Zootaxa 3599 (4): 301–324
www.mapress.com/zootaxa/

Article

ISSN 1175-5326 (print edition)
ZOOTAXA
ISSN 1175-5334 (online edition)

http://dx.doi.org/10.11646/zootaxa.3599.4.1
http://zoobank.org/urn:lsid:zoobank.org:pub:22742D49-9E7F-4C72-A71D-8CDA96063F4C

A preliminary phylogeny of the Palearctic naked-toed geckos (Reptilia: Squamata: Gekkonidae) with taxonomic implications

AARON M. BAUER[1], RAFAQAT MASROOR[2], JAMES TITUS-MCQUILLAN[1], MATTHEW P. HEINICKE[1,3], JUAN D. DAZA[1] & TODD R. JACKMAN[1]

[1]*Department of Biology, Villanova University, 800 Lancaster Avenue, Villanova, Pennsylvania 19085, USA*
[2] *Zoological Sciences Division, Pakistan Museum of Natural History, Garden Avenue, Shakarparian, Islamabad 44000, Pakistan*
[3]*current address: Department of Natural Sciences, University of Michigan-Dearborn,125 Science Building, 4901 Evergreen Road, Dearborn, Michigan 48128, USA*

Abstract

Palearctic naked-toed geckos are a group of gekkonid geckos that range from North Africa to northern India and western China, with their greatest diversity in Iran and Pakistan. Relationships among the constituent genera remain incompletely resolved and the monophyly of key genera remains unverified. Further, competing classifications are in current use and many species have been allocated to different genera by different authors. We used both mitochondrial (ND2) and nuclear genes (RAG1, PDC) to explore relationships among representatives of all but one genus in the group (*Rhinogecko*), including four genera not previously included in phylogenetic analyses (*Asiocolotes*, *Altigekko*, *Indogekko*, and *Siwaligekko*). *Siwaligekko* (and presumably other Tibeto-Himalayan species often referred to *Cyrtopodion*) are more closely related to tropical Asian *Cyrtodactylus* than to Palearctic naked-toed geckos. Sampled species of *Asiocolotes* and *Altigekko* are sister taxa, but both genera are here considered junior subjective synonyms of *Altiphylax*. *Cyrtopodion sensu lato* is non-monophyletic; *Mediodactylus* and *Tenuidactylus*, which have variably been considered as subgenera or synonyms of *Cyrtopodion* are both valid genera. *Indogekko* is embedded within *Cyrtopodion* and is here treated as a subgenus. *Bunopus* and *Crossobamon* are closely related to one-another, and with *Agamura* are interdigitated among taxa previously assigned to *Cyrtopodion*. Our data confirm the previous identification of a Saharo-Arabian *Stenodactylus*/*Tropiocolotes*/*Pseudoceramodactylus* clade and verify that *Microgecko* and *Alsophylax* are not members of the main clade of Palearctic naked-toed geckos. Osteological differences between *Tropiocolotes* and *Microgecko*, formerly treated as congeneric, are discussed and illustrated. The divergence between *Cyrtodactylus* and the Palearctic naked-toed clade predates the initial collision of the Indian and Eurasian plates, but deeper divergences within both groups are consistent with mountain building in the Himalayas and adjacent ranges as promoting cladogenic events. Miocene divergences within *Tenuidactylus* are consistent with vicariant speciation caused by uplift events in the Iranian and Transcaspian regions. Taxonomic implications of our phylogenetic results are discussed and a preliminary allocation of all species of padless Palearctic gekkonids to genus is provided.

Key words: *Cyrtopodion*, *Tenuidactylus*, *Mediodactylus*, *Indogekko*, *Altigekko*, *Altiphylax*, *Siwaligekko*, *Asiocolotes*, *Bunopus*, *Agamura*, *Crossobamon*, *Tropiocolotes*, *Stenodactylus*, *Pseudoceramodactylus*, *Cyrtodactylus*, *Microgecko*, *Alsophylax*, biogeography, Himalayas, timetree

Introduction

"Palearctic naked-toed geckos" including the so-called "angular-toed geckos," are a large group (101 species) of gekkonid geckos distributed from North Africa across southwestern and Central Asia to northern India, western China, and southern Mongolia (Fig. 1), united by their shared lack of adhesive subdigital pads. This group includes taxa that have variously been assigned to the genera *Agamura* Blanford, 1874, *Alsophylax* Fitzinger, 1843, *Altigekko* Khan, 2003c, *Altiphylax* Jeremčenko & Szczerbak, 1984, *Asiocolotes* Golubev, 1984, *Bunopus* Blanford, 1874, *Carinatogecko* Golubev & Szczerbak, 1981, *Ceramodactylus* Blanford, 1874, *Crossobamon* Boettger, 1888, *Cyrtodactylus* Gray, 1827, *Cyrtopodion* Fitzinger, 1843, *Garzoniella* Perret, 1976, *Gonyodactylus* Kuhl & van Hasselt, 1822, *Gymnodactylus* Spix, 1825, *Indogekko* Khan, 2003c, *Mediodactylus* Szczerbak & Golubev, 1977, *Mesodactylus* Szczerbak & Golubev, 1984, *Microgecko* Nikolsky, 1907, *Pseudoceramodactylus* Haas, 1957,

Accepted by S. Carranza: 20 Nov. 2012; published: 8 Jan. 2013