

Conservation Biology as an Example of the Dilemmas Facing Scholarly Society Publishing

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Introduction

An editorial entitled “Open Access and Academic Imperialism” was published in *Conservation Biology* on November 9, 2018. The editorial was written by Mark Burgman, the editor-in-chief of the journal, but all of *Conservation Biology*'s editors and the editors-in-chief of the other two journals published by the Society for Conservation Biology (SCB), *Conservation Letters* and *Conservation Science and Practice* signed on.¹

The editorial was an attack on Plan S, the funder mandate that will require by 2020 the immediate open access publication of articles based on the research supported by the Plan S funding agencies.² The editorial did not mince words, “We think this policy is a mistake,” it begins, and continues, “Access to journals for authors and readers is a complex and nuanced topic, encompassing the cost of publication, academic freedom, and the potential for conflicts of interest between editors required to guarantee the quality of papers and authors paying for publication. We focus on a single issue, that of equity of access to publication by readers and authors.”³ The argument is that open access, what Burgman terms the “author-pays” model, disadvantages authors who can now publish at no cost in the “reader-pays” or subscription/paywall model. As the editorial puts it, “Enforcing author-pay models will strengthen the hand of those who have resources and weaken the hand of those who do not have, magnifying the north-south academic divide, creating another

structural bias, and further narrowing the knowledge-production system.”⁴ The editorial supports the hybrid open access model, that is offered by *Conservation Biology* because authors get to decide whether or not to pay to have their article made open access, thus the ability to pay is not an obstacle for publication. The current version of the Plan S implementation guidelines say that hybrid open access journals are not compliant unless they have a plan to become fully open access within three years. Plan S also looks to constrain the article process charges (APCs) authors pay to have their articles published, but Burgman is unmoved by this provision.

Joonas Lehtomäki, Johanna Eklund, Tuuli Toivonen write, in a critical response to the editorial, “We wish to express our disappointment with such a narrow and misleading interpretations of the recent attempts to make academic publishing more open, and what consequences this might have for the global conservation community.”⁵ They point out that reader-pays models are quite expensive and the expense denies access to the articles by many especially those in the global south that Burgman claims to be supporting. They also note that hybrid models can be seen as double-dipping, charging both authors and readers. They note the high profit margins of the large commercial publishers, including Wiley, the publisher of *Conservation Biology*, whose reported profit margin is nearly 30%. They end by writing, “In conclusion, we fear the approach advocated by Burgman will only bolster the current publishing system where all researchers and national science funders, irrespective of geographies, are being exploited by a few publishing empires.”⁶

It would be easy to view this argument as an academic tit-for-tat in a narrow sub-discipline of biology, but I think it is a useful example of the dilemmas facing many scholarly societies as they confront the changes taking place in scholarly publishing. In my view these changes are inevitable and irreversible. They are the result of the change in the technologies that drive scholarly communications. The old models were based on print of paper, and the new models are based on digital network-based documents. This change is at least as revolutionary as printing, the technological change that made scholarly societies and their subscription journals possible in the first place. Scholarly societies are likely to have a difficult time managing this transition this change in technologies requires. To do so, they will have to resolve at least three dilemmas. The first is ethical; the second concerns the value of society membership, and the third is financial.

We will address each below, but first it is useful to provide some background.

Background

Conservation Biology (online ISSN 1523-1739, print ISSN 0888-8892) was established in 1987, two years after the founding of Society for Conservation Biology, and is published by Wiley-Blackwell on behalf of society. The SCB is a non-profit international organization dedicated to conserving biodiversity. It has over 4,000 members worldwide and 35 chapters throughout the world. SBC membership costs \$120 for those with incomes of \$75,000 or more, \$90 for those with incomes between \$50,000 and \$74,999, and less for those with lower incomes.⁷ SCB members receive *Conservation Biology* as a benefit of membership.

In 2017 the SCB had revenues of \$3,434,938 with \$675,789, or about 20%, coming from publications. Membership accounted for \$205,386, or about 6%, of revenue and meetings accounting for \$610,584, or about 18%. Publications accounted for \$266,951 of SCB's expenses. So arguably, SCB had a surplus from publications of \$408,838. This is about 60% of revenue from publications, or about 14.5% of the \$2,807,822 SCB spend on programs other than publications, membership, and outreach.⁸

According to the *Journal Citation Reports*, *Conservation Biology* has a 2016 impact factor of 4.842. It ranks 5th among 53 in journals that focus on biodiversity and conservation, 19th among 153 in journals with an ecological focus, and 23rd among 229 in journals with an environmental science focus. *Conservation Biology* also has an h5 index of 51, a cited half-life of >10, and a CiteScore of 5.04.⁹ So while *Conservation Biology* is not the top journal in the field, it is clearly in the top tier. Pages charges are assessed at the rate of \$150 per page with provision for reductions or waivers if the author does not have the means to pay at this rate. The fee for color pages is \$700 and can be waived only if open-access publication (hybrid open access) is selected. The open-access publication fee is \$3,000 or €2,500.¹⁰ The 2019 price for *Conservation Biology* in the United States will be \$1,333 for the online version or \$1,667 for online and print. The European price in 2019 will be €1,454 for the online version or €1,817 for online and print.¹¹ Individual articles that are not open access can be purchased from the Wiley Online Library for \$6 for 48 hours of access, \$15 for a read only version, and \$38 for a full text and PDF download.

One can get a sense for the makeup of *Conservation Biology* by looking at the December 2018 issue (volume 32 issue 6). The issue contained 24 scholarly articles covering 253 pages (there was some additional non-article content). The longest article was 13 pages and the shortest 4 with an average length of 10.5 pages.

Seventeen of the 24 articles included a total of 40 color pages with the number of color pages ranged from one to five. Seven of the articles were open access. All of the corresponding authors were from the global north if Australia and New Zealand are included in that category. If we assume no waivers were granted for December 2018 issue, the page charges they would have generated \$37,950, the color charges \$28,000, and the APCs \$21,000, for a total of \$86,950 paid by authors. With the most expensive article costing \$6,900 (twelve pages, three in color, and the APC for open access) and least expensive costing \$1,300 (four pages, one in color, no open access). The most expensive non-APC article cost \$5,300 (twelve pages, five in color).

In addition to publishing *Conservation Biology*, since 2007 SCB has published the online only rapid publication journal *Conservation Letters*.¹² *Conservation Letters* (ISSN 1755-263X) is an open access journal also published by Wiley-Blackwell with an APC charge of charge of \$1,850 or €1,375. SCB members receive a 20% discount on APCs and the journal has a waiver policy and encourages authors with challenges paying the APC charge to pursue waivers.¹³ In January 2019 SCB will launch a second open access journal *Conservation Science and Practice*. Like *Conservation Letters*, it will be fully open access and have similar APCs and waiver policies.¹⁴

With this background, let's look at the dilemmas.

Dilemma One: Whose Inequity Matters Most – Readers or Authors

There is a choice to be made between the open access or author-pays model and the subscription/paywall/reader-pays model. From an ethical perspective the question boils down to whose inequity is it most important – the reader or the author.

The open access model privileges the reader by making the work legally available to anyone who can access it on the web for free. This addresses the inequality of access by readers and assume this is the greater concern. Given the prices for subscriptions or individual article purchases, this is clearly a real concern. As subscription prices have increased at rates well above inflation even libraries at well-resourced institutions have had trouble maintaining subscriptions to all of the journals their students and faculty could use. Access for scholars in countries without well-resourced institutions and individuals not affiliated with a university are clearly at a great disadvantage. Support for this position generally is accompanied with a recognition that some authors might be disadvantaged, but that there are mechanisms, primarily APC waivers and reductions, that mitigate these

disadvantages. Proponents of the open access model are clear that it is readers' access to knowledge that is the more important inequity.

Proponents of the subscription model and its variants, most importantly hybrid open access, like Burgman argue that the author should be privileged and given the alternative of publishing at no cost. Though the presence of page and color charges muddy this case. There are waiver options, but if waivers can be offered for page and color charges, they can be offered for APCs.

Burgman argues that dedicated readers can gain access to the articles they need by pursuing versions in repositories or by writing authors, and so they are not really significantly disadvantaged. Though Burgman doesn't suggest it, it might be that with Sci-Hub the reader's access is not a problem, at least if you are not concerned with the use of stolen articles that these means of access requires.

I don't find this dilemma particularly difficult to resolve. When forced to choose between near universal availability to the world's knowledge and the disadvantage some scholars will face in getting their work published, I am not confused. It is clear that open access articles get used more, cited more, and as a result are creating more knowledge more quickly. Opening access to knowledge beyond well-resourced universities can only generate a greater societal benefit than keeping this knowledge lock away.

I suspect that if the people who both sides of this debate express concern for, those from the global south and those who are not affiliated with well-resourced institutions, were asked which inequity was most critical to address, they would say access to the knowledge was more important than inequities in publishing opportunities. It would though be a good idea to verify my supposition by asking them.

Burgman has a point that provisions need to be made for authors who have difficulties finding funds to support their publishing, but the means for doing so are clear and not that difficult. You provide waivers. They are common practice for nearly all open access publishers.

This dilemma needs to be aired and addressed, but its resolution does not seem difficult to me. The second and third dilemmas are harder.

Dilemma Two: What is Society Membership For?

A scholarly society is a collection of scientists or researchers who have gathered together to advance the understanding of a particular area of knowledge. As such the society has value to both society in general and its membership. Members join and pay dues to advance their own interests, learning of the latest and most important work before others and being able to interact with others who share their interest in particular problems through publications and at meetings. It should be noted that membership dues are not particularly burdensome. A meal for two in a good restaurant could easily cost more. So, the value received by the member does not need to be large. Society at large benefits because science is advanced more rapidly as a result.

When scholarly communications were paper based both the informal communication, what is often call the "invisible college", and a flagship society journal were important as the friction in the paper-based system was significant and keeping up with the latest developments even for the most well connected scientists was difficult and time consuming. The traditional subscription model for the society's journal served the society's membership by publishing the best research from everywhere, even from those outside the society, and providing it as a benefit of membership. This meant that society members could easily be well informed on the developments the field. It was a valued benefit of membership, in many cases this benefit alone made membership worthwhile.

Moving to an open access model makes this easy access to the best research available to everyone and being a society member no longer confers early and easy access to this content. What then is the advantage of society membership? SCB's fully open access journals offer society members a 20% discount on APCs, which is worth more than the cost of annual membership when you publish. Of course, you need to get an article accepted to benefit. SCB also offers a variety of meetings, a job board, and a number of listservs. All of these further the "invisible college" function of the society. But we live in a time when e-mail and Twitter connect nearly everyone with nearly everyone they want to be connected to. So, making the society's flagship journal available to the world rather than a benefit of membership raises the fear that the other offerings of the society will not be sufficient to justify membership. Whether or not this fear justified, it is real.

I am certain the with or without Plan S open access is inevitable, and in the end societies will need to migrate their publications into fully open access models. The

problem for the society is how to create enough member value by other means to justify continued membership, and, bring us to the third dilemma, how to make up for the lost income the subscription journals generates.

Dilemma Three: How to Make the Money Work

Making the money work may be the most difficult dilemma. As noted above page and color charges and hybrid APCs generate significant revenue for *Conservation Biology* and its parent organization. My calculation for the December 2018 issue indicated that it could have raised more than \$85,000 for that issue alone. If we assume that the December 2018 issue is typical over a year and that 25% of the charges are waived, then *Conservation Biology* raises nearly \$400,000 a year. This is before subscription revenue. Wiley-Blackwell certainly takes some part of both charges and the subscription revenue, but it is clear that much goes back to SCB to support other programs. My calculation based on the SCB annual report is that the surplus of revenue over expenses is a bit more than \$400,000. This movement of funds is no secret. As the author's guidelines state, "*Conservation Biology* is published on behalf of the Society for Conservation Biology, a nonprofit organization. Payment of page charges allows the society to support more effectively conservation science, management, policy, and education worldwide."¹⁵ For comparison, if *Conservation Biology* was fully open access, published the same number of articles, and charged a \$3,000 APC with a 75% waiver rate, it would generate revenue of \$324,000 per year or \$67,000 less than the current model and there would be not subscription revenue.

The dilemma is, how does *Conservation Biology* migrate to an open access model while still preserving its operating surplus for the society, or how does the society adapt to the loss of this revenue.

It is important to note that SCB does not appear to be opposed to open access models as the other two journals it publishes are open access. One assumes Burgman and the editorial board are independent from both SCB and Wiley-Blackwell, so I may be reading too much into the editorial. That said, one has to wonder how much the change in the economic model Plan S will require, and the subsequent loss of revenue to the SCB that will result, influenced their opinions.

My view on what is most likely for SCB, and other scholarly societies, is that they will need to learn to live without the income currently generated by their journals. They

will need to become more efficient, make some difficult choices about what programs matter most. It seems likely they will need to increase dues, which will require developing a value proposition to their members that justifies this increase. Recognizing the difficulties involved, the Wellcome Trust, a signatory of Plan S, is offering grants to help scholarly societies explore new business models.¹⁶

None of this will be simple or easy, but it will have to be done.

Notes

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- ¹ Mark Burgman, "'Open Access and Academic Imperialism,'" *Conservation Biology*, November 9, 2018, DOI: 10.1111/cobi.13248, <https://onlinelibrary.wiley.com/doi/pdf/10.1111/cobi.13248>
 - ² Information on Plan S, including the plan's ten principles, the draft implementation guidelines, and the current members of the funder's group can be found at the cOAlition S website at: <https://www.coalition-s.org>
 - ³ Mark Burgman, "'Open Access and Academic Imperialism,'" *Conservation Biology*, November 9, 2018, DOI: 10.1111/cobi.13248, <https://onlinelibrary.wiley.com/doi/pdf/10.1111/cobi.13248>
 - ⁴ Mark Burgman, "'Open Access and Academic Imperialism,'" *Conservation Biology*, November 9, 2018, DOI: 10.1111/cobi.13248, <https://onlinelibrary.wiley.com/doi/pdf/10.1111/cobi.13248>
 - ⁵ Joona Lehtomäki, Johanna Eklund, Tuuli Toivonen, "Academic Publishing Empires Need to Go: Response to Editorial 'Open Access and Academic Imperialism' in *Conservation Biology* by Burgman," *PeerJ Preprints*, December 12, 2018, <https://doi.org/10.7287/peerj.preprints.27426v1>
 - ⁶ Joona Lehtomäki, Johanna Eklund, Tuuli Toivonen, "Academic Publishing Empires Need to Go: Response to Editorial 'Open Access and Academic Imperialism' in *Conservation Biology* by Burgman," *PeerJ Preprints*, December 12, 2018, <https://doi.org/10.7287/peerj.preprints.27426v1>
 - ⁷ "Individual Membership in SCB," Society of Conservation Biology, <https://conbio.org/membership/individual-member/> (accessed December 16, 2018).

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- ⁸ Society for Conservation Biology, *2016-2017 Annual Report*, page 12, https://conbio.org/images/content_about_scb/scb_an_rpt_2016-17_web_1_reduced.pdf
- ⁹ "Conservation Biology (journal)," *Wikipedia*, [https://en.wikipedia.org/wiki/Conservation_Biology_\(journal\)](https://en.wikipedia.org/wiki/Conservation_Biology_(journal)) (accessed December 16, 2018).
- ¹⁰ "Conservation Biology, Author Guidelines, Wiley Online Library, <https://onlinelibrary.wiley.com/page/journal/15231739/homepage/forauthors.html> (accessed December 16, 2018).
- ¹¹ *UlrichsWeb: Global Serials Directory* (available with subscription, accessed December 16, 2018).
- ¹² "Society for Conservation Biology, *Wikipedia*, https://en.wikipedia.org/wiki/Society_for_Conservation_Biology (accessed December 16, 2018)
- ¹³ "Conservation Letters, Article Publication Charges," Wiley Online Library, https://onlinelibrary.wiley.com/page/journal/1755263x/homepage/article_publication_charges.htm (accessed December 16, 2018).
- ¹⁴ "Conservation Science and Practice, Author Guidelines," Wiley Online Library, <https://onlinelibrary.wiley.com/page/journal/25784854/homepage/author-guidelines> (accessed December 16, 2018).
- ¹⁵ "Conservation Biology, Author Guidelines, Wiley Online Library, <https://onlinelibrary.wiley.com/page/journal/15231739/homepage/forauthors.html> (accessed December 16, 2018).
- ¹⁶ Welcome Trust, "Helping Learned Societies Explore Plan S-compliant Business Models," December 2018, <https://wellcome.ac.uk/sites/default/files/learned-societies-consultancy-request-for-proposals.pdf>