

## (385–388) Proposals to amend Articles 32.2, 23.5, and 24.2 to clarify the treatment of transcribed Greek terminations of epithets

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In several places in the *ICN* (McNeill & al. in *Regnum Veg.* 154. 2012) the acceptable usage of transcribed Greek words in names or epithets is endorsed. For example, Art. 62.2 supports the usage of transcribed Greek words, with their associated Greek terminations indicating different genders, in generic names. Transcribed Greek terminations of generic names are also acknowledged in Art. 18.1, which pertains to the formation of family names. In the formation of compound adjectival epithets derived from two or more Latin or transcribed Greek words, Art. 60.8 enforces Rec. 60G.1(a) on the use of the connecting vowel *-o-* for Greek elements, compared with use of *-i-* for Latin elements. But the *ICN* provides no guidance on usage of transcribed Greek terminations in adjectival epithets. The same is not true for Latin terminations, which when improperly cited, are corrected under Art. 32.2:

“32.2. Names or epithets published with an improper Latin termination but otherwise in accordance with this *Code* are regarded as validly published; they are to be changed to accord with Art. 16–19, 21, 23, and 24, without change of the author citation or date (see also Art. 60.12).”

Both Art. 23.5 and 24.2, concerning specific and infraspecific adjectival epithets, respectively, mandate correction of the improper terminations under Art. 32.2 when they do not agree with the gender of the generic name.

Yet there are numerous adjectival epithets in common usage formed by transcribing Greek words into Latin. In some cases the terminations were converted to the Latin terminations *-a* (f.), *-us* (m.), or *-um* (n.), but in other cases the classical Greek terminations *-os* (f. & m.) and *-on* (n.) were retained. Linnaeus did this himself at least 38 times in names such as *Astragalus glycyphyllos* L., *Gleditschia triacanthos* L., *Arum macrorrhizon* L., and *Cneorum tricoccon* L. Because these are transcribed Greek and not Latin terminations, how are they to be dealt with under Art. 23.5, 24.2, and 32.2? Are such terminations to be considered improper use of Latin, to which they should be converted? Voted Example 11 under Art. 53 indicates a few pairs of epithets with Greek or Latin terminations (e.g., *macrocarpon*, *macrocarpum*; *polyanthemos*, *polyanthemus*) that if placed in the same genus would be viewed as homonyms, so this appears to establish that either form is acceptable. But what if such an epithet is transferred to a genus of different gender, what termination is then appropriate? The lack of guidance in the *ICN* on this issue has doubtless contributed to confusion and considerable instability of usage.

The provisions of Art. 23.5 and 24.2 trace back to Art. 27 and 28 of the *Cambridge Rules* (Briquet, *Int. Rules Bot. Nomencl.* 1935), whereas Art. 32.2 owes its origin to a proposal by Brummitt (in *Regnum Veg.* 60: 55–56. 1969), which became Art. 32 Note 2 of the *Seattle Code* (Stafleu & al. in *Regnum. Veg.* 82. 1972). Since the introduction

of these rules, there have been no further proposals to amend them in subsequent *Codes*.

Nicolson (in *Taxon* 35: 323–328. 1986), in his seminal article “Species epithets and gender information”, advocated for preserving the original Greek two-ending format for epithets of Greek origin, when an epithet was determined to be adjectival. This same treatment was promoted by Stearn (*Bot. Latin*, ed. 4: 256. 1992) as well. Determination of whether or not an epithet was adjectival or substantival, according to Nicolson (l.c.), depended on whether the initial usage of that epithet agreed or disagreed with the gender of its generic name. If the termination was in agreement with the gender, an adjectival epithet was inferred.

Despite the lack of efforts to enshrine the treatment advocated by Nicolson (l.c.) and Stearn (l.c.) in the *Code*, their arguments have certainly influenced nomenclatural usage. In an effort to determine usage patterns, the results of searching Google Scholar (<http://scholar.google.com>) on 1 July 2016 for 38 Linnaean basionyms having Greek terminations and 23 of their later combinations were tabulated. The number of citations returned for each alternative (with Greek or Latin termination) of the same name was recorded. When orthographically different endings were used (such as *-ion*, *-yon*; or *-ius*, *-yus*), the numbers were combined within each termination alternative.

Some conclusions can be drawn from these usage data. Overall, for the 55,773 citations detected for all 61 names in question, 71% of these retained a Greek termination. In 76% of the retrieved citations of just the 38 Linnaean names, the original Greek termination is preserved. By the same token, this means that in 24% of cases the original spelling used by Linnaeus has been altered to a Latin termination. In 63% of the citations of names created when one of these Linnaean basionyms was transferred to a new genus, the original Greek termination is retained. Because this last datum is heavily influenced by certain heavily cited taxa, such as *Brachypodium distachyon* (8760 citations), it is worth noting that 12 of 23 such combinations are cited more often with retained Greek terminations than with “corrected” Latin ones. However, in only 7 cases was a Greek termination retained when the combination was first published. Of the 22 combinations of these names for which a proper Greek or Latin termination was initially used, agreeing with the gender of the generic name, the most subsequently used termination (Greek or Latin) in 17 cases was that adopted by the combining author. However, overall the combining authors’ usages of a Greek or Latin termination were preserved in only 34% of the later citations of these combinations, leaving 66% where the original usages had been corrected, suggesting that to mandate following combining authors’ choices would be more destabilizing to existing nomenclature than retaining the original authors’ termination usage.

Clearly the dual usage of both Greek and Latin terminations that persists for 48 of the 61 names tested is undesirable, creating

nomenclatural instability. How widespread is the usage of Greek terminations in adjectival epithets cannot be precisely determined, but a search of IPNI (<http://www.ipni.org>) for species names with epithets ending in *-os* or *-on* from only the IK (Index Kewensis) portion of the database (to avoid duplication) revealed 5345 names. Of course, a significant portion of these have substantival epithets, but other records eluding this query may have been corrected from an original Greek termination. An inspection of the retrieved records leads to an estimate that there must be at least 1000 species names published with adjectival epithets having Greek terminations. Because data on infraspecific epithets are far less complete in IPNI, no comparable estimate is possible there.

In the absence of any prescribed treatment of specific and infraspecific adjectival epithets with transcribed Greek terminations in the *Code*, the resulting nomenclatural instability will continue to persist. An amendment to Art. 32.2 is proposed here to address this matter, and solutions are proposed for Art. 23 and 24 to provide the necessary guidance for proper treatment of epithet terminations. Regardless of the remedy chosen to improve standardization of such epithets, some usages will require correction. Because the gathered data indicate that greatest stability would be achieved by retaining the Greek terminations of original authors, even when the names involved are transferred to other genera, we are advocating this solution in Prop. 386.

**(385) Amend Art. 32.2 as follows (new text in bold, deleted text in strikethrough):**

“32.2. Names or epithets **above the rank of species** published with an improper Latin termination but otherwise in accordance with this *Code* are regarded as validly published; they are to be changed to accord with Art. 16–19; **and 21, 23, and 24**, without change of the author citation or date. **Specific or infraspecific epithets published with an improper Latin or transcribed Greek termination but otherwise in accordance with this *Code* are regarded as validly published; they are to be changed to accord with Art. 23 and 24, without change of the author citation or date** (see also Art. 60.12).”

The amended Article allows valid publication of specific and infraspecific names with epithets demonstrating improper usage of either Latin *or* transcribed Greek terminations, as such names would otherwise violate Art. 32.1(c). The current wording of Art. 32.2, mentioning only Latin, may account for the unnecessary and undesirable corrections of Linnaeus’s original Greek terminations to Latin seen in 24% of the cases investigated.

Individual examples accounting for proper usage in specific and infraspecific adjectival epithets are provided for Art. 23 and 24 below. In Prop. 386, retention of transcribed Greek terminations in epithets of new combinations from basionyms with similar terminations is supported, preserving consistency in terminations between basionyms and later new combinations and, if applicable, between replaced synonyms and later replacement names re-using the same epithet.

**(386) Amend Art. 23.5 and its Ex. 5 as follows (new text in bold, deleted text in strikethrough):**

“23.5. The specific epithet, when adjectival in form and not used as a noun, agrees **grammatically** with **the gender of the generic name**; when **it the epithet** is a noun in apposition or a genitive noun, it retains its own gender and termination irrespective of the gender of the generic name. Epithets not conforming to this rule are to be corrected (see Art. 32.2) **to the proper form of the termination (Latin or transcribed Greek) of the original author(s)**. In particular, the usage of the word element *-cola* as an adjective is a correctable error.”

“Ex. 5. Names with adjectival epithets: **(Latin)** *Helleborus niger* L., *Brassica nigra* (L.) W. D. J. Koch, *Verbascum nigrum* L.; *Rumex cantabricus* Rech. f., *Daboecia cantabrica* (Huds.) K. Koch (*Vaccinium cantabricum* Huds.); *Vinca major* L., *Tropaeolum majus* L.; *Bromus mollis* L., *Geranium molle* L.; *Peridermium balsameum* Peck, derived from the epithet of *Abies balsamea* (L.) Mill. treated as an adjective; **(transcribed Greek)** *Brachypodium distachyon* (L.) P. Beauv. (*Bromus distachyos* L.); *Oxycoccus macrocarpos* (Aiton) Pers. (*Vaccinium macrocarpon* Aiton).”

**(387) Add a new Example after Art. 23 Ex. 5 to illustrate acceptable corrections to both Latin and transcribed Greek terminations of adjectival epithets:**

“Ex. 5bis. Correctable errors in adjectival epithets: (Latin) *Zanthoxylum trifoliatum* L. (1753) upon transfer to *Acanthopanax* (Decne. & Planch.) Miq. (m., see Art. 62.2(a)) is correctly *A. trifoliatum* (L.) Voss. (1894) ‘*trifoliatum*’; *Mimosa divaricata* Jacq. (1798) upon transfer to *Lysiloma* Benth. (n.) is correctly *L. divaricatum* (L.) J. F. Macbr. (1919) ‘*divaricata*’; *Corydalis chaerophylla* DC. (1824) upon transfer to *Capnoides* Mill. (f., see Art. 62.4) is correctly *C. chaerophylla* (DC.) Kuntze (1891) ‘*chaerophyllum*’; (transcribed Greek) *Andropogon distachyos* L. (1753), nom. cons. ‘*distachyon*’; *Bromus distachyos* L. (1756) upon transfer to *Brachypodium* P. Beauv. (n.) is correctly *B. distachyon* (L.) Ledeb. (1842) ‘*distachyus*’ or to *Trachynia* Link (f.) is correctly *T. distachyos* (L.) Link (1827) ‘*distachya*’; *Vaccinium macrocarpon* Aiton (1789) upon transfer to *Oxycoccus* Hill (m.) is correctly *O. macrocarpos* (Aiton) Pers. (1805) ‘*macrocarpus*’ or to *Schollera* Roth (f.) is correctly *S. macrocarpos* (Aiton) Britton (1894) ‘*macrocarpa*’.”

**(388) Add to the cross-reference in Art. 24.2 to provide similar guidance for infraspecific epithets (new text in bold):**

“24.2. Infraspecific epithets are formed like specific epithets and, when adjectival in form and not used as nouns, they agree grammatically with the generic name (see Art. 23.5 and 32.2).”

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