

(304–305) Proposals to address admixtures (Article 8.2)

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Article 8.2 of the *Shenzhen Code* (Turland & al. in Regnum Veg. 159. 2018) states “For the purpose of typification a specimen is a gathering, or part of a gathering, of a single species or infraspecific taxon, disregarding admixtures (see Art. 9.14).” In turn, Art. 9.14 addresses the treatment of a type that “contains parts belonging to more than one taxon”. Because Art. 8.2 does not define admixtures, the cross-reference to Art. 9.14 in Art. 8.2 might suggest that an admixture is any type containing “parts belonging to more than one taxon” even though Art. 9.14 does not use the term “admixture”.

In fact, there is a definition of admixture in the Glossary, which states that an admixture is “something mixed in, especially a minor ingredient; used for components of a gathering that represent a taxon or taxa other than that intended by the collector”. Because this definition does not preclude a major ingredient mixed in from being an admixture, it is still not clear if an admixture is different from a specimen with more than one taxon.

In contrast, Turland (The Code Decoded, ed. 2: 70. 2019, <https://doi.org/10.3897/ab.e38075>) suggests that admixtures are not covered by Art. 9.14, stating “Admixtures are disregarded, e.g. microscopic algae or fungi in environmental samples, inseparably mingled bryophytes, epiphytes or their substrate plants, parasites or their hosts.” Presumably, these minor ingredients can be automatically disregarded without publishing anything.

We agree that there are two separate exceptions to the rule in Art. 8.2 that the type specimen be a single taxon. To clarify the distinction between Art. 9.14 and admixtures, we propose the following new Article to explain the rule and a clarification to Art. 8.2.

(304) Add a new Article in Art. 8 as follows, incorporating and amending the definition of “admixture” from the Glossary:

“8.n. An admixture is automatically disregarded irrespective of Art. 9.14, and does not prevent the gathering, or part thereof, from being a specimen or type specimen (Art. 8.2). An admixture is a minor ingredient mixed into a specimen, used for components of a presumed gathering that represent a taxon or taxa other than that presumed by the collector.”

(305) Amend the first sentence of Art. 8.2 as follows (new text in bold, deleted text in strikethrough):

“8.2. For the purpose of typification a specimen is a gathering¹, or part of a gathering, of a single species or infraspecific taxon (**but see Art. 9.14**), disregarding admixtures (see Art. ~~8.n9-14~~).”

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(306–314) Proposals to address subsequent type designations (Articles 9.14, 9.19 and Recommendation 9A.4)

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This set of proposals addresses Art. 9.14 and related issues in Art. 9.19 and Rec. 9A.4 of the *Shenzhen Code* (Turland & al. in Regnum Veg. 159. 2018). Article 9.14 states “When a type (herbarium sheet or

equivalent preparation) contains parts belonging to more than one taxon (see Art. 9.11), the name must remain attached to the part [...] that corresponds most nearly with the original description or diagnosis.”

The first proposal clarifies what, if any, action is required to “attach” a part to the name under Art. 9.14. While the cross-reference to Art. 9.11 suggests that a formal typification is required, the words “must remain” suggest that this attachment is automatic, or perhaps that publication of the correction without the use of “designated here” or other formalities is sufficient. While an automatic attachment may be useful in some cases, in others it may not be clear which part is most consistent with the original description, and botanists may disagree on the answer, leading to disparate treatment of the name.

To address this concern, we are of the view that a formal typification should be required. The following proposal would require one and is based on the language of Art. 9.17 (which provides that a type “that later is found to” consist of more than one specimen can be narrowed “by way of a subsequent [...]typification” to one of the specimens).

(306) Amend Art. 9.14 as follows (new text in bold, deleted text in strikethrough):

“9.14. ~~When a~~ **A** type (herbarium sheet or equivalent preparation) **that is later found to contain** ~~contains~~ parts belonging to more than one taxon (see Art. 9.11) **must nevertheless be accepted (subject to Art. 9.19 and 9.20), but may be further narrowed (by way of a subsequent typification)** ~~the name must remain attached~~ to the part (specimen as defined in Art. 8.2) that corresponds most nearly with the original description or diagnosis.”

The second proposal addresses the apparent contradiction between Art. 9.14 and Rec. 9A.4. Recommendation 9A.4 states “When two or more heterogeneous elements were included in or cited with the original description or diagnosis, the lectotype should be so selected as to preserve current usage.” While this Recommendation may have been intended to address untypified names, it also appears to apply to a type that contains more than one taxon; in that case, it recommends that current usage be maintained despite the rule in Art. 9.14 that the type be narrowed to the one corresponding most nearly to the original description. There is no explanation for the different treatments.

If one part of a type most nearly corresponds to the original description while the other preserves longstanding current usage, the application of Art. 9.14 leads to unnecessary nomenclatural instability. Revising Art. 9.14 retroactively might in some cases create instability; amending Art. 9.14 prospectively is not a problem in this respect. If there is no longstanding current usage, the designation should be left to the judgment of the designating parties, who may wish to consider the different usages of the name, the original description and the particulars of the specimen. To address this situation, we propose the following change to Art. 9.14.

(307) Add a new sentence to Art. 9.14 (new text in bold):

“9.14. When a type (herbarium sheet or equivalent preparation) contains parts belonging to more than one taxon (see Art. 9.11), the name must remain attached to the part (specimen as defined in Art. 8.2) that corresponds most nearly with the original description or diagnosis. **However, on or after 1 January 2026, a type that remains mixed must be narrowed to a part that preserves the traditional and current usage of the name insofar as possible.**”

If the protologue cites a specimen that does not preserve current usage and an illustration that does, Rec. 9A.4 incorrectly recommends that the latter should be designated in violation of Art. 9.12. It also appears that Rec. 9A.4 has not been revised to accord with

the current definition of original material. Finally, the last sentence does not reflect the actual language of Art. 9.19(c). We offer the following proposal to address these matters.

(308) Amend Rec. 9A.4 as follows (new text in bold, deleted text in strikethrough):

“9A.4. When ~~the original material consists of~~ two or more heterogeneous elements ~~were included in or cited with the original description or diagnosis~~, the lectotype should be ~~so selected~~ **designated so** as to preserve current **and traditional** usage **insofar as possible (but see Art. 9.12)**. ~~In particular, if~~ **If** another author has already segregated one or more elements as other taxa, one of the remaining elements should be designated as the lectotype provided that this element is not in **serious** conflict with the ~~original description or diagnosis~~ **protologue** (see Art. 9.19(c)).”

Article 9.19(b) provides that a type may be superseded if it is shown that it is contrary to Art. 9.14. Article 9.14 does not provide what, if anything, is required to show which part most closely resembles the original description, and a proposal in that regard might be controversial. However, if an author later shows that the earlier-designated part is contrary to Art. 9.14, the earlier part was necessarily unacceptable when first designated; in fact, there is nothing to supersede. To resolve this situation the following proposal is presented.

(309) Add a new sentence at the end of Art. 9.14 and delete Art. 9.19 clause (b) (new text in bold, deleted text in strikethrough):

“9.14. When a type (herbarium sheet or equivalent preparation) contains parts belonging to more than one taxon (see Art. 9.11), the name must remain attached to the part (specimen as defined in Art. 8.2) that corresponds most nearly with the original description or diagnosis. **Any later designation from this type contrary to this rule has no standing.**”

“9.19. The author who first designates (Art. 7.10, 7.11, and F.5.4) a lectotype or a neotype in conformity with Art. 9.11–9.13 must be followed, but that choice is superseded if (a) the holotype or, in the case of a neotype, any of the original material is found to exist; the choice may also be superseded if it can be shown that (b) ~~it is contrary to Art. 9.14 or (c)~~ **it is in serious conflict with the protologue [...].**”

The next proposals clarify that neither Art. 9.14 nor 9.17 applies to illustrations. Both of these Articles apply to “types” (which includes both specimens and illustrations) but have additional language referring to specimens without mentioning illustrations. While many treat that language as sufficient to exclude illustrations from their coverage, some have designated a second-step lectotype to exclude a portion of an illustration previously designated as the type. The following proposals explicitly state that illustrations are not covered by either Art. 9.14 or Art. 9.17.

(310) Add a new Note after Art. 9.14:

“*Note n.* Article 9.14 does not apply to illustrations. An illustration that contains parts belonging to more than one taxon cannot be a type, and any prior indication or designation of such an illustration as a type is not effective unless the prior indication or designation limited the type to one taxon.”

(311) Amend Art. 9.17 as follows (new text in bold):

“9.17. A designation of a lectotype, neotype, or epitype **(in each case, excluding illustrations)** that later is found to refer to a single gathering but to more than one specimen must nevertheless be

accepted (subject to Art. 9.19 and 9.20), but may be further narrowed to a single one of these specimens by way of a subsequent lectotypification, neotypification, or epitypification (see also Art. 9.14)."

The next proposal addresses the rule in Art. 9.19 that states "The author who first designates (Art. 7.10, 7.11, and F.5.4) a lectotype or a neotype in conformity with Art. 9.11–9.13 must be followed, but that choice is superseded [in certain circumstances]". The purpose of "in conformity with Art. 9.11–9.13" is not immediately clear. While it may have been added because the supersession rules in Art. 9.19 are not applicable to Art. 9.16 (which has its own supersession rule in Art. 9.18), it fails to state that a type designated in Art. 9.14, 9.16, 9.17 or 9.19 must be followed, and those four Articles do not state that a type designated under the applicable Article must be followed. The requirement that a type be followed also arguably conflicts with the rules that permit a new type to be designated if the earlier one is lost, destroyed or missing. To address these matters, the following changes are proposed.

(312) Amend Art. 9.19 as follows (new text in bold, deleted text in strikethrough):

"9.19. The author who first designates (Art. 7.10, 7.11, and F.5.4) a lectotype or a neotype in conformity with **the relevant rules of Art. 9.11–9.13** must be followed, ~~but that choice unless a new replacement type is designated in conformity with the relevant rules of Art. 9. Any lectotype or neotype (other than a neotype under Art. 9.16)~~ is superseded if (a) the holotype or, in the case of a neotype, any of the original material is found to exist; the ~~choice~~ **designation** may also be superseded if it can be shown that [...]."

Article 9.19(c) states that if the type seriously conflicts with the protologue, "an element that is not in conflict with the protologue is to be chosen; a lectotype may only be superseded by a non-conflicting element of the original material, if such exists; if none exists it may be superseded by a neotype". Because there is no requirement to designate a non-conflicting lectotype or neotype, the only

apparent reason to require it in Art. 9.19(c) is to avoid a second supersession. In any case, this standard is too strict, especially because many protologues are now quite long and exceedingly detailed: any conflict whatsoever arguably renders the new typification ineffective. Finally, the last part of the rule states that if no non-conflicting elements of original material exist, then a neotype, theoretically including one that seriously conflicts with the protologue, may be designated. To address these matters, the following amendments to Art. 9.19(c) are proposed.

(313) Amend Art. 9.19 clause (c) as follows (new text in bold, deleted text in strikethrough):

"9.19. [...] (c) it is in serious conflict with the protologue, in which case an element that is not in **serious** conflict with the protologue is to be ~~chosen~~ **designated**; a lectotype may only be superseded by ~~an a non-conflicting~~ element of the original material **that does not seriously conflict with the protologue**, if such exists; if none exists it may be superseded by a neotype **that does not seriously conflict with the protologue**."

Article 9 Ex. 15 provides that a herbarium sheet designated as a type containing more than one gathering (and more than one taxon) can be superseded under Art. 9.19(b) with a new designation to comply with Art. 9.14. However, Art. 8.2 (and Ex. 3 thereunder) is very clear that a specimen cannot include more than one gathering. As such, the sheet simply cannot be the type, and the original designation has no nomenclatural standing. To avoid future confusion related to this subject, we propose the deletion of Ex. 15.

(314) Delete Art. 9 Ex. 15.

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(315–316) Proposals to clarify the role of epitypes and to further nomenclatural stability with regard to epitypes and neotypes

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The nomenclatural problems emerging from epitype designations (see Art. 9.9, also Art. 9.17, 9.20 and 9.21 of the *International Code of Nomenclature for algae, fungi, and plants*, the "Code": Turland & al.

in *Regnum Veg.* 159. 2018), especially situations when an epitype and the type it supports differ taxonomically, were recently considered and discussed in several publications (e.g. Ariyawansa & al. in *Fungal*