

Two Routes to Open Access,

Notes for a PowerPoint presentation by Thomas J. Walker, 26 June 2004, to a session of the ACRL Science & Technology Section, at the summer conference of the American Library Association, Orlando, Florida.

Numbers are the slide numbers for the PowerPoint presentation at <http://csssvr.entnem.ufl.edu/~walker/epub/ALAtalk.htm>

1. This talk will describe how two entomology societies have approached the transition from traditional, paper-based dissemination of journal articles to one that is Web-based and free to all users.
2. I will first remind you of the advantages of open access and then I will describe how the Florida Entomological Society and the Entomological Society of America have dealt with the ongoing transition to it.
3. [Why Open Access?] No notes.
4. Authors want OA because they want their articles to be immediately and freely accessible to as many potential users as possible and with the greatest possible convenience. They want this because the usage of their articles by others is a major determinant of whether they get jobs, tenure, promotions, and pay increases.
5. Not only do authors believe that open access is the optimal way to disseminate journal articles, but it is the least costly, which should make it the most attractive to those who fund the dissemination.
6. Let's address the cost issue in some detail. Traditionally, dissemination of journal articles has been by paper issues and paper reprints. Libraries made the paper issues available to their patrons. The reprints were paid for by the authors and distributed without charge to those requesting them. On the other hand, articles that are posted on the web can be immediately and conveniently accessible to nearly all potential users. This convenience has caused users to embrace electronic dissemination and avoid both copying articles from the paper issues made accessible in libraries and asking authors for reprints.
7. This preference of users for electronic dissemination makes an electronic-only mode almost certain to replace the other two modes in the very near future.
8. What is still unclear in the minds of many is whether the electronic dissemination of journal articles will be for fee or for free.
9. Toll access erects barriers that users or their institutions must pay (in time and money) to overcome. These barriers are expensive to create and maintain. With open access, users need not give passwords, be authenticated as belonging to a subscribing institution, or pay a fee. It is important to note that the revenue in both toll access and free access largely comes from the same sources: namely, researchers and their institutions.
10. To summarize, here are the relative costs of the four modes of disseminating refereed journal articles. Now remember that no matter what the system, researchers and their sponsors pay nearly all the costs of dissemination.
11. Because those who write the journal articles favor it and those who pay for dissemination of journal articles are beginning to realize it is the cheapest method, surely universal open access is coming.

12. Before getting to the details of how the two entomology societies have addressed open access, let me give you some background information about the two and the journals they publish: The Florida Entomological Society is small and publishes a single journal quarterly. The Entomological Society of America is much larger and publishes four journals bimonthly.
13. All of the five journals published by these the two societies rank within the top half of the 62 entomology journals analyzed in ISI's 2003 Journal Citation Reports. The numbers shown above are the averages of the three principal rankings assigned by JCR. In spite of its provincial sounding title, *Florida Entomologist* ranks highest among the entomological journals published by regional societies. As you can see the four ESA journals are all within the top third of the 62 entomology journals.

Notes:

The criteria used for the three rankings are

- (1) Total citations to articles in the journal
- (2) Impact factor = no. current citations to articles published during the past two years/no. articles published in past two years
- (3) Immediacy index [How quickly is the average article cited.] = citations during year/no. articles in that year

The ranks by each criteria (and the mean rank) are as follows:

Florida Entomologist: 26, 39, 26 (mean=30)

Journal of Economic Entomology: 1, 12, 24 (mean=12)

Environmental Entomology: 2, 25, 23 (mean=17)

Annals of the Entomological Society of America: 6, 22, 33 (mean=24)

Journal of Medical Entomology: 7, 10, 19 (mean=12)

14. Now let's look at the routes taken by the two societies.
Since 1994 the Florida Entomological Society has provided OA to all authors publishing in *Florida Entomologist*.
15. The route FES used to get there is adequately described as the "just do it!" route.
16. In 1993, when Gopher was the dominant means of making content easily accessible on the Internet, I was a member of an ad hoc committee appointed to advise on how FES should adapt to the Internet. I suggested this vision of the future of society-published journals, which the committee accepted and recommended to the FES Executive Committee. The Executive Committee not only endorsed the vision but voted to fund its pursuit.

Notes: WWW and Gopher were initiated in 1991; in 1992, Veronica was released to search Gopher-space; in 1993, Mosaic, the first Web browser, was released and use of WWW skyrocketed. [from Internet time line at <http://www.zakon.org/robert/internet/timeline/>]
17. The Executive Committee instructed me to work with the printer to make *Florida Entomologist* articles freely accessible on the Internet. We took 18 months to find a suitable means. In Nov. 1994, the month that Adobe dropped the price of its Acrobat Reader from \$25 to \$0, *Florida Entomologist* became the first long-published, refereed, natural science journal to make its contents freely available on the Internet and the first journal to use PDF format for that purpose. The Florida Center for Library Automation hosted the files for free so *the cost to FES of the online version was only the cost of making the PDF files.*

18. FES members and authors were pleased with open access, and the Executive Committee continued to support it and the costs were so low that there was no need to charge extra for it. In 1996, FES added bare-bones HTML files to enable Web search services to index every word and phrase in every article. The target search service at the time was *AltaVista*. It is now *Google*.
19. FES continued to improve its open access service, with author archiving of supplemental material in 1997, and with full-text searching of all articles in the aggregate of posted issues in 1998. In 1999 FES completed a project to make freely available on the Web all *Florida Entomologist* articles not previously posted.
20. This involved scanning about 20,000 pages and converting the scans to PDF files of articles. The project was entirely funded by donors who had been impressed with the advantages of OA to the 1994 and later issues. The cost was less than 60 cents per page.

Notes: The project cost a total of \$11,255, which was within the budget provided by donations of \$12,000. Details on this project are at <http://csssrvr.entnem.ufl.edu/~walker/epub/backissu.html>
21. The first 7 years of open access were funded without increasing fees charged to authors. This was possible because the costs were minimal and library subscriptions declined only by about 5%.
22. This decline need not be attributed to open access as shown by the more severe decline in subscriptions to the four principal journals published by the Entomological Society of America, which were toll access only. Perhaps the better performance of *Florida Entomologist* was caused by libraries wanting to support open access, but it seems more likely that the low price of *Florida Entomologist* subscriptions and the pertinence of *Florida Entomologist* content to clients of subscribing libraries account for its greater success in avoiding cancellations.
23. If one looks at inflation-adjusted revenues from institutional subscriptions, *Florida Entomologist* was actually 2% ahead in 2000. The jump in revenues in 1999 resulted from an increase in the subscription price from \$40 to \$50. The increase may have also caused the accelerated decline in subscriptions the same year [but note the rebound in subscriptions in 2000!].

So all was rosy until Dec. 2000. That was when the part-time business manager of FES reported to the Executive Committee that librarians had finally discovered that *Florida Entomologist* was freely accessible on the Web and that few were renewing their subscriptions for 2001.

Since 1995, I had had a plan for this contingency. I advised the Executive Committee that they could stop the decline in library subscriptions by charging an OA fee to those authors who valued OA enough to pay for it. So long as *Florida Entomologist* was not 100% OA, I reasoned, most libraries should continue to subscribe. The rest of my recommendation to the Executive Committee was that OA be provided for all articles a year after publication. However, the Executive Committee did not follow my advice.
24. Instead they authorized fees for open access that all authors would have to pay.

25. These were the fees that were to be implemented. What really amazed and distressed me is that they voted to start the fees with the March 2001 issue. Thus when the proofs for the March issue went to authors, an announcement of the new fees went with them. And these authors had not been appraised of the fees when their articles had been submitted and accepted for publication. I expected strong protests.
26. Much to my surprise not one author complained about the injustice of imposing a fee that was not in effect (or contemplated) when their articles were submitted and later accepted. I suspect that their meekness is a symptom that their sponsors were paying publication costs.
Now, what about that predicted drastic decline in institutional subscriptions?
27. The predicted ruinous decline didn't happen! In fact, the decline was only 6%.! The result was a surge in publishing net income. In fact, up till this time, costs of OA could not be charged to OA fees, since there were none. Now those costs were deducted from gross OA fees and what you see here in green are the profits from those fees. The black bars are the gross revenues (*in constant dollars*) from institutional subscriptions. The data for 1994-2000 are of course the same as on the last line graph you saw. Note that the *net* revenues from OA in 2001 was essentially identical to the *gross* revenues from library subscriptions in 1994, when OA began.
28. Because FES was now charging all authors extra for OA and making a large unanticipated profit from it, the Executive Committee voted to improve the exposure of *Florida Entomologist* articles by posting them on *BioOne*. Most of you must know that *BioOne* is an aggregation of some 68 society-published bioscience journals instigated by AIBS and ARL's SPARC. More than 1000 libraries pay to access the aggregate, and the participating societies are paid royalties on the basis of how much content they have posted and how much it is used. However, nothing is paid to the publishers of the two OA journals on *BioOne*.

Note: In addition to AIBS and SPARC, University of Kansas, Greater Western Library Alliance, and Allen Press were founding organizations for *BioOne*.

29. Downloads of full text from the *BioOne* server were 16 times more frequent than from the Florida Center for Library Automation server, indicating the importance of the articles being exposed to searches of *BioOne* content by the patrons of the many libraries that subscribe to *BioOne*. The total average downloads expected for 2004 were estimated to be more than 400, an impressive number since it is the average value for every article and scientific note published in *Florida Entomologist* in the two previous years.

Note: At the time this talk was prepared, the only available data that included full-text downloads from both *BioOne* and FCLA were for March 2004, and I restricted the analysis to the 160 *Florida Entomologist* items published in 2002 and 2003 (no earlier items are on the *BioOne* server). The breakdown of the full-text downloads was 2.3 downloads from the FCLA server (PDF only), 4.4 PDF downloads from *BioOne*, 32.7 HTML downloads from *BioOne*.

Total full-text downloads (average per item) = 39.4

Extrapolation: 12 months \times 39.4 = 473

30. During the first year of *BioOne*, there were nonrecurring start-up costs. The continuing costs were about double what OA had cost before. In 2003, *Florida Entomologist* had its first precipitous loss of library subscriptions but these recovered somewhat in 2004. The hatched green for 2004 is an estimate that assumes that an average number of articles and scientific notes will be published in 2004. We are currently ahead of schedule and thus, so far, FES has not suffered financially from “just doing it.”
31. Now let’s look at a society with higher overhead--ESA had a fulltime professional staff of about 20 in 1994.. Currently about 65% of the articles published in its four journals are open access.
32. ESA’s route toward open access is to sell it, by the article, to authors who want to buy it.
33. In 1995, I volunteered to be a member of an ESA e-publication committee. I joined because I was convinced that open access was the future of society-published journals. My experience with the *Florida Entomologist* was tempered by my belief that “just doing it” was not a fiscally safe way to begin the transition. Therefore, I suggested that the committee recommend that ESA sell free access to the PDF files of those articles whose authors chose to pay a fee for it. I suggested that the fee be based on the cost of paper reprints. Because PDF files are much cheaper to produce and post than paper reprints are to print and deliver, ESA would profit more from selling an unlimited supply of “electronic-reprints” than from selling a fixed supply of paper reprints at the same price. The committee endorsed this suggestion by a 7 to 1 vote, with the dissenter favoring a pay-per-view approach. The ESA Governing Board approved our report including its recommendation that ESA sell “electronic reprints.”
34. By 1999, ESA was in serious fiscal difficulties, partly because implementing toll access had proved expensive and the returns had been much lower than estimated. In addition, the Governing Board was coming under increasing pressure from ESA members to approve OA sales. Thus finally, in January 2000, the sales began.

Notes: For a more complete account of the history of e-publication of ESA’s traditional journals, go to <http://csssrrv.ufl.edu/~walker/epub/esaepub.htm>.

In 2001, ESA put its four journals on *BioOne*, while retaining its own site for access by members to all articles and for public access to open-access articles.

35. This is the OA that ESA sells. When anyone views the contents of an ESA journal on the ESA server, those articles that have OA are labeled as “Free PDF” and anyone who cares to can view or print the full text. Like the OA articles of *Florida Entomologist*, the full texts of these articles are indexed by search services such as Google.
36. In the first year, ESA sold OA to 25% of articles published. This more than doubled the second year and has continued to climb. Thus far in 2004, sales are exceeding 65%.
37. Net revenues have been substantial.
- Note: The gross revenues from OA sales in 2003 amounted to \$17.18 per page. The incremental costs of implementing OA sales are estimated at \$1 per page, making the estimated net revenue more than \$16.18 per page.

38. In short, this is a fiscally safe way for publishers to address the movement toward open access. Revenues from toll access should be little affected so long as purchases of open access do not approach 100%. When toll-access revenues are threatened or reduced, the price of OA by the article can be increased. In fact that is the current business plan of ESA.
39. Furthermore, the society's journals will be in a better position to attract authors who want their articles to have the increased impact that goes along with open access. This may enable society-published journals with page charges to win back some authors who have defected to commercially published journals without page charges.
40. Finally, societies that are already charging for open access will be in a better position to eventually switch to 100% open access. With so many advantages, shouldn't other societies follow ESA's example?
41. Surely they should, and they are beginning to do so. These are four societies that I know to be selling OA by the article currently. ASLO started its sales a year after ESA--because it had heard that ESA was doing and thought it a good idea. The other two additions are more recent and represent much larger publishing operations.
42. Until now, I've given no specifics as to the prices charged for OA. These two publishers each peg their prices for OA to the price of paper reprints. The price thus varies with the length of the article. The prices shown here are for articles of average length for the respective societies [8 pages for ESA; 10 pages for ASLO]. ESA has always charged a price of 75% of the price of 100 paper reprints but has increased its price for paper reprints 5% per year. ASLO's initial price was the entire price of 100 paper reprints [\$126]. The next screen shows why the price shown here is nearly triple what it was last year.
43. ASLO became concerned that OA by the article would become so popular that its toll-access revenues would be impacted, and ASLO documented a substantial increase in usage for articles that were OA. The concern about the popularity of the service called for an increase in price, and the increase in downloads was used to justify the increase to ASLO authors.

Note: 2003 articles had been downloaded 2.8 times as often at time of analysis [OA continues to boost downloads as long as the article is posted].
44. The prices charged by the two publishers who have recently offered OA-by-the-article are straight per-article prices and seem to be based on how much would need to be charged for OA if there were no toll-access revenues. But these publishers are not yet foregoing toll-access revenues, so the price might be considered neither fair nor the price that would produce the most revenue. Surprisingly, sales of OA have been substantial for both publishers. *Physiological Genomics* has sold OA for 13% of its articles; *Development* has sold it for 18% of its articles—although mostly at the introductory price of \$800 per article. Thus some authors value OA highly enough to pay extravagant prices. The degree of the extravagance is revealed by the fact that these publishers make access to all articles free after one year (in the case of *Physiological Genomics*) or less (six months in the case of Company of Biologists journals).
45. In conclusion, I suggest that--
46. For those who want to learn more--