

On-line Publishing of Systematic Journals in Australia

(Discussion Paper)

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Preface

These notes, originally prepared by me in early November 2000, have greatly benefited from discussion and comments from Les Christidis, Frank Job & Gary Poore (Museum Victoria), Kevin Jeans & Andrew Stammer (CSIRO Publishing), Tim Entwisle & Joy Everett (Royal Botanic Gardens Sydney), Geoff Dyne (Australian Biological Resources Study), Winston Ponder (Australian Museum), Mark Harvey (Western Australian Museum) and David Morrison (University of Technology, Sydney). However, the majority of independent publishers and systematic biologists have not yet been consulted, and I do not mean to imply that even those acknowledged above agree with all that is written here. Indeed that is unlikely, and the purpose of this document is instead to gather together some basic information and viewpoints, and to initiate broader discussion. I hope some agreement can soon be reached on a way to proceed.

Goal

I propose that the Society of Australian Systematic Biologists (SASB) should work with publishers to provide better, cheaper and wider access, via the Internet, to papers from Australian systematic biology journals. In so doing, I hope that SASB can also support, through formal partnerships, the public and private funding and publishing infrastructure that is vital to the future of systematics research in Australia.

Introduction

On-line publishing uses the Internet to publish digital copies of the text, images, and formatting of traditionally printed documents. Many researchers already access on-line publications of some sort, and this use is undoubtedly increasing. The benefits of on-line publishing include much wider and more flexible access, the ability to search for text and to index documents in a variety of ways, printing on demand, and economy (although cost savings are not always realised, at least in the early stages of moving to on-line publishing).

Subscribers to scientific journals from such publishers as Macmillan, Academic Press, Elsevier and CSIRO Publishing have for several years enjoyed the convenience of full-text on-line Internet access to all articles. Typically, a subscription to both paper and on-line versions of the journal costs the same or slightly more than a paper-only subscription, while subscribers who only want on-line access may get this more cheaply than the paper subscription (for *Nature* and CSIRO journals, at least). So far it has been mostly big commercial publishers who have had the resources and the will to publish on-line, although the full text of *Muelleria* (Royal Botanic Gardens Melbourne) is now available on line (for free).

In Australia, a large fraction (does anyone know what fraction?) of systematics papers are published

by state museums, herbaria, Royal societies, Linnean societies, malacological and entomological societies, and similar small, non-profit publishers. The vast majority of these journals are not available on-line, even though a majority of readers and authors would doubtless find on-line access more convenient.

Issues

Resources and expertise

Small publishers of systematics journals have an editor and editorial committee who are typically drawn from institutional research staff. Most editors would probably be unwilling to divert even more time from their research to also make each journal issue available on-line. Even if editors are willing, many publishers probably don't have the information technology resources to deliver on-line publications.

Printers already work from files that are in, or can easily be converted to, Adobe Acrobat™ PDF (Portable Document Format) suitable for on-line publication. Any institution with a Web presence could, with a modest effort, make the resulting PDF files available via the Internet (see Minimalist Option, below). However, there are many opportunities that are likely to be missed if such a minimalist approach to on-line publishing were to be followed:

- **XML compatibility** XML (Extensible Markup Language) is likely to succeed HTML, which is the current language of the Web. XML is a more powerful way of indexing documents with metadata (key words, etc.), since it specifies data formats rather than just describing a way of displaying Web pages. XML schemas allow developers to define their own formats for linking XML forms with databases, and other specific purposes. XML is likely to become the preferred format for data interrogation by Internet search engines, etc., in the future. [see <http://www.w3.org/XML/1999/XML-in-10-points>]
- **CrossRef™** is a non-profit organisation with over 50 publishers, aimed at providing cross-referencing of citations between on-line publications irrespective of publisher. This is achieved through XML (see above) and a Digital Object Identifier, a number similar to an ISBN that is unique for a given reference. [see <http://www.crossref.org/>]
- **ecommerce** Secure on-line payment methods by credit card (where revenue collection is required) and intellectual property protection for authors and publishers require a significant commitment to Web security.
- **International mirror sites**, which maintain an identical copy of all on-line publications at overseas locations, are one way to safeguard against loss of access to data through local breakdown of power or network infrastructure.

Maintaining viability and independence

A prime consideration must be maintaining the viability and independence of existing journal titles. Many small publishers may feel that on-line publishing will threaten the viability of the paper version of the journal. The libraries of most small publishers obtain a significant number of titles in exchange for their own journal, so reduced support for individual journals would also threaten institutional libraries. *It needs to be made clear that this discussion paper is not recommending that any journal cease to publish paper editions* (although some may eventually choose to *reduce* print-runs if on-line editions prove to be successful for all parties).

A recent survey of subscribers to *Memoirs of Museum Victoria* suggests that moving to a hybrid on-line publishing strategy is no threat to the viability of journals. When asked if they would prefer to receive paper only, on-line only, or both paper and on-line versions of the journal, 40% wanted only paper editions, 10% wanted only on-line access, and 50% wanted both paper and on-line editions

(Frank Job, Manger, Library Services, Museum Victoria, pers. comm.). These figures reflect the makeup of subscribers: over 90% are institutions, which require print editions for libraries. Based on these figures, moving to on-line publishing while still printing paper journals would reduce the print-run by 10% (there is virtually no cost saving in this) without reducing income from subscriptions or from the exchange program. Authors could save \$50-\$100 per article, plus mailing costs, if they are willing to distribute PDF files instead of paper reprints (but see below for a further discussion of this issue). Museum Victoria will provide full-text (and images) on-line access to forthcoming articles from *Memoirs of Museum Victoria*, probably for free (at least for a trial period), and as noted above, *Muelleria* (RBG Melbourne) is already doing so. Several other journals have recently compiled very similar survey responses from subscribers, however, data collected by CSIRO Publishing suggest that the reality is that the proportion of readers using on-line media is greater than that indicated by survey responses (Andrew Stammer, CSIRO Publishing, pers. comm.).

I would be interested to hear of the on-line publishing experience of any other journal or publisher of systematics.

Centralised versus distributed publishing models

The issue of maintaining and increasing support for smaller publishers of systematics demands consideration of centralised versus distributed models for on-line publishing. This is probably the issue that causes most disquiet among smaller publishers, especially state museums and herbaria. The reality is that, notwithstanding the importance of Commonwealth-funded institutions, the majority of original systematics research in Australia is done in state collection-based institutions. Any publishing model that fails to give prominent on-line exposure to the research and publication outputs of state institutions makes those institutions vulnerable to cost-cutting, and risks the removal of systematics research from the mission statements of those institutions.

This discussion also needs to take place in the context of the Australian Biodiversity Information Facility (ABIF) at ABRS [see <http://www.anbg.gov.au/abrs/abif.htm>]. In the view of many, ABIF should give more obvious credit to the state institutions in which the data were generated.

Uniformity of electronic and paper editions

For stability of bibliographic citation, and according to the several Codes of Nomenclature, it is vital that electronic and paper editions of systematics publications are identical in pagination and content. The ease with which electronic versions may be updated may make it tempting for some publishers to do so, not realising that they are thus creating new editions. Whichever on-line publishing model is adopted needs to adopt editorial safeguards against this possibility.

Reprints and copyright

Electronic distribution of authors' reprints as PDF files is an obvious and immediate benefit to authors and their peers resulting from on-line publishing. However, publishers, especially commercial partners in any on-line publishing facility, may be wary of allowing large-scale distribution of reprint files if that would reduce their likely income from pay-per-paper. There are various ways of dealing with this issue: authors could pay for the PDF file, or digital signature or security technology could be developed to limit the use and redistribution of reprints. Copyright may need to be renegotiated between author and publisher to better define reasonable electronic distribution of reprints.

Even now with paper journals and reprints widespread photocopying occurs, though mostly for legitimate teaching and private research purposes. The end user will not bother with this if the paper edition is affordable and readily available. Likewise, with electronic reprints and publications, redistribution in breach of copyright will probably only be a problem if access costs through

legitimate distribution channels are excessive. In that case, however, copyright violation is probably inevitable.

However, because publishers hold copyright in the design, formatting, layout, etc. rather than in the content, discussion of copyright in these terms may become irrelevant, especially for systematic biologists. Adoption of databases for recording morphological and molecular sequence data, specimen records and other data will allow authors and their institutions to redistribute their core knowledge in formats that can be adapted to suit various audiences without infringing copyright. These technologies exist now (e.g. DELTA [<http://www.biodiversity.uno.edu/delta/>], Platypus [<http://www.environment.gov.au/abrs/platypus.html>] and many others).

The legacy of pre-digital publications

Once part of a serial publication is available on-line, it becomes natural to look towards similar access to earlier issues. Although desirable, this raises a new range of problems, including accuracy and proof-reading of optical character recognition text outputs, obtaining original figures and negatives for scanning, and especially the issue of uniformity of electronic and paper editions (see above). The workload would be enormous and would certainly place on-line many papers for which there is little or no demand.

In my view it would be much more valuable to seek from systematic biologists nominations for the most frequently accessed papers (FAPs!) for various taxa. SASB, ABRS and CSIRO Publishing (through citation indices) would all have important roles in developing any list of FAPs. Copyright holders could then be located and resources sought to scan and make these publications available on-line. Both ABRS and CSIRO Publishing (or any other on-line publishing partner) might be expected to provide resources towards such a venture, since both would benefit. The result would be a major contribution towards a more comprehensive on-line biodiversity resource as has been proposed by ABRS among many others.

It is hard to see a "FAP" approach to on-line publishing of the huge legacy of existing systematics publications succeeding without international collaboration.

Similar Initiatives

In Australia ...

A meeting of representatives from CSIRO Publishing and plant systematics publishers took place on 28 February 2000, and discussed many of the issues raised in this paper (Tim Entwisle, Andrew Stammer, pers. comm.). Possible areas for co-operation discussed at that meeting include:

- developing a set of common publication standards, style manual and a shared referee database;
- possible bulk printing, mailing and subscription economies;
- joint marketing initiatives;
- developing and sustaining an on-line publishing facility.

The same meeting of plant systematics publishers resulted in the following actions and outcomes:

- editors and publishers would enter into more frequent communication to develop standards, exchange subscription and exchange lists, and share other ideas;
- the Herbarium Information Systems Committee (HISCOM) and CSIRO Publishing agreed to meet at the HISCOM meeting in Darwin in April 2000 to consider how best to establish a plant systematics journal site and links with existing specimen databases.

I am not aware of any formal agreement on any of these areas being reached, and it seems to me that there is value in expanding the scope of these discussions to include all systematics publishing

in Australia. I think this view is shared by at least some of the plant systematics publishing community. The issues raised are common to all disciplines, and a single on-line publishing facility for systematics is logical and would overcome any difficulty in dealing with taxa that are neither plants nor animals (e.g. fungi, algae, protozoans, etc.).

Overseas ...

I know of no overseas co-operative ventures of this sort, although most commercial publishers are now making on-line versions of their journals available. If a model for on-line publishing of Australian systematics journals was to be implemented, an urgent next step would be to form links with corresponding independent publishers, institutions and societies overseas.

Where to From Here?

Two strategies present themselves as alternative ways forward. I have named these the Commercial Option and the Minimalist Option. I favour the Commercial Option, but would be very interested to hear arguments for the Minimalist Option, or any other.

Objectives

As a way of assessing different options, I here restate the objectives of any on-line publishing venture:

- to provide better, cheaper and wider access, via the Internet, to papers from Australian systematic biology journals;
- to support, through formal partnerships, the public and private funding and publishing infrastructure that is vital to the future of systematics research.

Commercial Option

The Commercial Option recognises that, as argued above (see "Resources and Expertise"), neither small independent publishers nor SASB are likely to have the resources to develop and maintain an extensive on-line publishing venture that includes facilities that most users will come to expect. I suggest that ABRS and CSIRO Publishing are key stakeholders and that both should be partners in any venture, as should SASB as an independent voice for Australian systematic biologists.

ABRS and CSIRO Publishing already jointly publish systematics works, such as the *Fauna of Australia* series. Since its establishment in 1973, ABRS has become the Australian Government's prime funding body for systematics research and publishing in Australia, and now has a new structure aimed at strengthening its role as a digital publisher. ABRS is already developing the Australian Biological Information Facility, a Web resource that will ultimately become a checklist of Australia's biota. CSIRO Publishing is the largest publisher and on-line publisher of systematics works (and other scientific journals) in Australia. ABRS and CSIRO Publishing would be ideal partners to develop a process and a business model for publishing on-line versions of journal articles from independent publishers. Andrew Stammer (Journals Publisher at CSIRO Publishing) and Geoff Dyne (Acting Director, ABRS) have both expressed in-principle support for some such model, but details have yet to be developed and agreed to.

The SASB represents systematic biologists in Australia, and could approach independent publishers seeking agreement to co-publish their future issues on-line via ABRS / CSIRO. Neither ABRS, CSIRO Publishing nor SASB would seek to have any editorial influence over the content of individual journals, though all will hopefully work towards developing uniform publishing standards and a style guide that would assist publishers and authors alike.

Implementing an on-line publishing facility with the full range of options listed above (see

"Resources and Expertise") would involve significant costs. A business model would have to be developed jointly by CSIRO Publishing, ABRS and SASB. Such options, which are not mutually exclusive, could include: pay per paper (or page); SASB to make an annual payment to meet some costs; SASB members to receive free or heavily discounted on-line access to a given journal, or to a specified number of pages from any mix of journals. Income generated by commercial access to on-line editions of the journal should return some income pro-rata to respective independent publishers. SASB could vote to initiate modest membership fees that would grant members access to on-line journals. Thus, all SASB members would effectively become new subscribers to the on-line publishing venture.

Many of the outstanding details remain, including specific costs and benefits, defining responsibilities for pre-production editing, consideration of any existing contractual arrangements agreements between publishers, etc. I do not wish to attempt to develop such details any further without the active participation of all potential partners.

Minimalist Option

The Minimalist Option recognises that some level of Web presence is possible with modest resources; and it would probably be feasible for SASB to attempt to link a Web site to those of a range of independent publishers of on-line publications without relying on partners such as ABRS or CSIRO Publishing. SASB could assist smaller independent publishers to acquire a Web presence by provision of resources through other members. The minimalist option could also be thought of as an interim solution while a more extensive partnership was negotiated.

Advantages of the minimalist option include: minimal additional costs would be incurred by SASB members for on-line access, and independent publishers would retain full flexibility for implementing individual distribution options.

Conclusion

I strongly favour the Commercial Option above, for the following reasons:

- It makes explicit the very real interdependence of CSIRO Publishing, ABRS, smaller independent publishers, and systematic biologists generally as represented by SASB. In so doing it supports each party, and makes it less likely that any single partner could be disbanded, redirected or absorbed into a larger organisation to the detriment of the interests of systematic biology in Australia.
- The significance and extent of research into systematic biology in Australia would be made plain by assembling an extensive, high-quality Web site with the necessary infrastructure to grow in extent and to form new international links.
- The commercial model would anticipate future developments that would link on-line publications with institutional specimen records and other databases. The basic data on which systematic biology depends, collection records, morphological data, image libraries, molecular sequence databases, etc., will thus become explicitly linked to future on-line publications.
- Net costs for publishing all systematics research in Australia may be reduced if economies of publishing in bulk prove to be real.

There are costs and risks, however, which SASB will need to minimise:

- Users will probably be required to pay new costs or different costs for access to on-line systematics publications. Institutions may have to reconsider internal budgets if costs were to swing from libraries to individuals.
- The independence and on-line presence of smaller publishing partners will need to be ensured.

I believe the benefits far outweigh the costs, and that the cost of doing nothing may be even greater.

Stakeholders

I have a draft list of stakeholders and systematics journals in Australia, but would prefer not to include that here, mainly to avoid the near certainty of accidentally leaving someone out. Simply put, the stakeholders are anyone with an interest in publishing systematics in Australia; and I hope for the widest possible distribution of this discussion paper. I also hope that SASB can play a significant proactive role in developing any on-line publishing initiative. This can only occur if systematic biologists maintain membership of SASB and express their view through email, the SASB Web site, conferences and other meetings. Membership of the Society is free and unrestricted; and business is mostly conducted by email [[Membership of the Society of Australian Systematic Biologists](#)]. In particular it is my hope that independent publishers of systematic biology in Australia may wish to join SASB and represent their views through the Society.

Feedback on this document is, of course, encouraged, and should be by email to rwilson@museum.vic.gov.au; please make it easy for me by mentioning "SASB" somewhere on the subject line. I will incorporate comments in a second version of this discussion paper, to be circulated by email in early 2001. I also propose to hold a workshop on "On-line Publishing of Systematic Journals in Australia" to be held during the SASB conference in Melbourne 16-20 July 2001.