

(260) Proposal to replace the terms “legitimate” and “illegitimate” by “acceptable” and “unacceptable”.

Throughout the Code, substitute “acceptable” for “legitimate”, and “unacceptable” for “illegitimate”.

The concepts behind “legitimacy” and “illegitimacy” are complex enough in themselves, without compounding their comprehension by the use of terms which are generally used to relate to laws enacted by governments or whether children are born inside or out of wedlock. Indeed, only the most comprehensive English dictionaries include an alternate definition on the lines of recognition (or not) by some authority or constitution, the sense in which the terms are used in the Code. In contrast, the terms proposed here are unambiguous and immediately both intelligible and

translatable. Although much the same concept exists in the ICZN (where it is termed “objectively invalid”), the “legitimate/illegitimate” terminology is confined to the *International Code of Nomenclature of Bacteria* (Lapage & al., Internat. Code Bact. Nomencl., 1990 rev. 1992) and the ICBN, though it is anticipated that it will be replaced by “unacceptable” in the next published revision of the bacteriological Code.

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(261–275) Assorted proposals to clarify the Code

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(261) In Art. 7.5, replace “designated or definitely indicated” by “cited” in the last phrase of the first sentence (the portion beginning “or by a different type” and following the third comma of the sentence).

(262) In Art. 7.5, replace the last phrase of the first sentence (the portion beginning “or by a different type” and following the third comma of the sentence) by: “unless the author of the illegitimate name designated or definitely indicated [or cited if Prop. 001 is accepted] a different type or placed the earlier name in an atypical taxon subordinate to the illegitimate name”.

Under Art. 7.5, the type of a superfluous name most commonly has to be the type of the name which ought to have been adopted, but the later part of the wording of the first sentence of the Article allows some exceptions. The wording is somewhat obscure to readers and could with advantage be clarified, as is proposed in Prop. 2611 above.

Furthermore, instances occur where the type of the two names cannot be the same but no different type is actually cited for the superfluous name. When the name *Gilia splendens* was validated by H. L. Mason & A. D. Grant in *Madroño* 9: 212 (1948), they included in this species a subsp. *grinnellii* based on *Gilia grinnellii* Brand, *Pflanzenr.* IV, 250 (Heft 27) : 101 (1907). The name *G. splendens* was thus superfluous and illegitimate, since the name *G. grinnellii* should have been taken up for the species. But it is illogical to argue that the type of *G. splendens* must be the same as that of *G. grinnellii* since they were placed in different subspecies. Prop. 262 above would clarify the situation, and can be accepted independently of the decision on Prop. 261.

(263) In Art. 9.10, insert after the first sentence: “An extant syntype takes precedence over an isosyntype (not cited by the author of the name)”.

At present, it is not clearly stated in Art. 9.10 how syntypes and isosyntypes (the latter not cited by the author of the name) are to be viewed in choice of lectotypes. Several cases have come to light recently in which this could be significant. In the proposal to reject the name *Gilia grinnellii* by Grant & Wendt in *Taxon* 52: 145–146 (2003), the name concerned had three syntypes, for

which the relevant herbaria were cited, which were referable to two different species. The question arose as to whether an uncited isosyntype (if it existed) would take precedence over an extant syntype (cited) if the former had been designated first as lectotype of a name. The name *Cedrela longiflora* C. DC. in *Ann. Cons. Jard. Bot. Genève* 10: 174 (1907) had two syntypes, in the de Candolle and Delessert herbaria at Geneva, respectively. In T. D. Pennington & al., *Flora Neotropica* 28 (*Meliaceae*): 363 (1981) Styles chose a duplicate of the first of these at New York as the lectotype, and the question arises as to whether this was allowable when extant syntypes were available. Similarly, when 100 new species of *Erica* were described by F. Guthrie & H. Bolus in *Flora Capensis* in 1905, they cited many syntypes, usually detailing the herbaria in which these had been seen. In a revision of the genus by Dulfer in 1965, lectotypes were chosen that were duplicates of these syntypes in European herbaria, which had not been seen by Guthrie & Bolus.

In the old Guide to the Determination of Types up to and including the 1983 *Sydney Code*, paragraph T4(c) clearly stated “if no syntypes are extant, the lectotype should be chosen from among the duplicates of the syntypes (isosyntypes) if such exist”. In the 1988 *Berlin Code* this became Recommendation 7B.1 and had essentially the same wording. In the 1993 *Tokyo Code* this was promoted to a paragraph of Art. 9.10, so becoming mandatory. However, although the first sentence stated clearly that if there are no isotypes, syntypes must be chosen if they exist, this sentence did not refer to isosyntypes, although these were mentioned in the next sentence as taking precedence over paratypes. At the same time, some doubt about the relative status of syntypes and isosyntypes was introduced in the footnote under Art. 9.7 which defined ‘original material’, referring to “isotypes or isosyntypes of the name irrespective of whether such specimens were seen either by the author of the validating description or by the author of the name”. Do unseen specimens (such as isosyntypes) always have the same status as the duplicates of them (such as syntypes) seen by the author? The matter needs to be clarified, and the above proposal would bring us clearly back to the intentions of the Codes right up to 1993. The present author is grateful to T. Wendt, T. D. Pennington and E. G. H. Oliver for examples quoted above.

(264) Add a new paragraph under Art. H3 reading:

“For purposes of conserving nothospecific names under Art. 14, the multiplication sign and the prefix ‘notho’ are disregarded”. If considered necessary, add in Art. 14.1 a reference to nothospecies and cross-reference to Art. H3.

Art. 14.1 allows that names of families, genera and species may be conserved, but makes no reference to names of hybrid taxa, either at generic or specific ranks. To the present writer’s knowledge, there have only been two proposals to conserve names of interspecific hybrids in higher plants. The first was the proposal by J. Lewis to conserve *Juniperus ×media*, in Taxon 44: 229–231 (1995), which was not accepted. The second is the proposal by N. K. B. Robson in Taxon 52: 139–140 (2003) to conserve the name *Hypericum ×desetangsii* Lamotte with a conserved type. Discussion in the Committee for Spermatophyta has raised the question of whether this is possible under the wording of Art. 14.1. The present Art. H3.3 states that “For the purposes of homonymy and synonymy the multiplication sign and the prefix ‘notho-’ are disregarded”, which may suggest that by analogy the same should apply for purposes of conservation, but this is not clearly stated. The Rapporteur-Général, in his other role of nomenclatural editor of Taxon, has allowed Robson’s proposal to be published, presumably implying that he believes it is permissible to conserve names of nothospecies, and the Committee for Spermatophyta has voted in favour of it. Approval of the above proposal would clarify the matter beyond doubt. For options on an opposite ruling on nothogeneric names, see next proposal below. In Art. 56, rejection of any name is permitted, apparently including names of hybrids at any rank, and no clarification is needed here.

(265) Add to Art. H3 the following: “Names of nothogenera may not be conserved” and in Art. 14.1 make cross-reference to this.

Acceptance of Prop. 264 above would explicitly allow for conservation of names of interspecific hybrids, and raises the question of whether similar provision should be made for names of intergeneric hybrids. To the present writer’s knowledge, no proposal has ever been made to conserve the name of an intergeneric hybrid, and so it may be thought unnecessary to spend time considering what could be quite a complicated proposal. But it would be not unreasonable for anybody to consider conservation of an intergeneric hybrid name desirable, for several of the reasons already apparent for generic names in Art. 14. So it may be better to be prepared in advance rather than wait until somebody makes such a proposal. Since nothogeneric names do not have types (Art. 11.9, Note 1), some of the provisions of Art. 14 are not applicable to them. Indeed, the fact that Art. 14.3 requires that the application of names conserved and rejected under this Article is determined by nomenclatural types may seem to imply that nothogeneric names are not included in the provisions of this Article. It would be possible to make extensive appropriate changes in Art. 14, but the simpler solution would be to rule clearly that the provision of conservation does not apply to nothogeneric names. Again, however, note that rejection of nothogeneric names under Art. 56 is already permissible, and if problems do arise for intergeneric hybrid names, it is possible that this may provide a solution to the case.

(266). Amend the wording of the last phrase of Rec. 14A.1 to read: “... authors should avoid making changes to the names established in the literature for the taxa concerned ...”.

The present wording of the Recommendation is designed to maintain stability in cases where a name is proposed for conservation over a different name. It may be inappropriate, however, in cases where conservation of a name with a different type is proposed. Does the present wording “... authors should follow existing usage ...” mean that they should maintain an existing typification which has been found to have unfortunate nomenclatural consequences? Hopefully this is not the intention. The above wording should clarify the matter.

(267) Add a new paragraph to Art. 30 reading:

“Publication on or after 1 January 2006 of an independent non-serial work stated to be a thesis submitted to a university or other institute of education for the purpose of obtaining a degree is not to be treated as effectively published unless it bears an International Standard Book Number (ISBN)”.

More or less the same proposal was submitted to the last Congress by Farjon in Taxon 47: 771–772 (1998). Despite the very negative comments of the then Rapporteurs, after a long discussion an amended version of the proposal, relegating mention of an ISBN to an associated example, was at first accepted on a show of hands, but when a card vote was asked for it was defeated by 354:349 (a narrow majority in favour but 60% being required to pass a proposal). The discussion is recorded in *Englera* 20: 141–154 (2000), and it does not seem necessary to repeat the somewhat convoluted arguments here. It may, however, be relevant to emphasise that the proposal concerns only names published in theses, and does not affect the vast majority of names published in other literature. In the present writer’s opinion, a golden opportunity was lost at St. Louis to resolve a problem which has nagged at us for many years. In practice the proposal would very largely support current practice and interpretation, since most theses which do propose new names do in fact carry an ISBN number, but it would remove an area of perpetual ambivalence and doubt. The negative comments and objections raised in the St. Louis discussion were all countered by very reasonable alternative views. The problem of theses published before 2006 can apparently never be satisfactorily resolved, but this proposal would establish clear procedure from that date forward. It has the great advantage that a decision on effective publication can be established immediately, merely by consulting the work in question and without any need for external evidence. Its advantages would far outweigh any possible disadvantages.

(268) In Art. 32.1 add a new item (b) reading: “be composed only of letters of the Latin alphabet, except as provided in Art. 23.3 and Art. 60.4, 60.6, 60.9 and 60.10;” before the present wording, re-lettering the subsequent items accordingly.

This proposal has arisen from a discussion during a training course for taxonomists in which comparison was made between the *International Code of Botanical Nomenclature* with the *International Code of Nomenclature of Cultivated Plants*. Perhaps surprisingly, there is nothing written in the *ICBN* to exclude names which wholly or partially consist of characters other than the letters of the Roman alphabet used by most modern western European languages. It could be argued that generic names including full stops such as *P.G.Tipsia*, or epithets published as ‘*a.c.smithii*’, or ‘*3-foliatus*’, or ‘*273956*’, or ‘*\$100*’, or with symbols such as those covered by Art. 23.3 but published by an author other than Linnaeus, or even in Chinese or Japanese, etc., scripts, are all permissible and validly published. Principle V states that “Scientific names of taxonomic groups are treated as Latin regard-

less of their derivation”, but this is not an Article and its interpretation may be obscure in some examples. The matter has been addressed already in van Rijkevorsel’s Prop. (016) in Taxon 52: 379 (2003), which is one of the few proposals of a non-editorial nature presented in that paper. He has proposed inserting it in the context of the present Art. 60, but this is inappropriate because the consequences of somebody not complying with it are not established. It would seem desirable to rule that a ‘name’ such as *Astragalus 273956* is not validly published. Prevention is better than cure. Although some might think that ‘3-foliatus’ should be converted to ‘trifoliatus’, this might be an unfortunate precedent. What about 27-pinnatus for a fern or 178-foliolatus for a mimosoid legume? Again, it seems desirable to rule that such names are not validly published. At the same time, however, we would not want to make names published with hyphens, apostrophes or ligatures invalid, nor the Linnaean names already specified in Art. 23.3, and the qualification in the proposed wording will avoid this. It is not clear which language (if not Latin) van Rijkevorsel (l.c.) had in mind when he referred to it including only the “26 letters of the modern alphabet”, since different languages using the Roman alphabet have different ideas of what constitutes a letter. For example in Welsh the double ‘l’ in names such as Llewelyn is treated as one letter and alphabetised separately from the single ‘l’. Such letters, and diacritical signs on other letters, do not invalidate a name, but are to be transcribed as provided in Art. 60.4 & 60.6.

(269) Add a new paragraph to Art. 46 before the present 46.3, to read: “When the epithet of a validly published name is taken up from and attributed to the author of a different binary designation that has never been validly published, only the author of the validly published name is to be cited. If the original binary designation is later validly published as a new combination, the author of the original binary designation is also not included in the author citation of the new name.”

Example. “*Catha edulis*” was published but not validated by Forskål (Fl. Aegypt.-Arab. cvii, 63. 1775). The epithet was taken up by Vahl (Symb. Bot. 1: 21. 1790), who validly published the name *Celastrus edulis* citing “*Catha edulis* Forsk.” in synonymy. The name *Celastrus edulis* must be attributed to Vahl alone, not to Forsk. ex Vahl. The name *Catha edulis* was first validly published by Endlicher (Enchir. Bot. 575. 1841) whose combination is to be cited as *Catha edulis* (Vahl) Endl.’

At the Tokyo Congress major steps forward were made on ‘in’ or ‘ex’ citations through the expedient of convening an overnight *ad hoc* committee which met one evening in the hotel bedroom of a distinguished member of the Congress. Discussion there, like the space to stretch one’s legs, was limited, but recommendations were pushed through and the Rapporteur was able to report back to the Session the following day that agreement had been reached on nearly all major issues (Englera 14: 173–174. 1994). Some major changes were therefore inserted into the *Tokyo Code*, albeit with rather different wordings from those given in the proposals. However, although Proposal O, originally from Brummitt in Taxon 42: 153. 1993, was referred to the Editorial Committee, little evidence of it appeared eventually in the *Tokyo Code*. Although it might be claimed that part of Prop. O is covered by the new Art. 46.3, this is far from clear to users. The new proposal above basically repeats the former Prop. O at Tokyo, but with slight modification to the wording and with fewer Examples.

The first sentence of the proposal deals with the situation found in one of the most frequent queries about ‘ex’ citations that

the present writer receives, where a validating author takes up an epithet from a different name which was not validly published. Do we use an ‘ex’ citation or not? By comparing Example 11, the case of *Lichen debilis*, with the wording of Articles 46.2, 46.3 and 46.4 it may be possible to see a hint of a suggestion that *Lichen debilis* should be attributed to Sm. only and not Turner & Borrer ex Sm., but it is heavy going and not clear. Users of the Code deserve clear statements. The first sentence of the proposal above would clarify the matter, and then in the Example the authorship of *Celastrus edulis* would be relevant. The arguments for this are two-fold; firstly that if we give the authorship as Forsk. ex Vahl it implies that Forskål used the name *Celastrus edulis*, which he did not; and secondly that given a choice the shorter of two author citations is preferable.

A further situation, which follows on from that of the first sentence and where the original invalid name is later validly published elsewhere as a new combination, also arises quite frequently. Some might argue for the authorship of the combination *Catha edulis* as (Forsk. ex Vahl) Endl., or as (Vahl) Forsk. ex Endl., or as (Forsk. ex Vahl) Forsk. ex Endl., but the preferred citation is simply (Vahl) Endl. This is nowhere made clear at present. The case of *Catha edulis* is the classical example which has often been cited in discussions on ‘in’ or ‘ex’, and it seems desirable to include it in the Code.

(270) In Art. 52.2 (e), after “citation of the name itself” add “or of another name with the same type”.

When the name *Persicaria maculosa* Gray 1821 was proposed for conservation over *P. mitis* Delarbre 1806 by Wisskirchen & Kent in Taxon 48: 829–830 (1999), it was claimed that *P. maculosa* was illegitimate when published. Both names were proposed as nomina nova for *Polygonum persicaria* L. 1753, and so all three names have the same type, and *P. maculosa*, being the later name replacement name, does appear at first sight to be superfluous. However, as noted in the report by the Committee for Spermatophyta (Brummitt in Taxon 50: 566. 2001), according to the technicalities of Art. 52, *P. maculosa* is not illegitimate because Gray did not actually cite *P. mitis* Delarbre. Art. 52.1 says that a name is superfluous and illegitimate if it included “the type (as qualified by Art. 52.2) of a name which ought to have been adopted ...”, and Art. 52.2 opens with “For the purposes of Art. 52.1 ...”. But none of the stipulations in Art. 52.2 covers the situation of *Persicaria maculosa*, where the author clearly did include the type of *P. mitis* even though Gray did not cite the name. Most members of the Committee for Spermatophyta considered this to be merely an oversight in the wording of the Code. Other comparable examples have been noted since, such as that of *Saussurea piptathera* Edgew. explained by E. von Raab-Staube in Taxon 53: 560–561. 2004. The above proposal would clarify the situation.

(271) Add to Art. 53.3 a new sentence: “If established practice has been to treat two similar names as homonyms, this practice should be continued if it is in the interests of nomenclatural stability” and add an Example: “The name *Gilmania* Coville was published in 1936 as a substitute name for *Phyllogonum* published by the same author in 1893 because he considered the latter to be a later homonym of *Phyllogonium* Bridel 1827. This homonymy has been accepted in *Index Nominum Genericorum*, and the name *Gilmania* has been accepted as legitimate ever since. The names *Phyllogonum* and *Phyllogonium* are, therefore, to continue to be treated as homonyms”.

Acceptance of this proposal would avoid the necessity of reconsidering cases of homonymy which have long been accepted,

and of possibly needing to conserve names such as *Gilmania* which have long been in use. At present the criteria laid down in Art. 53.3 for treating paronymyms as homonyms could be regarded as not applying in this case. There should be no need to revisit cases like this which have been universally accepted for a long period.

(272) In the first line of Art. 58.1, replace the word “name” by “later homonym”. Add a further paragraph reading: “When the epithet of an illegitimate superfluous name (see Art. 52) is transferred at the same rank into a different combination, that combination is also illegitimate unless the author of the combination definitely excludes the type of the name which caused the illegitimacy of the basionym (see Art. 7.5). If, however, the epithet of a superfluous name is transferred to a different combination at a different rank, or used as a generic name, the resulting name (is not made illegitimate by the inclusion of the type of the name at a different rank and) is treated as a legitimate nomen novum. Its priority dates from the publication of the nomen novum, not from the publication of the illegitimate name”.

Add Examples: “(1) *Menispermum villosum* Lam., Encycl. Meth. Bot. 4: 97 (1797) is illegitimate because *M. hirsutum* L., Sp. Pl. 1: 341 (1753) was cited in synonymy. The combination *Cocculus villosus* (Lam.) DC., Syst. Nat. 1: 525 (1817) is also illegitimate since the type of *M. hirsutum* L. was not excluded, and the type of the two names is the same. (2) *Hibiscus ricinifolius* E. Mey. ex Harv., Fl. Cap. 1: 171 (1860) is illegitimate because *H. ricinoides* Garcke, Bot. Zeit. 7: 834 (1849) was cited in synonymy. When the epithet *ricinifolius* was combined at varietal rank under *H. vitifolius* by Hochreutiner in *Annuaire Conserv. Jard. Bot. Genève* 4: 170 (1900) the latter name was legitimate and is treated as a nomen novum, *H. vitifolius* var. *ricinifolius* Hochr., typified by the type of *H. ricinoides*”.

Following the proposal by W. Greuter in *Taxon* 47: 940 (1998), Art. 58 was condensed from three paragraphs in the *Tokyo Code* to one paragraph in the *St. Louis Code*. In Art. 58.1 (b) of the *Tokyo Code*, it specified “if the illegitimate name is a later homonym...”, and went on to say that an apparent new combination based on it should be treated as a *nomen novum* (the Art. 72 Note 1 of Codes up to Berlin 1988). It said nothing about apparent new combinations based on superfluous illegitimate names. In the new wording in the *St. Louis Code*, the restriction to illegitimate names which are later homonyms was dropped, and Example 2 is a case of a superfluous name. The resultant wording now clearly applies to both later homonyms and superfluous names, but seems to be inappropriate to the latter. Despite the words “if available” in the first sentence, the second sentence of the present wording, if applied in cases of superfluous names recombined at the same rank, would indicate that the name *Cocculus villosus* in the proposed Example 1 is legitimate even though it would have the same type as the earlier *Menispermum hirsutum*. This would be contrary to existing practice.

The status of new combinations based on superfluous names has never been clear. The principle in such cases should be as for later homonyms, i.e., if the cause of the illegitimacy no longer applies when the epithet is transferred, the resultant name should be treated as a legitimate *nomen novum*. In the case of later homonyms, the transfer to a different combination means that the new name is not a later homonym (unless other criteria apply) and so is not illegitimate. In the case of superfluous names, the transfer to a different rank means that the inclusion of the type of an earlier name at the same rank no longer applies and again illegitimacy is removed.

It is hoped that the above proposal and Examples will clarify the position. For clear explanation to users of the *Code*, it seems desirable to split the present Art. 58 into two paragraphs, one dealing with later homonyms and the other with superfluous names. At present there is no Example comparable with the new Example 1 proposed above. The present Example 2 would be referable to the proposed new paragraph above, but it is a complicated case and the new Example 2 proposed above would provide clearer guidance.

(273) At the end of the first paragraph of Rec. 60C.1, replace “(but see Rec. 60C.2)” by “but not for names covered by Rec. 60C.2” (without brackets).

Epithets based on Latinised personal names still cause more trouble than they ought, and we need to eliminate ambiguity in the *Code* over how to spell them. As is well known, Rec. 60C.1 is obligatory and has the same effect as a full Article because Art. 60.11 says that anything contrary to it is an error to be corrected. But the same Art. 60.11 explicitly says that the same does not apply to Rec. 60C.2. Under Art. 60C.2 we are recommended to use the epithet *wislizeni* as the genitive derived from the personal name Wislizenus, but this is not obligatory since if *wislizenusii* were published it would not be correctable. But the name Wislizenus ends in a consonant and so is governed by Rec. 60C.1 (b), which would require the epithet *wislizenusii* to be accepted and not *wislizeni*. Since Rec. 60C.1 is obligatory through Art. 60.11, the former spelling is compulsory. In fact every example given in 60C.2 is countermanded by 60C.1 (b) except for the case of Munro and *munronis* where the personal name ends in a vowel and so is covered by Art. 60C.1 (c). Why does the present Rec. 60C.2 recommend use of *wislizeni* when this is simultaneously countermanded by Rec. 60C.1 immediately preceding it? The answer to the question might appear to be the bracketed words “(but see Rec. 60C.2)” at the end of the first paragraph of 60C.1, but the present words are phrased simply as advice to the reader, not as a positive ruling. They merely draw attention to a Recommendation which is not mandatory and is over-ruled by a different paragraph. The above proposal would make it clear that epithets *alexandri*, *martini*, *wislizeni*, *murielae*, etc., would be acceptable if originally published with those spellings, but *alexanderi*, *martinii*, *wislizenusii*, *murielae*, etc., would also be acceptable if originally spelled in this way. No compulsory correction of the original spelling would be required under Art. 60.11. Despite the present bracketed words “but see Rec. 60C.2”, the current wording recommends the former set of spellings while enforcing the latter, which is nonsensical.

An alternative solution of transferring the wording of Rec. 60C.2 into 60C.1, thus enforcing the spellings given there irrespective of how they were first published, is not favoured here.

(274) Add a new sentence in Art. 60.8, before the present wording, reading: “When a compound epithet is derived from a generic name plus an ending, the root of the correct spelling of the generic name, as defined in Rec. 60G (a) (1), is taken without its termination, and the appropriate ending is added with a connecting vowel if appropriate under Rec. 60G (a) (2)”.

Add beneath this paragraph the Examples: “The epithet meaning ‘having leaves like those of *Myrica*’ is myricifolia (root *Myric-*, connecting vowel *-i-* and ending *-folia*). The epithets *aquilegifolia* and *aquilegiaefolia* derived from the name *Aquilegia* must be corrected to *aquilegiifolia* (root *Aquilegi-*, connecting vowel *-i-* and ending *-folia*). The name *Crococsmia crocosmoides* must be corrected to *Crococsmia crocosmioides* (root *Crococsmi-* and ending *-oides*, no connecting vowel needed”. Placement and

numbering of these Examples should be considered in relation to existing Examples 13–15.

In teaching the principles of nomenclature to trainee taxonomists and others, the ruling concerning orthography of compound epithets is difficult to explain because of a marked lack of guidance in Art. 60. While it is more or less universal practice to adopt spellings such as *myricifolia* and *aquilegifolia*, it is difficult to demonstrate the wording which requires this. The present Rec. 60G is far from explicit, and deals much more fully with so-called ‘pseudocompounds’ than it does with ‘regular compounds’. While rather obscure exceptional cases are discussed at length in paragraph (b), the normal compounding procedure in (a) is dealt with briefly and with no Examples. The above proposal would make clear how to form regular compounds, with Examples showing the principles already familiar to users but not clearly stated in the Code. The present Example 14 already exemplifies the requirement that the correct spelling of the generic name must be used, as also does the *Crocsmia* case.

(275) In Rec. 60F.1, delete everything after the first comma.

It is very widely established practice to decapitalise the initial letter of all specific and infraspecific epithets. However, the present Rec. 60F.1 seems to be an open invitation or encouragement for anyone to use capital initials for epithets derived from names of persons, vernacular names or former generic names. Most botanists would prefer to decapitalise the epithets in *Rosa Moyesii*, *Cestrum Parqui* and *Convolvulus Cantabrica* in horticultural or other literature, but the present explicit references to such cases as apparent exceptions in Rec. 60F.1 seems to significantly reduce the justification to argue for this. The present wording “although authors desiring to use initial capital letters may do so ...” seems particularly inappropriate since the context is merely a Recommendation anyway. Authors desiring to capitalise epithets in any name at all may do so at the moment—as in *Rosa Arvensis*. It seems preferable to promote a uniform system throughout rather than give any encouragement to people to sometimes adopt capitals.

(276–278) Proposals on ‘living types’

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Among cultivated plants in botanic gardens, some represent the original material from which the type was prepared. Due to an increasing necessity to establish the status of voucher specimens prepared from such living material, a new category of type is here proposed: clonotype. Concomitantly a differentiated nomenclatural treatment is proposed for the living material: pre-type.

Throughout the world, around 1,800 botanic gardens are recognized in 148 countries, maintaining in their living plant collections over 4,000,000 registered specimens, representing more than 80,000 species under registered cultivation, almost one third of all known species of vascular plants (Jackson, Bot. Gard. Conservation News 3(3): 27–30. 1999). Such living collections in botanic gardens are important mainly for representing a vast genetic diversity, thus constituting one of humanity’s greatest resources for ex situ conservation (Heywood in Heywood & Jackson, Trop. Bot. Gard. Role Conservation Developm.: 11–23. 1991).

This ex situ conservation work is even more significant in tropical countries where diversity is greatest and many taxa remain to be described while habitat destruction is accelerating. Increasing population and the consequent rise in ecological pressure has transformed tropical forests into the most threatened region of the planet in relation to the loss of species (Lugo in Wilson, Biodiversity: 58–70. 1988).

It is usual in botanic gardens around the world for living material conserved in registered collections to be complemented by voucher specimens in an herbarium. Whenever an herbarium specimen is collected from a living plant from which a type specimen has been previously prepared, a duplicate (of sorts) will have been made. However, such a specimen is not a duplicate as defined in the Code (Art. 8.3 footnote) because it was collected at a different time from the type specimen.

A type is simply that element to which the name of a taxon is

permanently attached. No matter how the circumscription of a taxon may change upon taxonomic revision, the type must be included within that circumscription. It is this mechanism of nomenclatural types that allows nomenclature to remain distinct from taxonomy (Nicolson in Taxon 26: 569–574). Thus all taxonomists who choose to use a given name for a taxon must include the type within the circumscription of that taxon. This ensures that when a taxon is delimited differently by taxonomists, the different circumscriptions will not be mutually exclusive. Thus types are the ‘ties that bind’ taxonomists together with regard to the application of names of taxa (Moore in Bot. Rev. (Lancaster) 69: 2–21.2003).

In various herbaria around the world, especially in those attached to botanic gardens, it has become almost impossible to distinguish whether an apparent duplicate of a type specimen is indeed part of the original material or was prepared from the recollection of a ‘living type’, by virtue of the possible exact transcription of the label.

The following proposals address this problem and aim to formalize the treatment of ‘living types’ cultivated at various botanic gardens of the world. The possibility of recognizing a ‘living type’ in a scientific collection cultivated in a botanic garden will minimize many barriers to the scientific and technological development of botany, regarding the utilization of modern methodologies. Genetic, anatomical, phytochemical, and other studies that require living samples will benefit from the highest possible level of certainty in taxonomic determination when a ‘living type’ is available. Although to the herbarium curator it may sound strange to use registered living plants in scientific collections of botanic gardens, to the curator of living collections it is very usual to receive requests to use such resources.

Art. 8.4 of the Code is very clear when stating that living plants cannot be designated as types. However, the same Article