



Fried spicy Linnaeus—the consequences of indiscriminate citation of authors of scientific names

MAURICE KOTTELAT

Rue des Rauraques 6, 2800 Delémont, Switzerland. E-mail: mkottelat@dplanet.ch

Field work provides biologists with opportunities not only to observe and collect the organisms needed for their research, but also to collect information on the use of natural resources. Among ichthyologists, the most common method for the latter is probably culinary exploration. As a fish taxonomist, one of the most surprising offers I have ever had was to eat "Linnaeus". At first glance this sounded like the parricidal and cannibalistic resolution of a taxonomic oedipus complex.

I worked on several occasions in Laksao, a small town in a remote area of Laos, now increasingly visited by foreigners. One of the restaurants there has a menu in Lao language (and Lao script) as well as in English (Fig. 1). Under "Fri[e]d food", between "Fried Chinese white oyster sauce" and "Fried spicy beef" there was a seemingly exotic "Fried spicy Linnaeus". No taxonomist can fail to be intrigued by such a degustative extravagance. The Lao original text makes it clear that the "Linnaeus" is the catfish Pa Duk, i.e. *Clarias batrachus* (Linnaeus, 1758) (see Ng & Kottelat 2008).

Laborious interrogation of the chef suggested that the fish's name Linnaeus had been derived from an unpublished report or a book in which the name of the fish in Thai language (to which Lao language is closely related) was accompanied by the scientific name of the fish in italics followed by the name Linnaeus in a regular font, or an illustration with the caption *Clarias batrachus* (Linnaeus). *Clarias batrachus*, in the unusual italic font, was evidently known by somebody to be a scientific name and the next word, in normal (Roman) font, could then only be the English name of the fish, and therefore the logical name to use on a menu.

I did not try the dish and so cannot comment on gastronomic value of Linnaeus.

This offbeat anecdote, however, gives me an opportunity to reflect on the wisdom or otherwise of quoting the names of authors of scientific names in the non-scientific literature.

The citation of authors' names is a particular issue in zoological nomenclature, and a frequent source of problems because many authors themselves, and most users, misunderstand its purpose. Taxonomists know (?) that the citation of author name+year is a bibliographic tool (Ng 1994). It is not intended to demonstrate property ('ownership' of the name) or to enhance the author's fame. Unfortunately, this last misconception suggests an obvious explanation of the 'taxonomic noise' created by the activity of a few authors of a flow of short-lived taxa justified only by the satisfaction of their egos.

This misconception is also obvious when, as a result of taxonomic revision, a nominal species must be placed in synonymy. It is usually not a problem if the junior synonym is authored by an experienced taxonomist (we know it happens); but it is often perceived as a personal affront if the name had been the only one ever created by its author. Such authors may perceive such synonymization as the destruction of their life-work. This misconception also makes us enjoy the ridiculous sight of a taxon name followed by a list of (say) five co-authors, in a list of 14 co-authors of the paper; or a name authored by A & B, in B & A.

Furthermore, the citation of author names has been misunderstood or misinterpreted by some non-taxonomists who have reduced taxonomy to a game played with the names of authors, rather than a science basal to biology.

We would certainly save ourselves most of these troubles if we would have a bibliographic tool that does not require the mention the name of the author of a taxon name. Some have suggested mentioning only the year (needed, for example, to determine seniority of synonyms) (Dubois 2008). But this system does not directly point to the bibliographic reference. In the age of electronic publication, hyperlinks can fulfill this function, but these would not work when away from internet or electricity.

On the other hand, the mention of the author of a name provides a lot of information on the historical context, the philosophical principles invoked, the species concept used or the general quality of the work. Often, before going to the original description, one can already know what to expect (e.g., Linnaeus's species will have no senior synonyms and the

description itself will often be useless; in ichthyology J. F. Gmelin's and W. J. Swainson's names are likely to be unnecessary replacement names; species of Francis Hamilton will have no types; species described by X will be based on aquarium specimens with faked locality data, those by Z are most likely based on very sound and reliable work, those by one's preferred enemy will of course be of doubtful validity, etc.).



FIGURE 1. The menu of a restaurant in Lak Sao, Laos, offering the enigmatic "Fried spicy Linnaeus" in 2006.

Another issue related to author names is: when to cite them? The mention of the authors and dates of names is not required by the International Code of Zoological Nomenclature but is common practice for the reasons mentioned above (both the negative as well as the positive). In my eyes, the citation is justified in works dealing with taxonomy but is not justified in other fields (ecology, physiology, medicine etc.). In the case of taxonomic works, they function as a bibliographic tool and the paper should logically include a full bibliographic reference for each name. If hundreds of names are listed, are the citations of all references really needed, or is a reference to a published catalogue an acceptable surrogate? Is a complete bibliographic reference to Linnaeus (1758) and other such classical works always really justified? In the case of animal groups that have been worked mainly by a very prolific author, does it not look odd or suspicious if his papers unavoidably end with long lists of references largely authored by him?

Complete bibliographic references, of course, contribute to the impact-factor statistics (admittedly an intellectual fraud and a scientific suicide for institutions, journals and scientists, whose avoidance, alas, is a luxury that too many cannot afford). Complete bibliographic citations are absolutely justified since citing the author of a name [= a taxonomic hypothesis] is the citation of the results of research and deserves as much credit as citing the author of an ephemeral molecular phylogeny. Further, authors and editors of taxonomic papers and journals should cite the primary references, not refer to (on-line) databases. Citing a compilation, by non-specialists, as a source of taxonomic information (for example a synonymy), instead of the original works abstracted by the compiler, should not be accepted as good practice by taxonomists and editors since this deprives the real authors of the citations of their work that might be used to evaluate them. Further, the indiscriminate use of on-line databases can result in the proliferation of mistakes: these databases may be marred by errors, have no quality control, and cannot be verified. What is the purpose of citing "http://www.xaybzc.org/ last visited 31 March 2014" when it will never be possible to check what information was really posted that day? Databases are not information, but tools to locate information; scientists have to check the information in the actual source and cite the actual source. It seems a truism (supported by my experience as an editor) that a significant share of authors do not check all the references they cite.

Author-name citation is less justified, however, in the title of an article except in a paper that deals with nomenclatural issues that absolutely require it.

Many journals (including *Zootaxa*) impose the citation of the authors of scientific names the first time a name is used in an article. This often results in reducing the readability of texts, or to apparent inconsistencies when lists of species are given in a discussion, some of which are cited for the first time (with author) and some that have already been mentioned earlier (without author). This can be exacerbated if the journal uses different fonts for authors of names and for authors of works. Instead of insisting on the first-citation rule, the authors of names could more judiciously be given in a location where their mention does not impact readability, or where they can all be cited together. This could be conveniently done in a table. Adding such a table was a space and cost problem in the era of printing, but space is not an issue in electronic publication if one escapes page charges (where pages are electronic and volatile, but charges are in hard currencies).

The problem of the citation of author names becomes more ambiguous in publications aimed at readers who either do not know about taxonomy or the existence of rules (well, some taxonomists too, do not know the rules, or even that there are rules) or have difficulties with foreign languages. It is common to see lists of animal names, painstakingly copied, difficult to pronounce, together with the names of their authors, often even more difficult to pronounce. And if such author-names are copied from works that also include the descriptions of new species, then it is not the author name that is copied, but 'n. sp.', 'spec. nov.' or 'new species'. This is how, a century after its original description, *Rasbora pauciperforata* Weber & de Beaufort, 1916 still appeared as "*R. pauciperforata* n. sp." in, for example, a list of prey species in a paper on fish ecology whose author was forced by the editor to add author names and who compiled them from Weber & de Beaufort's book. Such errors are detrimental to the authors as they may give the impression that the paper is written without care for details. What is the added benefit? Anyone who has seen a colleague trying to decipher, pronounce and copy for a manuscript on fish ecology, for example, "*Acanthopthalmus kuhlii sumatranus* Valenciennes, in Cuvier & Valenciennes, 1846" would certainly question whether this makes sense (in addition, the actual author of the name is Fraser-Brunner, 1940; see Kottelat 2012, 2013). [For obvious reasons, I do not cite references to these unfortunate authors].

For these reasons, I recommend that the names of authors not be cited in non-taxonomic literature, in literature aimed at a lay readership, or in literature where it consumes space but provides no added value. Does the mention of authors of hundreds of names make sense in a field guide? What is the benefit? Who needs author names to identify animals in the field?

In a bilingual book on freshwater fishes of Indonesia, we (Kottelat *et al.* 1993) omitted authors' names for about 1,000 species, saving ourselves and our users 1,000 opportunities to introduce errors. Interestingly, this is the aspect of the book that received negative comments in reviews published in Europe and North America. In later books on the fishes of Laos and of Europe (Kottelat 2001; Kottelat & Freyhof 2007), I/we did not cite names of authors in the text but compiled them in an appendix, just for those who really could not survive without this information.

Another example of citations of author names where they are not needed is the lay literature, such as aquarium or terrarium magazines, where some authors are paid by the line or need to display their vast knowledge. This affliction, however, is hard to cure.

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