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## Electronic publication in zoological nomenclature and taxonomy: problems, responses and solutions

ZHI-QIANG ZHANG<sup>1,2</sup>

<sup>1</sup> Landcare Research, 231 Morrin Road, Auckland, New Zealand. Email: [zhangz@landcareresearch.co.nz](mailto:zhangz@landcareresearch.co.nz)

<sup>2</sup> Centre for Biodiversity & Biosecurity, School of Biological Sciences, University of Auckland, Auckland, New Zealand

In September 2012, the International Commission on Zoological Nomenclature (ICZN 2012) published an amendment of Articles 8, 9, 10, 21 and 78 of the *International Code of Zoological Nomenclature* (ICZN 1999) to allow electronic publication in zoological nomenclature and taxonomy (see also Zhang 2012). Late last year, a paper in *Zootaxa* (Dubois *et al.* 2013) reviewed some of the problems related to electronic publication of zoological nomenclature and taxonomy, and in turn evoked rapid reactions from *Nature* (Anonymous 2013) and BMC (Harold *et al.* 2013). This issue of *Zootaxa* contains a response to Dubois *et al.* (2013) from the International Commission on Zoological Nomenclature (ICZN 2014), and a formal response from the editors of BMC (Moylean *et al.* 2014). *Zootaxa* is pleased to provide a forum for discussions of this type, and encourages debate on issues important in zoological nomenclature and taxonomy (Zhang 2007).

Dubois *et al.* (2013) correctly raised some of the problems in *Code* compliance experienced by some publishers, and drew attention to a few ambiguities in the *Code* (ICZN 1999) and its amendments (ICZN 2012). This is helpful both for the community in terms of better *Code* compliance in the future, and for the ICZN in the preparation of the next edition of the *Code*. However, the paper by Dubois *et al.* (2013) is much longer than a normal forum piece and some key messages are unfortunately buried in the details. The good intentions of Dubois *et al.* are not best served by (1) their anti-e-publication tone, which caused harsh reactions from *Nature* (Anonymous 2013) and also “bewildered” BMC editors (Moylean *et al.* 2014); and (2) the discussions of many issues “outside the scope indicated by their title” (ICZN 2014), which “sometimes conflated or obscured” the main issues of the paper. It is thus very welcome that the ICZN’s response is neutral in its tone and concise, focusing on key issues.

ICZN (2014) responded positively to Dubois *et al.* (2013), and encouraged the community to participate in the discussion of the *Code*, discussions that should help with the preparation of its next edition. As expected, ICZN (2014) confirmed that new names and nomenclatural acts in online-only papers before 2012 are not available. However, it also considered that in the interest of nomenclatural stability, as stated in the Preamble of the *Code*, these unavailable nomenclatural acts may be made available retrospectively if publishers submit cases to ICZN following the procedures defined in the *Code*. Dubois *et al.* (2013, p. 38) specifically advised against this procedure. ICZN (2014) also clarified the misunderstanding about the “famous five copies” provision concerning e-publication on optical discs, and confirmed that the production of paper copies conforming to Article 8 does not confer availability to the electronic online edition but “may form a separate edition that on its own makes names and acts available”. These clear messages provide directions for online publishers to deal with non-compliant pre-2012 e-only papers, and one publisher—BMC—already finds these very helpful and plans to work closely with ICZN (Moylean *et al.* 2014). In response to the claim by Dubois *et al.* that the “new Rules are much more complex than those that have been in force so far” (p. 35), ICZN (2012) argued that the Amendment in fact simplified the rules by “removing the entire text of Article 8.6”, and pointed out that the ZooBank registration process in particular is “simpler to accomplish electronically than by using the classical model of print on paper”. Indeed, in 2013, the leading taxonomic journal *Zootaxa* alone published about a quarter of new names and nomenclatural acts in zoology in its online edition (the version of record)—this is based on my own estimate (but also see related data in Zhang 2014). At least another quarter of new names and nomenclatural acts in 2013 appeared in online-only journals and other print+online journals that publish the e-version first as the version of records. I estimate that

over 50% of all new names and nomenclatural acts in 2013 were made available in online journals following the requirements of ICZN (2012).

Based on our experience, it is simple to comply to requirements of ICZN (2012) for publishers who plan to publish e-only works in the sense of articles 8.1.1–8.1.3 of the *Code*: (1) register the work in ZooBank before it is published, and indicate both the name of an ICZN-approved electronic archive<sup>1</sup> intended to preserve the work, and the ISSN or ISBN associated with the work; (2) in the work itself (version of record with fixed content and layout) state the date of publication with evidence that registration has occurred (citing the ZooBank registration number), and (3) update and complete ZooBank record upon publication so that the ZooBank record is made public (this step is not needed if the date of publication and other details have been added during registration before publication; in this case the ZooBank record will be made public automatically upon publication). It is important that all new names and nomenclatural acts be included in the version of record (e.g. not online supplementary material).

Disclaimer: The author is a Commissioner of ICZN. This editorial represents his personal views only.

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1. One such ICZN-approved archive—<http://biotaxa.org>—is open to all publishers. It is member owned and supported, and aims to provide the most cost-effective solution to publishers.