Case 3345

**DENDROBATIDAE** Cope, 1865 (1850) (Amphibia, Anura): proposed conservation

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**Abstract.** The purpose of this application, under Article 23.9.3 of the Code, is to conserve the widely used family-group name *DENDROBATIDAE* Cope, 1865 (1850), for a group of Neotropical frogs by giving it precedence over the senior synonym *PHYLLOBATIDAE* Fitzinger, 1843 whenever the two are considered synonyms. As a further protection of the family name it is proposed to suppress the generic name *Hysaplesia* Boie in Schlegel, 1826a, considered by some authors as a senior synonym of the generic name *Dendrobates* Wagler, 1830.

**Keywords.** Nomenclature; taxonomy; Amphibia; *DENDROBATIDAE*; *Dendrobates*, *Phyllobates*, *Hyalaplesia*; *Dendrobates tinctorius*, *Phyllobates bicolor*; poison arrow frogs, poison dart frogs.

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1. In 1982 Dubois (BZN 39: 267–278) in a lengthy discussion of application Z.N.(S).1930 (BZN 27: 262–264) proposed conservation of the generic name *Dendrobates* Wagler, 1830, and establishment of precedence for *DENDROBATIDAE* Cope, 1865 over *PHYLLOBATIDAE* Fitzinger, 1843. Holthuis (BZN 40: 197–198) disagreed with Dubois’ conclusion that *Dendrobates* was a new replacement name for *Hyalaplesia* H. Boie in Schlegel (1826b) and saw no need for any Commission action regarding the two names. He further stated that he saw no need to give
DENDROBATIDAE precedence over PHYLLLOBATIDAE. Holthuis, however, supported placing the names Dendrobates and Phyllobates and their type species on the appropriate Official Lists. Dubois (BZN 40: 198–199) responded but saw no reason to modify his original proposals. The Commission never acted on any of Dubois’ proposals but we regard several of them to have merit that would contribute to stability and universality of anuran names. Consequently, we submit this new proposal to resolve the principal issues relating to the aforementioned names.

2. The generic name Hysaplesia was first published by Schlegel (1826a, p. 239) based explicitly on a manuscript by Heinrich Boie. Hysaplesia as originally conceived contained the following species: Hyla trivittata Spix, 1824; Hyla nigerrima Spix, 1824; Hyla punctata (Daudin, 1802), Hyla tinctoria (Daudin, 1800); Hyla luteola (Wied-Neuwied, 1824) and two nomina nuda, Hysaplesia achatina and Hysaplesia borbonica. The last two names were made available some years later by Tschudi (1838). They are now recognized (Frost, 2007) as valid species, Microhyla achatina and Leptophryne borbonica, in the family MICROHYLIDAE but as nomina nuda prior to 1838 have no bearing on the status of Hysaplesia. Schlegel (1826b, col. 294) published a German translation of his 1826a paper but in that subsequent publication used the spelling Hylaplesia as the generic name for the same suite of species previously allocated to Hysaplesia. Although Hysaplesia Boie, 1826 (in Schlegel, 1826a) is likely to be an original misprint for Hylaplesia it must stand as the correct original spelling under Article 32.2 of the Code as it is not demonstrably incorrect (Article 32.5 of the Code).

3. Hylaplesia Boie, 1826 (in Schlegel, 1826b) was considered an unjustified emendation by Dubois (1982) but it can also be interpreted as an incorrect subsequent spelling (Holthuis, 1983). Dubois dated Hylaplesia as 1827 based on Schlegel’s ‘Erpetologische Nachrichten’, published in Isis von Oken, vol. 20, part 3. In 1966, Brongersma, Inger & Marx (BZN 22: 303–312) noted that the signatures of parts 1–3 of vol. 20 are dated 1826. In 1968, Smith (BZN 25: 107–112) wrote that only parts 1–2 are dated on the title pages, and that part 3 ‘contains the first sections of the Literature-Register for 1827, and therefore could not have appeared in 1826’. Smith evidently was referring to the short list of titles in the ‘Eingegangen’ section on the back cover of part 3, where there is a single 1827 item from the Heidelberg publisher [Joseph] Engelmann. However, Smith overlooked the 1826 date in the printer’s gathering or signature title (‘Isis B XX. Heft 3. 1826’) on the bottom of every fifth page of part 3. It is likely that the aforesaid 1827 work was merely an advance notice from the publisher, as was sometimes done in the Isis (e.g. the 1827 ‘Eingegangen’ entry in the penultimate part of vol. 19, 1826). Thus, there is no reliable basis for discarding the 1826 date on part 3 of vol. 20, and we accept a default date of December 31 for part 3. References to the ‘Nachrichten’ paper, therefore, are cited as Schlegel (1826b) throughout the present application. Although we certainly sympathize with Dubois’ reasoning, in such instances Article 33.5 of the Code mandates that the name be treated as an incorrect subsequent spelling, making Hylaplesia an unavailable name but a special kind of subsequent usage of Hysaplesia. Stejneger (1937, p. 139) selected Hyla punctata Daudin, 1802 as the type species for Hylaplesia. Note that Hyla punctata (Daudin, 1802) was a new combination for the species originally described by Schneider (1799, p. 170) as Calamita punctatus. Stejneger’s selection establishes the type species of Hysaplesia as Calamita punctatus.
Schneider, 1799 because an incorrect subsequent spelling (Hylaplesia) has no status of its own but is to be treated as though the original spelling (Hysaplesia) were used at the time the type designation was made.

4. Wagler (1830, p. 202) proposed the name *Dendrobates* for *Hyla nigerrima* Spix, *Hyla tinctoria* Daudin and *Hyla trivittata* Spix. Dubois considered this name to be a new replacement name (nomen novum) for *Hylaplesia* Boie, 1826 (in Schlegel, 1826b). However, the fact that it contained only three of the species originally included in *Hylaplesia* does not support that notion. That Wagler did not automatically include *Hylaplesia borbonica*, *Hylaplesia achatina* or *Hyla luteola* in *Dendrobates* indicates that the latter is not a new replacement name but a new taxon based on a provisionally different concept. As Wagler had not seen specimens of *H. borbonica* and *H. achatina* he left open the possibility that *Dendrobates* might be the same as *Hylaplesia* once these two species were examined. It also held out the possibility that they would not fit into Wagler’s concept of *Dendrobates*. This was the position of Holthuis (1983), with whom we concur. The type species of *Dendrobates* is *Hyla tinctoria* Daudin, 1800 = *Rana tinctoria* Cuvier, 1797, by subsequent designation of Duméril & Bibron (1841, p. 651) as previously noted by Lescure (BZN 39: 265) and Dubois (BZN 39: 271). Because *Dendrobates* is not a replacement name for *Hysaplesia/Hylaplesia* this designation can have no bearing on determining the type species of *Hysaplesia* Boie, 1826, contrary to Dubois (1982, pp. 270–271). Nevertheless, *Hysaplesia* has never been used as a valid generic name (except as the incorrect subsequent spelling Hylaplesia), other than in the original publication (Schlegel, 1826a). The usage of *Hylaplesia* (Lutz, 1925, p. 139), the equivalent of *Hysaplesia*, negates the possibility of applying Article 23.9.2 of the Code (the nomen oblitum option) for suppression of *Hysaplesia*. Under the circumstances it is best to follow Dubois’ request to place *Hysaplesia* on the Official List of Rejected and Invalid Generic Names so that it does not become a threat to stability in the future.

5. *Phyllobates* was first published in the binomen *Phyllobates bicolor* by Bibron in Sagra, 1840 (pl. 29), not by Duméril & Bibron in 1841, as asserted by Dubois in 1982 (and also 1986, p. 130). The name and illustration of the frog appeared in pl. 29 bis of Sagra’s Atlas. Duméril & Bibron referenced this plate, but not the later text, in vol. 8 of the *Erpétologie générale* (1841, p. 638). Smith & Grant (1958, pp. 220, 221) accepted 1840 as the latest date for Sagra’s Atlas. The Avertissement in vol. 8 of the *Erpétologie générale* is dated (p. ii) December 25, 1840, indicating that Sagra’s pl. 29 bis must have appeared in 1840 before that date. *Phyllobates bicolor* is here sourced to the Spanish edition of Sagra, at least part of which appeared ahead of the French translation, although precise dating is difficult, as discussed by Smith and Grant (1958).

6. In regard to family-group names, Dubois (1982; BZN 39: 272–273) pointed out the following sequence by priority: PHYLLOBATAE Fitzinger, 1843 (p. 32) (type genus Phyllobates Bibron, 1840); EUBAPHIDAE Bonaparte, 1850 (type genus Eubaphus Bonaparte, 1831, an objective junior synonym of Dendrobates) used only by Bonaparte again in 1852; HYLAPLESIDAE and subfamily HYLAPLESINA Günther, 1858 (type genus Hylaplesia Boie, 1826 = Hysaplesia Boie, 1826) which must be considered to be incorrect original spellings of HYSAPLESIDAE and HYSAPLESINA; DENDROBATIDAE Cope, 1865 (p. 100) (type genus Dendrobates Wagler, 1830). According to Article 40 of the Code, DENDROBATIDAE Cope, 1865 (1850) is the correct citation because its
objective junior synonym, eubaphid, was replaced prior to 1961. Dubois (BZN 40: 275) documented the nearly universal use of the names Dendrobatidae or Dendrobatinae for these frogs from 1882 to 1982. Since that time the name Dendrobatidae has been used with few exceptions in a wide range of biological literature. However, as shown by Dubois (BZN 40: 272; Frost, 2007) the names Phyllobatidae or Phyllobatinae have been used as family-group names by a number of authors in the late 20th century. Commission action is therefore required to preclude any future threat to stability, which has become of paramount importance in this case. The family has been the subject of intense study by many investigators since 1982, with dozens of significant publications in systematics, natural history, and breeding studies. Additionally, hundreds of medically relevant publications have resulted from the isolation and study of alkaloids sequestered in defensive skin secretions; the novel ‘dendrobatid alkaloids’ are providing important tools in neuromuscular, cardiovascular, and CNS research. More than 800 biologically active alkaloids are currently known from frog skin, with the largest number and greatest chemical and pharmacological diversity occurring in the Dendrobatidae (for overviews see Daly et al., 1987, 1999, 2005; Daly, 2003).

7. The International Commission on Zoological Nomenclature is accordingly requested:

(1) to use its plenary power:

(a) to suppress the generic name Hysaplesia Boie in Schlegel, 1826 (gender: feminine), type species ‘Hyla punctata Daudin’ = Calamita punctatus Schneider, 1799 by subsequent designation of Stejneger, 1937 for the purposes of the Principle of Priority but not for those of the Principle of Homonymy;

(b) to rule that the family-group name Dendrobatidae Cope, 1865 (1850) be given precedence over the family-group name Phyllobatidae Fitzinger, 1843 whenever the two are regarded as synonyms;

(2) to place on the Official List of Generic Names in Zoology:

(a) Dendrobates Wagler, 1830 (gender: masculine), type species Rana tinctoria Cuvier, 1797, by subsequent designation by Duméril & Bibron (1841);

(b) Phyllobates Bibron, 1840 (gender: masculine), type species by monotypy Phyllobates bicolor Bibron in Sagra, 1840;

(3) to place on the Official List of Specific Names in Zoology:

(a) tinctoria Cuvier, 1797, as published in the binomen Rana tinctoria (specific name of the type species of Dendrobates Wagler, 1830);

(b) bicolor Bibron, 1840, as published in the binomen Phyllobates bicolor (specific name of the type species of Phyllobates Bibron in Sagra, 1840);

(4) to place on the Official List of Family-Group Names in Zoology:

(a) Dendrobatidae Cope, 1865 (1850) (type genus Dendrobates Wagler, 1830) with an endorsement that it is to be given precedence over Phyllobatidae Fitzinger, 1843 (type genus Phyllobates Bibron in Sagra, 1840) whenever the two names are considered synonyms;

(b) Phyllobatidae Fitzinger, 1843 (type genus Phyllobates Bibron in Sagra, 1840) with an endorsement that it is not to be given priority over Dendrobatidae Cope, 1865 (1850) whenever the two names are considered synonyms;
to place on the Official List of Rejected and Invalid Generic Names in Zoology the genus *Hysaplesia* Boie in Schlegel, 1826 (gender: feminine), type species ‘*Hyla punctata* Daudin’ = *Calamita punctatus* Schneider, 1799, by subsequent designation by Stejneger (1937).

References


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Comments on this case are invited for publication (subject to editing) in the *Bulletin*; they should be sent to the Executive Secretary, I.C.Z.N., c/o Natural History Museum, Cromwell Road, London SW7 5BD, U.K. (e-mail: iczn@nhm.ac.uk).