oldhamianus Williamson occurs in all Lepidophloios species plus one additional whole-plant genus, whereas the megasporangiate cone Lepidocarpon lomaxi Scott is confined to the whole-plant genus Lepidophloios. The megaspore Cystosporites giganteus (Zerdn) Schopf is found throughout Lepidophloios and two other whole-plant genera. Although contrasting organ-species of both Lycospora Schopf, Wilson & Bentall microspores and Lepidophloios Sternb. stems+branches are unique to each of the three whole-plant species recognised within the whole-plant genus Lepidophloios, the stems reliably provide more diagnostic characters than the microspores. Thus, the organ-species of root+rootlet, microsporangiate cone, megasporangiate cone and megaspores are perceived as form-species of varying degrees of taxonomic generality, whereas the organ-species representing stem+branch and microspores are perceived as autapo-species that are genuinely diagnostic of the source fossil plant.

Postscript

Readers will note that, prior to making the above recommendations, we have not discussed the complex issues that surround selecting a formal name to represent a reconstructed whole-plant species (e.g., Chaloner in Spicer & Thomas: 67–78. 1986; l.c. 1999). This is not an accidental omission; we have chosen in this article to concentrate on nomenclatural issues that, we believe, pertain across all palaeobotanical activities; our interests and recommendations are informed by, rather than confined to, the more specialised discipline of whole-plant reconstruction.

For the sake of completeness, we will state that we agree in principle with Cleal & Thomas that a conceptually reconstructed plant can be referred to as ‘the Bilignea solida plant’ rather than ‘Bilignea solida Scott’. However, this supposedly informal designation (“outside of a formally codified system of nomenclature”: Cleal & Thomas, l.c.: 262) still employs a formal Linnaean binomial. Thus, the choice of a binomial to represent the whole-plant species, selected from among the available organ-species binomials, inevitably becomes vulnerable to application of the law of priority. If this law were rigorously applied in such cases, it is unlikely that the oldest names for two sister-species would represent the same category of organ (e.g., leaf), and even less likely that the first-described organ(s) would happen to bear the autopomorphic character state that in practice diagnoses the whole-plant species. Nor is the oldest name likely to represent the organ that bears the largest number of taxonomically informative character states within the relevant genus, family and so forth.

In our opinion, a maximally informative and utilitarian nomenclature for conceptual whole-plants will require suspension of the law of priority in the majority of cases, potentially precipitating a plethora of recommendations to conserve maximally informative younger names against suboptimally informative oldest names. The irony of the resulting paradox is not lost on us; the main driver to painstakingly reconstruct fossil plants from plant fossils sensu Cleal & Thomas (l.c.) is to approach the degree of morphological knowledge available to systematists for extant plants. Yet, in doing so, the nomenclatural rules in the present Code, developed primarily for extant plants, become increasingly difficult to apply.

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(177–182) Proposals concerning names of taxa above the rank of family

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The Code (McNeill & al. in Regnum Veg. 146, 2006) makes a very important difference between names above family rank and those at family rank and below. The latter are subject to the principle of priority, and every taxon (with the exception of eight families listed in Art. 18.5) can have only one correct name in any one circumscription, position and rank. In contrast, those above the rank of family are not subject to priority, and one taxon may have numerous different names which are all correct. At ranks such as order, one can choose any name previously published at that rank, or, if one likes, choose a new name. This difference impinges on author citations and valid publication of higher names.

If in a taxonomic publication one accepts a taxon above the rank of family, such as an order, one is generally not very interested in who first published the name that one adopts. Of much greater significance is whether any previous author or authors have adopted the name in the same sense. For instance, if one is referring to the order Ericales, it is relevant to know whether one is using the name in the sense of Lindley (who first published the name), or Bentham and Hooker, or Engler, or Cronquist, or APG or anyone else. So why do we write Ericales Lindley? Nobody worries if the names Magnoliophyta or Pinophyta are written without author names following them, and to do so would seem to have no benefit. In many contexts, it would be preferable to encourage authors to write, wherever relevant, “sensu” followed by an earlier author who has used the name in the same or very similar sense, or, if the name has been used before but only in a significantly different sense, to add “sensu novo.”

Valid publication at ranks of family and below determines the date from which priority operates. But at ranks above family there is no priority, and the concept of valid publication is meaningless. There is no penalty for publishing a name invalidly. If a name is published without a Latin description, it does not matter, because anybody in future can use that name or any other name they like. So why do we insist on having a (Latin) description for names of orders etc.? It serves no function. We can operate perfectly well without the concept of valid publication above family rank. Below is a package (Prop. 177–180) aimed at removing the citation of author names and the concept of valid publication for names above the rank of family.

There are also some concerns about the rules governing the orthography of names at these higher ranks. Recommendation 16A appears to merely recommend which terminations are to be adopted at various ranks, which suggests they are not obligatory. But Art. 16.3
rules that if this Recommendation is not followed, the termination must be changed – effectively making the Recommendation into a part of the Article. This is comparable with Art. 60.8 and 60.11, where Recommendations in the Orthography section are made obligatory; this has often been criticized, and proposals have been made that this illogical organization of the Article be changed. It seems appropriate to revise Art. 16 in that way, and a wording is here suggested (Prop. 181) which avoids reference to valid publication.

Finally, Art. 17.1 makes a similar ruling for names of orders and suborders, and it seems tempting to suggest that this be simply moved to a logical position in Art. 16. However, a slightly different solution is here proposed (Prop. 182). In literature current today, it seems that names of orders and suborders consistently are automatically typified names, i.e., names based on the name of an included family, which will in turn be based on the stem of a genitive of a generic name (see Art. 16.1(a)), such as Ericales based on Ericaceae and Erica. But some names of orders introduced a century or more ago are descriptive names not based on a family and genus name (see Art. 16.2(b)), such as Parietales and Centrospermae in Ex. 2. When practice today is apparently quite uniform in not adopting descriptive names of orders, it seems desirable to enforce use of automatically typified names rather than allow possible proliferation of descriptive names such as Parietales in future. Those descriptive names which exist would then be incorrect (the concept of valid publication being not relevant) under the present Code. We can be sure in this molecular age that names of orders will be subject to many fluctuations, and now is an appropriate time to enforce consistency.

I. Proposals restricting the concept of valid publication to the ranks of family and below and its implications for citation of authorship:

(177) Adjust Art. 32.1, 32.7, 35, 36.1, and 36.2 to make them applicable only to names at the rank of family or below, including changing Art. 16 to Art. 18 in references to other Articles in Art. 32.1 & 32.7, and amending Art. 6.3 and 12.1 as follows:

In Art. 6.3, after the second “name”, insert “applied to a taxon at the rank of family or below” and in Art. 12.1, after “taxon”, insert “at the rank of family or below”.

(178) Replace Art. 16 Note 2 with the following:

“Principle III concerning priority of publication, and the rules of valid publication (Art. 32–45) and author citations (Art. 46–50), do not apply to names above the rank of family (Art. 11.10, 32.1 and 46.x)”

(179) Replace Rec. 16B.1 with the following:

“In adopting a name for a taxon above the rank of family, authors should, wherever relevant and possible, choose a name which has been used in the same sense, or in almost the same sense, by a majority of previous authors.”

(180) In Art. 46.2, line 1 and again in Art. 46.4, line 1, after “name of a new taxon”, insert “at rank of family or below”, and somewhere in Art. 46 add a new sentence reading “Author citations are not used after names of taxa above the rank of family.”

II. Proposal to clarify that the terminations of the names at ranks above that of family are obligatory:

(181) Replace Art. 16.3 with the following and accordingly delete Rec. 16A.1:

“The name of a division or phylum ends in -phyta, unless it is referable to the fungi when it ends in -mycota. The name of a subdivision or subphylum ends in -phyta, unless it is referable to the fungi when it ends in -mycota. In the algae, the name of a class ends in -phyceae, and of a subclass in -phyciidae. In the fungi, the name of a class ends in -mycetes, and of a subclass in -mycetidae. In other groups of plants, the name of a class ends in -opsida and of a subclass in -idae but not -viridae. Automatically typified names not in accordance with these terminations are to be corrected.”

III. Proposal precluding the use of descriptive names at the rank or order and suborder.

(182) Insert “, except for orders and suborders,” between “or” and “(b)” in Art. 16.1 and re-word Art. 17.1 with the following:

“Names of orders and suborders are automatically typified names ending in -ales (but not -virales) and -ineae respectively. Names not so written are not to be used.”

(183–184) Proposals to require deposition of information concerning typification of names of fungal taxa, with an associated Recommendation

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Proposals 117–119 (Hawksworth & al. in Taxon 59: 660–662. 2010) would make the deposition of nomenclatural information for all newly introduced names of fungal taxa a prerequisite for valid publication. These proposals were favourably received by mycologists at IMC9 in Edinburgh in August 2010 and are likely, therefore, to be accepted at the XVIII International Botanical Congress in Melbourne in July 2011. It is proposed that this form of registration of new names would become compulsory for valid publication from 1 January 2013 onwards. Of similar importance is good documentation of all actions of typification of pre-existing names. Article 7.10 already specifies that designation of a type is achieved only by effective publication. Therefore, I propose to add a clause that also makes deposition of this action in the respective record in the recognized repository compulsory for effective typification from 2013 onwards.