

A new species of *Lygosoma* (Squamata: Sauria: Scincidae) from the Central Truong Son, Vietnam, with notes on its molecular phylogenetic position

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Abstract: A new *Lygosoma* species is described from the Central Truong Son (Annamite mountain range) of Quang Binh Province, Vietnam. The description is based on a single female specimen, collected during the dry season in the karst forest of Phong Nha - Ke Bang National Park. The new *Lygosoma* differs from any other congener by the dorsal scales with pseudokeels in combination with a pair of frontoparietals; a scaly lower eyelid; seven supralabials; seven infralabials; 32 midbody scale rows; 66 middorsal (paravertebral) scales; smooth ventral scales, arranged in 81 transverse rows; 108 smooth, not enlarged median subcaudal scales; the fourth toe with 14 keeled subdigital lamellae; a reddish brown to brownish black dorsum and an orange-yellowish to greyish ventral side in life; as well as greyish black edged sutures of anterior supra- and infralabials. The new *Lygosoma* species is the third karst-adapted scincid species that has been described from Phong Nha - Ke Bang National Park since 2005. A first molecular positioning of the new species within the genus *Lygosoma* is given as well as a key to the Vietnamese *Lygosoma* species.

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References:

1. BOURRET, unpubl. R., Les lézards de l'Indochine. Hanoi unpublished manuscript
- DAREVSKY, I.S., ORLOV, N.L., *Vietnascincus rugosus*, a new genus and species of the Dasia-like arboreal skinks (Sauria: Scincidae) from Vietnam (1994) *Russian Journal of Herpetology*, 1 (1), pp. 37-41
2. DAREVSKY, I.S., ORLOV, N.L., A new genus and species of scincid lizards from Vietnam: The first Asiatic skink with double rows of basal subdigital pads (1997) *Journal of Herpetology*, 31 (3), pp. 323-326
3. DAREVSKY, I.S., ORLOV, N.L., New species of limb-reduced lygosomine skink genus *Leptoseps* Greer, 1997 (Sauria, Scincidae) from Vietnam (2005) *Russian Journal of Herpetology*, 12 (1), pp. 65-68
4. DAREVSKY, I.S., ORLOVA, V.F., A new species of slender skinks *Lygosoma carinatum* (Sauria, Scincidae) from South Vietnam (1996) *Zoologicheskij Zhurnal*, 75 (5), pp. 791-795. , Moscow
5. HALL, T. A. 1999. BioEdit: a user-friendly biological sequence alignment editor and analysis program for Windows 95/98/NT. *Nucleic Acids Symposium Series* 41: 95-98
- HONDA, M., OTA, H., KÄHLER, G., INEICH, L., CHKIO, L., CHEN, S.-L., HIKIDA, T., Phylogeny of the lizard subfamily Lygosominae (Reptilia: Scincidae), with special reference to the origin of the new world taxa (2003) *Genes and Genetic Systems*, 78, pp. 71-80
6. HUELSENBECK, J.P., RONQUIST, F., MRBAYES: Bayesian inference of phylogenetic trees (2001) *Bioinformatics*, 17, pp. 754-755
7. MANTHEY, U., GROSSMANN, W., (1997) *Amphibien und Reptilien Südasiens*, Münster, Natur und Tier-Verlag
8. MAUSFELD, P., SCHMITZ, A., Molecular phylogeography, intraspecific variation and speciation of the Asian scincid lizard genus *Eutropis* Fitzinger, 1843, (Squamata: Reptilia: Scincidae): taxonomic and biogeographic implications (2003) *Organisms, Diversity and Evolution*, 3 (3), pp. 161-171
9. MAUSFELD, P., SCHMITZ, A., BÄRME, W., MISOF, B., VRCIBRADIC, D., ROCHA, C.F.D., Phylogenetic affinities of *Mabuya atlantica* Schmidt, 1945, endemic to the Atlantic Ocean Archipelago of Fernando de Noronha (Brazil): Necessity of partitioning the genus *Mabuya* Fitzinger, 1826 (Scincidae: Lygosominae) (2002) *Zoologischer Anzeiger*, 241, pp. 281-293
10. MITTLEMAN, M.B., A generic synopsis of the lizards of the subfamily Lygosominae (1952) *Smithsonian miscellaneous Collections*, 117, pp. 1-35
11. NGUYEN, V.S., HO, T.C., NGUYEN, Q.T., (2005) A checklist of amphibians and reptiles of Vietnam, Hanoi, Nha xuất bản nông nghiệp
12. NYLANDER, J. A. A. 2005. MrModeltest 1.1b, Uppsala, Sweden
- PALUMBI, S.R., MARTIN, A., ROMANO, S., MCMILLAN, W.O., STICE, L., GRABOWSKI, G., (1991) *The simple fool's guide to PCR*, Department of Zoology and Kewalo Marine Laboratory, Hawaii: 47 pp

13. POSADA, D., CRANDALL, K.A., MODELTEST: Testing the model of DNA substitution (1998) *Bioinformatics*, 14, pp. 817-818
14. REEDER, T.W., A phylogeny of the Australian *Sphenomorphus* group (Scincidae: Squamata) and the phylogenetic placement of the crocodile skinks (*Tribolonotus*): Bayesian approaches to assessing congruence and obtaining confidence in maximum likelihood inferred relationships (2003) *Molecular Phylogenetics and Evolution*, 27, pp. 384-397
15. SCHMITZ, A., Taxonomic and phylogenetic studies on scincid lizards (Reptilia: Scincidae) (2003) Unpubl. , PhD thesis. University of Bonn, 262 pp
16. SCHMITZ, A., INEICH, I., CHMIO, L., Molecular review of the genus *Panaspis* sensu lato in Cameroon, with special reference to the status of the proposed subgenera (2005) *Zootaxa*, 863, pp. 1-28
17. SMITH, M.A., The fauna of British India, including Ceylon and Burma (1935) *Reptilia and Amphibia. Sauria*, 2. , London, Taylor & Francis Ltd
18. SMITH, M.A., A review of the genus *Lygosoma* (Scincidae: Reptilia) and its allies (1937) *Records of the Indian Museum*, 39 (3), pp. 213-234
19. SWOFFORD, D. L. 2002. PAUP*. Phylogenetic Analysis Using Parsimony *and Other Methods, Version 4.0n10. Sinauer Associates, Sunderland, Massachusetts, USA
20. TAMURA, K., NEI, M., Estimation of the number of nucleotide substitutions in the control region of mitochondrial DNA in humans and chimpanzees (1993) *Molecular Biology and Evolution*, 10, pp. 512-526
21. TAYLOR, E.H., Lizards of Thailand (1963) *University of Kansas Science Bulletin*, 44 (14), pp. 687-1077
22. THOMPSON, J.D., GIBSON, T.J., PLEWNIAK, F., JEANMOUGIN, F., HIGGINS, D.G., The ClustalX windows interface: Flexible strategies for multiple sequence alignment aided by quality analysis tools (1997) *Nucleic Acids Research*, 24, pp. 4876-4882
23. WALSH, P.S., METZGER, D.A., HIGUCHI, R., Chelex 100 as a medium for simple extraction of DNA for PCR-based typing from forensic material (1991) *BioTechniques*, 10 (4), pp. 506-513
24. WERNER, F., ??ber neue oder seltene Reptilien des Naturhistorischen Museums in Hamburg. 2 Eidechsen (1909) *Jahrbuch der Hamburger wissenschaftlichen Anstalten*, , 27
25. 2. Beiheft, Mitteilungen aus dem Naturhistorischen Museum: 334 pp
26. ZIEGLER, T., HERRMANN, H.-W., Preliminary list of the herpetofauna of the Phong Nha - Ke Bang area in Quang Binh province, Vietnam (2000) *Biogeographica*, 76 (2), pp. 49-62. , Paris
27. ZIEGLER, T., HERRMANN, H.-W., VU, N.T., LE, K.Q., NGUYEN, T.H., CAO, X.C., LUU, M.T., DINH, H.T., The amphibians and reptiles of the Phong Nha - Ke Bang National Park, Quang Binh Province, Vietnam (2004) *Hamadryad*, 28 (1-2), pp. 19-42
28. ZIEGLER, T., LE, K.Q., A new species of reed snake, *Calamaria* (Squamata: Colubridae), from the central Truong Son (Annamite mountain range), Vietnam (2005) *Zootaxa*, 1042, pp. 27-38
29. ZIEGLER, T., LE, K.Q., A new natricine snake of the genus *Amphiesma* (Squamata: Colubridae: Natricinae) from the central Truong Son, Vietnam (2006) *Zootaxa*, 1225, pp. 39-56
30. ZIEGLER, T., OHLER, A., VU NGOC THANH, LE KHAC QUYET, NGUYEN XUAN THUAN, DINH HUY TRI & BUI NGOC THANH. 2006. Review of the amphibian and reptile diversity of Phong Nha - Ke Bang National Park and adjacent areas, central Truong Son, Vietnam. In: VENCES, M., K??HLER, J., ZIEGLER, T. & W. B??HME (Hrsg.): *Herpetologia Bonnensis II*: 247-262. - Proceedings of the 13th Ordinary General Meeting of the Societas Europaea Herpetologica, Bonn: 262 pp
31. ZIEGLER, T., VU, N.T., BUI, N.T., A new water skink of the genus *Tropidophorus* from the Phong Nha - Ke Bang National Park, central Vietnam (Squamata: Sauria: Scincidae) (2005) *Salamandra*, 41 (3), pp. 137-146

