologischer Garten Köln, Riehler Straße 173, D-50735 Köln, Germany. E-mail: lehmanntanja82@googlemail.com and zieglert@koelnerzoo.de

⁴ Faculty of Environmental Sciences, Hanoi University of Science, Vietnam National University, 334 Nguyen Trai Road, Hanoi, Vietnam. E-mail: le.duc.minh@hus.edu.vn

⁵ Centre for Natural Resources and Environmental Studies, Hanoi National University, 19 Le Thanh Tong, Hanoi, Vietnam

⁶ Department of Herpetology, American Museum of Natural History, Central Park West at 79th Street, New York, New York 10024

⁷ Faculty of Biology, Hanoi University of Science, Vietnam National University, 334 Nguyen Trai Road, Vietnam.
E-mail: dth.ha@hotmail.com

⁸ Corresponding author

Abstract

We describe a new species of the genus *Hemiphyllodactylus* on the basis of four specimens from Cao Bang Province, northern Vietnam. *Hemiphyllodactylus zugii* sp. nov. is distinguished from the remaining congeners by a combination of the following characters: a bisexual taxon; average SVL of adult males 41 mm, of adult female 46.6 mm; chin scales bordering mental and first infralabial distinctly enlarged; digital lamellae formulae 3-4-4-4 (forefoot) and 4-5-5-5 (hindfoot); femoral and precloacal pore series continuous, 18–21 in total in males, absent in female; cloacal spur single in males; dorsal trunk pattern of dark brown irregular transverse bands; dark lateral head stripe indistinct; upper zone of flank with a series of large light spots, edged above and below in dark grey; caecum and gonadal ducts unpigmented.

Key words: Slender Gecko, karst forest, phylogeny, taxonomy, Cao Bang Province, Ha Lang District

Introduction

The genus *Hemiphyllodactylus* contains nine species worldwide but only *H. yunnanensis* Boulenger, 1903 is currently known from Vietnam (Zug 2010). However, the taxonomic status of this species remains unresolved (Zug 2010). Four subspecies, viz. *H. typus chapaensis* Bourret, 1937 from Lao Cai Province (Vietnam), *H. yunnanensis longlingensis* Zhou & Liu, 1981 (in Zhou *et al.* 1981) and *H. yunnanensis jinpingensis* Zhou & Liu, 1981 (in Zhou *et al.* 1981) from Yunnan Province, and *H. yunnanensis dushanensis* Zhou & Liu, 1981 (in Zhou *et al.* 1981) from Guizhou Province (China) were synonymized with *H. yunnanensis* by Zug (2010). This author subsequently recognized two forms of *H. yunnanensis*: the highland populations from southern China and adjacent northern Southeast Asia from Myanmar to Vietnam and another form (“lowland” populations) from Southeast Asia and Hong Kong.

During recent field work in the karst forests of Cao Bang Province, northern Vietnam, we collected four specimens of an unnamed gekkonid species, which resembles *H. yunnanensis* but distinctly differs from the latter in morphological and molecular characteristics. Therefore, we describe it as a new species.

Literature cited

- Barbour, T. (1924) A Yunnan gecko. *Occasional Papers of the Boston Society of Natural History*, 5, 133–135.
- Boulenger, G.A. (1903) Descriptions of new lizards in the collection of the British Museum. *The Annals and Magazine of Natural History*, 12 (7), 429–435.
<http://dx.doi.org/10.1080/00222930308678877>
- Bourret, R. (1937) Lézards et Serpents Reçus au Laboratoire des Sciences Naturelles de l'Université au Cours de l'Année 1937. Descriptions de Deux Espèces et de Deux Variétés Nouvelles. *Bulletin Général de l'Instruction Publique*, Gouvernement Général de l'Indochiné, 4, 57–80.
- Bourret, R. (2009) *Les lézards de l'Indochine*. Edition Chimaira, Frankfurt am Main, 346 pp.
- Greenbaum, E., Bauer, A.M., Jackman, T.R., Vences, M. & Glaw, F. (2007) A phylogeny of the enigmatic Madagascan geckos of the genus *Uroplatus* (Squamata: Gekkonidae). *Zootaxa*, 1493, 41–51.
- Heinicke, M.P., Greenbaum, E., Jackman, T.R. & Bauer, A.M. (2011) Phylogeny of a trans-Wallacean radiation (Squamata, Gekkonidae, *Gehyra*) supports a single early colonization of Australia. *Zoologica Scripta*, 40, 584–602.
<http://dx.doi.org/10.1111/j.1463-6409.2011.00495.x>
- Huelsenbeck, J.P. & Ronquist, F. (2001) MRBAYES: Bayesian inference of phylogeny. *Bioinformatics*, 17, 754–755.
<http://dx.doi.org/10.1093/bioinformatics/17.8.754>
- Le, M., Raxworthy, C.J., McCord, W.P. & Mertz, L. (2006) A molecular phylogeny of tortoises (Testudines: Testudinidae) based on mitochondrial and nuclear genes. *Molecular Phylogenetics and Evolution*, 40, 517–531.
<http://dx.doi.org/10.1016/j.ympev.2006.03.003>
- Nguyen, Q.T., Wang, Y.-Y., Yang, Y.-H., Lehmann, T., Le, D.M., Ziegler, T. & Bonkowski, M. (2013) A new species of the *Gekko japonicus* group (Squamata: Sauria: Gekkonidae) from the border region between China and Vietnam. *Zootaxa*, 3652, 501–518.
<http://dx.doi.org/10.11646/zootaxa.3652.5.1>
- Posada, D. & Crandall, K.A. (1998) MODELTEST: testing the model of DNA substitution. *Bioinformatics*, 14, 817–818.
<http://dx.doi.org/10.1093/bioinformatics/14.9.817>
- Smith, M.A. (1935) *The fauna of British India, including Ceylon and Burma. Reptiles and Amphibia, Vol. II. Sauria*. Taylor and Francis, London, 440 pp.
- Swofford, D.L. (2001) PAUP*. *Phylogenetic Analysis Using Parsimony (* and Other Methods)*, version 4. Sinauer Associates, Sunderland, Massachusetts.
- Taylor, E.H. (1963) The lizards of Thailand. *The University of Kansas Science Bulletin*, 44, 687–1077.
- Thompson, J.D., Gibson, T.J., Plewniak, F., Jeanmougin, F. & Higgins, D.G. (1997) The ClustalX windows interface: Flexible strategies for multiple sequence alignment aided by quality analysis tools. *Nucleic Acids Research*, 25, 4876–4882.
<http://dx.doi.org/10.1093/nar/25.24.4876>
- Zhou, K.-Y., Liu, Y.-Z. & Yang, G.-P. (1981) Three new subspecies of *Hemiphyllodactylus yunnanensis* (Boulenger) from China [in Chinese]. *Acta Zootaxonomica Sinica*, 6, 202–209. [English translation by H. Ota (1996) in *Smithsonian Herpetological Information Service*, 110, 1–8+1Pl.]
- Zug, G.R. (2010) Speciation and dispersal in a low diversity taxon: The Slender Geckos *Hemiphyllodactylus* (Reptilia, Gekkonidae). *Smithsonian Contributions to Zoology*, 631, 1–70.
<http://dx.doi.org/10.5479/si.00810282.631>

APPENDIX. Specimens examined.

Hemiphyllodactylus titiwangsaensis: Malaysia: Pahang Province: ZFMK 32284–33286.

H. typus: Indonesia: Nias Island: ZFMK 20734; Mauritius: Maskaren Island ZFMK: 25350.

H. cf. yunnanensis: Cambodia: Siem Riep Province: Phnom Kulen: ZFMK 92571.