



What Is a Specimen?

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NOMENCLATURE

Edited by Dan H. Nicolson¹

What is a specimen?

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Summary

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There is some ambiguity in what is meant by the word “specimen” in the *International code of botanical nomenclature*. Some cases are discussed and the need for amending the Code, as well as adding certain examples, is considered.

Since the *International code of botanical nomenclature* uses the word “specimen” in its definitions of most sorts of types, we might hope that the word should be readily understood and unambiguously used in this context. However, we find that in general parlance botanists use the word with different concepts in mind.

In the context of higher plants in herbaria, a “specimen” may variously mean one herbarium sheet, or one out of two or more plants or pieces of a plant mounted on one herbarium sheet, or one plant mounted on more than one herbarium sheet. Sometimes there may be associated spirit material from the same collection, or spirit material alone. Occasionally a higher plant specimen in a herbarium might be housed in a box or other package, or have carpological material in a box. When cryptogamic groups are taken into account, a specimen may be placed in a packet, or mounted on a slide (or slides?) or “other preparation”. How are these problems of definition reflected in the *Code*?

Most of the time the current wording of Art. 9.1 and 9.2 does not present a problem. However, in a small number of cases where it becomes necessary to question what is meant by a specimen, we find an ambiguity between these two paragraphs. Art. 9.1 states that a type “is a *single* specimen or illustration except in the following case: for small herbaceous plants and for most non-vascular plants, the type may consist of *more than one individual*, which ought to be conserved permanently on one herbarium sheet or in one equivalent preparation (e.g. box, packet, jar, microscope slide)” [our emphases]. If the *Code* intended to allow us to interpret a specimen as all the material on one herbarium sheet (or equivalent preparation), this Article would not say “except in the following case...”, it would say “including the following

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case . . .". On the other hand, Art. 9.2 clearly implies that a herbarium sheet, even if it bears several different plants, can be considered to be a single specimen.

If the implication of Art. 9.1 is that when more than one plant or piece of a plant is mounted on one sheet, the word "specimen" applies to each individual plant or piece, then this has major consequences. In Art. 7.3 a holotype is defined as "one specimen", which might then exclude a herbarium sheet bearing several individuals and result in invalidity of the name concerned. It has certainly been argued to us that if there are two plants or pieces of a plant on one herbarium sheet, this sheet cannot be a holotype (or lectotype) because it includes more than one specimen. In a paper concerning small herbaceous plants in *Brachyscome*, G. L. Davis (Proc. Linn. Soc. New South Wales 73: 142-241. 1948) consistently recognized one out of several plants on one herbarium sheet as the holotype. Similarly the holotype of *Ipomoea ephemera* Verdcourt (Kirkia 1: 30. 1960) is given as only one of eight small annual plants mounted on one herbarium sheet. In such cases other individuals on the same sheet are isotypes. But this surely is contrary to the common interpretation by many botanists. To most of us a type specimen is usually a herbarium sheet, which may include more than one plant or piece of a plant.

Furthermore, the wording in Art. 9.1 "which ought to be conserved on one herbarium sheet . . ." allows the (apparently undesirable) possibility that the individual plants may be mounted on more than one sheet. Can a type be different individuals mounted on more than one herbarium sheet? Apart from the fact that recommendations on herbarium practice are inappropriate in an Article of the *Code*, the wording of Art. 9.1 seems unsatisfactory and gives rise to doubts.

And further, the problem is not confined to small herbaceous plants. Large plants may require to be mounted on more than one herbarium sheet. Authors describing a new species occasionally do cite more than one herbarium sheet as the holotype. Examples would include male and female plants, or flowering and fruiting plants, from the same collection mounted on different sheets, or large leaves or inflorescences divided into pieces and mounted on more than one sheet (which often happens in palms, for example). Must an author choose one of these sheets and designate this as the holotype of the name, or can all such sheets be interpreted as constituting a single specimen, all of which make up the holotype? If a narrow view were taken, requiring that a specimen cannot be more than one herbarium sheet, an author designating two sheets of the same plant as the holotype of a new name would be considered to have not validly published the name. Such a narrow view would have serious implications for nomenclature within a family such as the palms and would restrict greatly the amount of information retrievable from a holotype. What would be the position in the case of *Hopea andersonii* subsp. *basalticola* P. S. Ashton (Gard. Bull. Straights Settle., ser. 3, 22: 273. 1967), where the author had worked on unmounted material at Kew and designated a holotype that was subsequently divided by the mounters and placed on three herbarium sheets? Here it seems imperative to regard the three sheets as one specimen, all of which constitute the holotype.

On the other hand, it may perhaps seem undesirable to allow that one type specimen may include pieces taken from different plants (perhaps male and female of a dioecious species) especially if from different localities at different times. Thus *Pogonophora africana* Letouzey (Adansonia, ser. 2, 9: 273. 1969) must be taken as invalid since two holotypes are designated, one male and one female, collected from different localities at different times by different collectors. A less clear-cut case, which possibly could also be considered to be invalid, is provided by *Hymenocallis*

incaica Ravenna (Nord. J. Bot. 6: 463. 1986), for which the holotype was said to be inflorescences collected in Nov. 1982 (No. 2880) and leaves from the same cultivated plant collected in March 1983 (No. 2880b). Where does one draw the line between one specimen and two? In the compilation of *Index kewensis* all these questions have to be faced from time to time. In families that consistently have very large leaves or inflorescences, such as the palms, it may be a frequently recurring problem.

Elsewhere in this issue (p. 602) we propose a re-wording of Art. 9.1 (Prop. 159), and, while there may be further difficulties in defining "plant" when cases such as rhizomatous perennials are considered, we believe the new wording will allow for the most common-sense interpretation of "specimen" in most cases encountered. The revised wording of Art. 9.1 makes the second sentence of Art. 7.5 redundant. As it is also preferable to concentrate problems of mixed types under Art. 9.1 we propose its deletion (Prop. 161).

The wording of our main proposal would allow an author to designate both male and female pieces, or both flowering and fruiting pieces (on one or more sheets), as the holotype of a new name. However, this may not necessarily be the most desirable practice from a taxonomic point of view. Mistakes can be made, and mixed collections including more than one taxon do occur. In the case of dioecious species, to avoid any possible error, it may be preferable to nominate either the male or the female piece as the holotype of a name. A new Recommendation 9B.1 would advise to do this (Prop. 160).