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'Googleology' revisited: an additional tool for preventing zoological homonymy

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Homonyms at the genus-group level in zoological nomenclature are not just "embarrassing for an author to discover or be told that his proposed name is preoccupied, but for all concerned it is a nuisance and an expense to make the corrections required" (Oehser 1935: 962). Names at the genus-group level are also the most "abundant source of homonyms" (Patterson *et al*. 2009: 688). Most preoccupied names will require a published article of at least half a page to replace them, and can lead to acrimonious debates in scientific literature, especially if this is done by data-miners who are not specialists of the groups (see Krell 2009: 274).

Dubois *et al*. (2011: 59) recommended a procedure for minimising the probability of the creation of a new homonym at the genus-group level, suggesting that authors check potential names against the electronic *Nomenclator Zoologicus* (NZ, http://uio.mbl.edu/NomenclatorZoologicus; Remsen *et al*. 2006) which has 343,143 names, and the *Index of Organism Names* (ION, http://organismnames.com) which has 1,561,937 names.

Here, we highlight an additional database: the *Global Names Index* (GNI, http://gni.globalnames.org/name_strings) which contains 17,275,622 name strings, which are "correctly and incorrectly spelled scientific names with or without author information, or nomenclatural annotations" (Patterson *et al*. 2010: 688). The utility of the GNI is highlighted by the example of *Jonesius*. The name as used by Sankarankutty (1962) is listed in both the NZ and ION, but not its earlier use by Yamaguti (1959), which is listed only in the GNI (see Low & Ng 2012).

An additional strength of the GNI is that the search result is returned within the context of related name strings, akin to viewing a page of the paper NZ volumes. All combinations of species-group names captured in the GNI can also be listed, which can aid in preventing cases of secondary homonymy in species-group names as well. Genus-group names with similar spellings will also be listed (for example, a hypothetical "*Jonesia*") and may help in preventing future homonymy at the family-group level.

The use of 'Googleology' as a tool in nomenclature has been criticised due to its earlier misapplication in other nomenclatural contexts (Lawrence *et al*. 2010: 246–253). However, the usefulness of this tool in preventing homonymy becomes clear when simply searching for <"Jonesius" site:gni.globalnames.org>; entering such a string allows a user search the GNI website (gni.globalnames.org) for the name exactly as spelled within the quotations marks (*Jonesius*). There is no need to call up the website first before searching for the name. Further refinement of Google searches is possible (http://google.com/insidesearch/tipstricks/all.html).

Two other features of Google will prove to be indispensable in the current context. The first is Google's Custom Search Engine (http://google.com/cse) which allows users to create, save and share a customised search. Using this tool, a customised search that checks the NZ, ION and GNI websites could be created. Another tool is Google Books (http://books.google.com) with millions of pages of digitised and searchable text. Google Books also allows users to search within books published during a selected period, the relevant period being post-1758. Locating possible senior homonyms is also possible with the search being restricted to the period between 1758 and the year a potentially preoccupied junior homonym was proposed.

We acknowledge that using a search engine that encompasses all forms of information will often return many 'false positives'. Nevertheless, having to check an additional number of potential senior homonyms is better than creating another junior homonym. As Dubois *et al*. (2011: 60) rightly remarked: "Having to change a *nomen* because of homonymy shortly after its publication consumes more time, energy and paper than searching for potential homonyms initially".

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