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NOTES ON GEKKO NOMENCLATURE (SAURIA: GEKKONIDAE)

by

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A review is given of the tortuous history of the name *Gonydactylus* Kuhl and Van Hasselt, 1822. It is concluded that the name is invalid. *Goniodactylus* and *Gonyodactylus* are unjustified emendations. As type-species *Cyrtodactylus pulchella* Gray, 1827, is selected, making *Cyrtodactylus* Gray, 1827, a junior objective synonym and protecting *Tarentola* Gray, 1825.

A lectotype for *Cyrtodactylus marmorata* Gray, 1831, is designated.

The nomenclatural consequences of the subgeneric division of *Cyrtopodion* Fitzinger, 1843, are examined.

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Numerous amphibians and reptiles were collected on Java by Heinrich Kuhl and Johan Coenraad van Hasselt. The specimens were received by the Galérie zoologique du Museum des Pays-Bas (now Rijksmuseum van Natuurlijke Historie, Leiden; RMNH), and they were to have been the basis for H. Boie's "Erpétologie de Java" (Schlegel, 1826). Boie prepared a manuscript and several plates based on the Java collection; however, that work was never published. Kuhl and Van Hasselt summarized some of their early discoveries in a letter posted from Java on July 18, 1821. This letter was in fact published, and several taxa, including the genus group name *Gonydactylus*, were described therein for the first time. The validity of these names requires careful consideration, especially in view of their subsequent tortuous histories.

Gonydactylus was first published Feb. 15, 1822, by Kuhl & Van Hasselt (1822: 102). The description, in Dutch, when translated into English, reads "a new animal enabled us to form a new sub-genus *Gonydactylus* (γόνυ , knee), which is closest to the *Phyllouren* Cuv.; but it differs by the shape of its tail." The prefix *gony* is Greek, for knee, node, or joint, which was apparently intended to emphasize the bent-toed nature of this gekko. The material on which the description was based can be assumed to have been collected on

Java; however, no species was described or designated. The same letter, and generic description, from Kuhl and Van Hasselt also appeared in Van Swinderen (1822: 475). *Gonydactylus* seems only to have been recorded subsequently by Agassiz (1846), Neave (1939), Schulze, et al. (1932) and Sherborn (1922). According to Art. 12.b.5 (ICZN, 1985), *Gonydactylus* Kuhl & Van Hasselt is an invalid genus group name because it was not accompanied by a description or a definition of the taxon that it denoted, nor by an indication. Locality, Java in this case, is specifically excluded from being a valid indication (Art. 12.c).

Schlegel (1826: 235; 1827: 290) summarized Boie's taxonomic conclusions and used the name *Goniodactylus* Kuhl, but without providing a generic description. *Goniodactylus* must therefore be treated as an unjustified emendation of *Gonydactylus* Kuhl & Van Hasselt (ICZN, 1985: Art.33.b.iii; see also Gray, 1842: 58; 1845: 171; and below). Although *Goniodactylus* Schlegel is the name that has been subsequently cited in the herpetological literature (e.g., Wermuth, 1965), it is regarded as a junior objective synonym of *Gonydactylus* Kuhl & Van Hasselt. Further, I consider Wagler's (1830: 144) *Gonyodactylus* and Fitzinger's (1843: 92) *Gonyodactylus* to be unjustified emendations of *Gonydactylus* Kuhl & Van Hasselt, and junior objective synonyms as well.

Wermuth (1965: 11) clearly viewed Gray's (1842) *Goniodactylus* as a new genus. If correct, *Goniodactylus* Gray is a senior subjective synonym of *Cnemaspis* Strauch and a junior homonym of *Goniodactylus* Schlegel. I do not agree with Wermuth's conclusion, because all of the new genera in Gray's (1842) paper were printed in capital letters and explicitly referred to a family or tribe; neither of these characteristics apply to Gray's *Goniodactylus*. I believe Gray was employing *Goniodactylus* Boie (in Schlegel, 1826), and it is, thus, another use of Schlegel's unjustified emendation of *Gonydactylus* Kuhl & Van Hasselt.

Schlegel (1826) designated a new species, *G[oniodactylus]. marmoratus*, and attributed it to Kuhl, but it must be considered a *nomen nudum* in the absence of a description. Fitzinger (1826: 47) also referred to a gekko from Java as *marmoratus*, a *nomen nudum* as well, but he attributed the name to Boie. It seems that both Schlegel and Fitzinger were aware of Boie's unpublished manuscript, in which he described the gekko in question as "*Gonyodactylus* Kuhl" and "*Gonyodactylus marmoratus*" (pl. IX, figs. 3-4). The first valid description of *marmoratus* appeared as a *Cyrtodactylus*, where Gray (1831a: 51) presented it as "Marbled *Cyrtodactyle*. *Marmoratus Gonyodactylus*, Kuhl. MSS. Ash brown, marbled with darker spots, beneath ash. Java." I consider the peculiar way of joining specific and generic names to be a *lapsus*, or per-

haps this was Gray's labored attempt (1831b: vii; see below) to follow Temminck's request. According to Brongersma (1934: 169), the syntypes of *marmoratus* are in the Muséum National d'Histoire Naturelle, Paris (2331 was cited), and he listed several other conspecifics collected by Kuhl and Van Hasselt in the Rijksmuseum van Natuurlijke Historie, Leiden. Brongersma was incorrect in thinking that Duméril & Bibron (1836: 426) were the original describers of *marmoratus* and, thus, the Paris series can not be treated as syntypes, without further consideration. Additionally, Guibé (1954) did not refer to the Kuhl and Van Hasselt specimens in the catalogue of lizard types in the Paris Museum.

While there never seems to have been any confusion as to the application of the binomial *G. marmoratus* Gray (1831a) to the only Java gekko with undilated digits (Brongersma, 1934), it is not clear what material Gray based his diagnosis on. Circumstantial evidence suggest that he derived it from the Kuhl and Van Hasselt collection in the Rijksmuseum van Natuurlijke Historie, Leiden. Gray is known to have visited several European natural history museums (Gray, 1831a: 1, footnote), and, among those, Leiden is the one that seems to best explain the origin of his "Kühl. MSS." reference. Gray clearly reiterated that he visited Leiden (1831b: vii), and that "... in each of these museums all the specimens were intrusted to me, to describe, draw, or examine them, as might best suit my purpose, without any restraint, except that at Leyden, Herr Temminck requested I would indicate in what Museum I had seen it, and the name under which it was there described, a rule which I hope I have faithfully kept." Thus, I believe it is safe to assume that whenever the names Kuhl, Boie, or Schlegel appear in combination with MSS that Gray examined representative specimens while at Leiden. Therefore, I take this opportunity to designate an adult male (RMNH 2710a.1) from RMNH 2710a, series of six specimens collected by Kuhl and Van Hasselt on Java, as the lectotype of *Cyrtodactylus marmoratus* Gray (1831a). The lectotype has a snout-vent length of 75 mm, and the tail, which is original and complete, is 74 mm. The preanal-femoral pores (L/R) are 27 and 26. The lectotype is not a perfect match for Boie's manuscript illustration of *G. marmoratus* (pl. IX, figs. 3-4); however, it is quite similar in size and color pattern (two rows of dark brown spots).

Gray (1827: 56) described *Cyrtodactylus*, and listed the name *C. pulchella* as the type-species. Only a short time later, Hardwicke & Gray (1827: 224) redescribed that genus and species; however, the first description stands for both names because "a single combined description of a new nominal genus and a new nominal species . . . provides an indication for each name" (ICZN, 1985: Art. 12.b.vi). *Goniodactylus* is usually considered a junior subjective syn-

onym of *Cyrtodactylus* (Wermuth, 1965: 46). However, it appears that no one has validly selected a type-species for *Gonydactylus* Kuhl & Van Hasselt (1822), and until such action is taken it should not be treated as a synonym of *Cyrtodactylus* Gray. Wagler (1830) included two species in *Gonydactylus* Kuhl, *Gecko annulatus* Geoffr. and *Cyrtodactylus pulchellus* [Hardwicke &] Gray (1827: 224; in *erratum* for *Cyrtodactylus pulchella* Gray, 1827: 56), and these are the only names eligible for subsequent designation as type-species, because they are the first valid species subsequently referred to the genus (ICZN, 1985: Art. 69.a). *Gecko annulatus* is clearly a *lapsus* for *annularis* (Geoffroy, 1827), a valid species of *Tarentola* Gray, 1825. Wagler's reference to the authorship of *annulatus* as "Geoffr. Descript. de l'Eg." excludes it from being Kuhl & van Hasselt's (1822) *Gecko annulatus* from Java. Thus, *Gonydactylus* could be regarded as a senior synonym of either *Cyrtodactylus* or *Tarentola*. While *Cyrtodactylus* has been widely employed in the past 25 years, *Tarentola* has had a much longer consistent usage as a senior synonym. Therefore, in order to protect *Tarentola pulchella* Gray (1827) is selected as the type-species of the genus *Gonyodactylus*. This designation also makes *Gonydactylus* Kuhl & Van Hasselt a senior objective synonym of *Cyrtodactylus*.

Fitzinger (1843: 93) described the subgenus *Cyrtopodion* for certain straight-toed gekkos, which included *Gonyodactylus cyprius* (Fitzinger, 1843) and *G. scaber* (Heyden). Fitzinger simply listed the name *Gonyodactylus cyprius* and, in the absence of a description, it must be considered a *nomen nudum*. Wermuth (1965) placed *cyprius* in the synonymy of *Gymnodactylus kotchyi fitzingeri* Stepanek. Heyden's *scaber* stands as the type-species of the genus *Cyrtopodion*, by monotypy.

Recently, Szczerbak & Golubev (1977, 1984) described the following generic-subgeneric names: *Mediodactylus* (type-species *kotschyi* Steindachner), *Mesodactylus* (type-species *kachhensis*), and *Tenuidactylus* (type-species *caspius*). The following additional species were referred to these three groups: *Mediodactylus amictopholis* (Hoofien), *M. heterocercus* (Blanford), *M. russowii* (Strauch), *M. sagittifer* (Nikolskij), and *M. spinicauda* (Nikolskij); *Mesodactylus agamuroides* (Nikolskij), *M. elongatus* (Blanford), *M. montiumsalsorum* (Annandale), *M. scaber* (Heyden), *M. watsoni* (Murray); *Tenuidactylus fedtschenkoi* (Strauch), *T. longipes* (Nikolskij), and *T. turcnemicus* (Szczerbak). Szczerbak & Golubev (1984) also tentatively referred *brevipes* (Blanford) to *Mediodactylus*. Szczerbak & Golubev (1984) placed all of these species in the genus *Tenuidactylus*; however, Fitzinger's *Cyrtopodion* is the oldest name available for that assemblage. *Mediodactylus* and *Mesodactylus* are junior objective or subjective synonyms of *Cyrtopodion* as well, and only *Mediodactylus* and *Tenuidactylus* are available subgeneric-group names.

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