NOMENCLATURE

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The Correct Name for the Taxon Ranked as a Family Containing the Genus *Anolis* under Rank-based Nomenclature and the Author of the Name *Anolis loysiana*

From the time of Boulenger's (1885) monumental *Catalogue of the Lizards in the British Museum* until the late 1980s, lizards (squamatan reptiles) in the genus *Anolis* were included in the family Iguanidae (e.g., Cope 1900; Camp 1923; Williston 1925; McDowell and Bogert 1954; Romer 1956; Underwood 1971; Estes et al. 1988; Etheridge and de Queiroz 1988). Based on the lack of morphological support for monophyly of Iguanidae as then circumscribed, Frost and Etheridge (1989) divided Iguanidae into eight families, a proposal that was rejected by some authors after molecular evidence was found to support monophyly of the traditional Iguanidae (Macey et al. 1997; Schulte et al. 2003; see Schwenk 1994 and Knapp and Gomez-Zlatar 2006 for reviews). In any case, Frost and Etheridge (1989) applied the name Polycridae, based on Fitzinger's (1843) family Polychri, to the family containing *Anolis*, the spelling of which was corrected to Polychrotidae by Böhme (1990). Subsequently, that taxon was divided into Polychrotidae (including *Anolis*) and Leiosauridae by Frost et al. (2001), and later still Polychrotidae was divided into Polychrotidae and Dactyloidae (including *Anolis*) by Townsend et al. (2011). The name Dactyloidae is based on Fitzinger's (1843) family Dactyloae, presumed to be the oldest name in the family group based on the name of a genus (used as valid by the author of the family name but not necessarily by those adopting that family name subsequently—see ICZN 1999: Arts. 11.7.1.1 and 40.1) included in the taxon in question. Consequently, the name Dactyloidae has been adopted by subsequent authors operating in the context of rank-based nomenclature (e.g., Nicholson et al. 2012, 2018; Ribeiro-Júnior 2015); however, Dactyloae Fitzinger 1843 is not the oldest such name, and therefore Dactyloidae is not the correct name for the taxon in question.

Although I am a developer and advocate of an alternative phylogenetic (as opposed to rank-based) approach to taxonomic nomenclature (e.g., de Queiroz and Gauthier 1990, 1992, 1994; Cantino and de Queiroz 2020), because I have an interest in the principles of taxonomy in general and in the taxonomy of *Anolis* lizards in particular (e.g., Cannatella and de Queiroz 1989; Jackman et al. 1999; Castañeda and de Queiroz 2013; Poe et al. 2017), I consider it important to correct this oversight and call attention to a publication whose nomenclatural implications have been largely forgotten.

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When Townsend et al. (2011) proposed the family Dactyloidae, they considered the name Dactyloidae Fitzinger 1843 to have priority over Anolidae, which they attributed to Cope (1864). However, a family name based on the genus name *Anolis* was proposed almost thirty years earlier by Cocteau (1836a) in a publication whose nomenclatural significance has been overlooked in this and at least one other respect. Although Cocteau (1836a) spelled the name "Anolideae", according to the Zoological Code (ICZN 1999: Art. 11.7.1.3), "a family-group name of which the family-group name suffix [Art. 29.2] is incorrect is available with its original authorship and date, but with a corrected suffix [Arts. 29, 32.5.3]." Thus, just as Fitzinger's (1843) Dactyloae is corrected to Dactyloidae, Cocteau's (1836a) Anolideae is corrected to Anolidae but is still attributed to Cocteau (1836a). Moreover, because of its earlier date of publication, Anolidae Cocteau 1836 has priority over Dactyloidae Fitzinger 1843 (as well as over Polychrotidae Fitzinger 1843), making Anolidae the valid (correct) name for the taxon ranked as a family that contains the genus *Anolis*. (Another possible family-group name based on the genus *Anolis* that was published earlier than Cope [1864] is Anoliina Gray 1845, although this name was not explicitly ranked and appears to be based on *Anolius* Cuvier, of which *Anolis* of Merrem was treated as a synonym [although that name was proposed earlier by Daudin].)

The most recent version of the Zoological Code (1999) allows for priority to be set aside to promote stability in certain cases; however, this case is not one of them. Prevailing use must be maintained (despite being at odds with priority) when the senior synonym has not been used as a valid name after 1899 (Art. 23.9.1.1) and the junior synonym has been used as the presumed valid name for the taxon in at least 25 works published by at least 10 authors in the immediately preceding 50 years and encompassing a span of not less than 10 years (Art. 23.9.1.2). Although the second condition is satisfied, the first is not: the name Anolidae has been used as a valid name for the family containing the genus *Anolis* by multiple authors in several publications after 1899 (e.g., Gilmore 1942; Jamieson et al. 1996; Anderson 2007; Alifanov 2016, 2018), as have other names in the

family group based on the genus name *Anolis* (e.g., Anolinae: Cope 1900; Williams and Hecht 1955; Varona 1985; Anolini: Smith et al. 1973; Varona 1985).

It could be argued that Anolidae of Cocteau (1836a) and Anolidae of Cope (1864) are different names, and that if post-1899 uses of Anolidae are all instances of Anolidae of Cope (1864), then they should not count as uses of Anolidae as a senior synonym of Dactyloidae—that is, they should not count as failure to satisfy the condition described in Art. 23.9.1.1 and therefore as justification for upholding priority. There are two serious problems with such an interpretation. First, there is no basis in the Zoological Code for treating Anolidae of Cocteau (1836a) and Anolidae of Cope (1864) as different names. After the ending of the name proposed by Cocteau is corrected (Art. 11.7.1.3) and because the name of the author (and date) is not considered part of the name (Art. 51.1), only a single name (spelling) is involved. Moreover, both uses of the name invoke the same nomenclatural concept—namely, the family that contains the genus *Anolis*. Thus, in the context of nomenclature, Anolidae of Cocteau (1836a) and Anolidae of Cope (1864) are most appropriately interpreted not as different names but as different instances of the same name. Second, there is no evidence that post-1899 uses of Anolidae are based on Cope (1864) rather than Cocteau (1836a). None of the articles cited for post-1899 use of Anolidae in the previous paragraph cite an original author for that name, and none of them cite either Cocteau (1836a) or Cope (1864) anywhere in the article. Thus, these articles demonstrate that the name Anolidae has been used several times since 1899 and, when properly attributed to Cocteau (1836a) rather than to Cope (1864), provide justification for upholding priority of Anolidae over Dactyloidae.

This name change has at least two related advantages from the perspective of effective communication. For one, it eliminates the inconsistency of using the word "anole" in the common names of species that are not included in the genus *Anolis* by some authors. For example, Nicholson et al. (2012) referred to all members of the family Dactyloidae as "anoles," even though they included only 44 of the 387 species recognized by them in the genus *Anolis*. Under the family name Anolidae, it makes more sense to call members of the other 343 species "anoles," or at least "anolids," even if they are not assigned to the genus *Anolis*. Second, the change eliminates the awkward common name "dactyloid" for members of this family. This name is unfortunate because although it should be pronounced "dac·tyl·o·id" based on derivation from Dactyloidae, when used in print, readers may be tempted to pronounce the name "dac·tyl·oid" based on the pronunciation of most other words with the ending "-oid." (These problems do not arise in the context of phylogenetic nomenclature, where the name *Anolis* has been defined by Poe et al. [2017] as applying to the clade including all extant anole species and the redundant name Dactyloidae is not used.) Even the authors who resurrected the name Dactyloidae "acknowledge[d] that Anolidae would be more intuitive" (Townsend et al. 2011:378).

The publication by Cocteau (1836a) also bears on the authorship of the species name *Anolis loysiana*. Authorship of that name is often attributed to Duméril and Bibron (1837) (e.g., Rodríguez Schettino 1995, 1999, 2000; Nicholson et al. 2012:87; Rodríguez Schettino et al. 2013; Uetz et al. 2022). Although Duméril and Bibron (1837) attributed the name *Anolis loysiana* to themselves (using the designation "Nobis"), that attribution was presumably for the combination *Anolis loysiana* rather than for the specific name *loysiana*, as they listed *Acantholis loysiana* of Cocteau as a synonym. However, they cited (p. 100) an article published by Cocteau (1836b) in "Comptes rendus de l'Inst. de Franc." as well as Cocteau's contributions to Ramon de la Sagra's "Hist. de l'île de Cuba" for that name. In fact, the name *Acantholis loysiana* does not occur in the *Comptes Rendus* article (Cocteau 1836b), only the genus name *Acantholis* was published therein; in addition, as noted by Duméril and Bibron (1837:100), the latter work by Cocteau (Cocteau and Bibron 1838) was "non encore publiés" (not yet published). Nonetheless, as noted by Stejneger (1917; see also Fowler 1915; Barbour and Ramsden 1919) but seemingly overlooked by several recent authors, the name *Acantholis loysiana* was proposed by Cocteau (1836a) in an article published in *L'Institute*, the same article in which he proposed the family name Anolidae. Thus, Cocteau (1836a), not Duméril and Bibron (1837), is the author of the specific name *loysiana*, and the binomen should be cited as "*Anolis loysiana* (Cocteau 1836)" given that Cocteau adopted the different combination *Acantholis loysiana*.

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