Special Issue—Future of Publication

Can blogging change how ecologists share ideas? In economics, it already has.

Jeremy W. Fox

Jeremy W. Fox (jefox@ucalgary.ca), Dept. of Biological Sciences, University of Calgary, Calgary, AB, Canada, T2N 1N4

Ecologists traditionally share ideas primarily via peer-reviewed publications. Not that other ways of sharing ideas—conversations, conference presentations, invited seminars, etc.—matter less. But traditionally in ecology, they often matter only insofar as they lead, directly or indirectly, to peer-reviewed papers. Peer-reviewed papers are of undoubted value, but they have limitations as a means of sharing ideas. In particular, they're slow—it typically takes months to write a paper, and then further months for it to go through the review process (often more than once) and get published. And, technical advances such as online manuscript handling systems and automated typesetting software probably can't speed the publication process much further. Most of the time a typical paper spends in peer review is spent being evaluated, or waiting to be evaluated, by an editor or reviewers. Peer-reviewed papers also aren't an ideal format for discussion or debate. Debates between authors and reviewers are not public. And whilst ideas occasionally are debated in peer-reviewed papers, participation in these debates is limited to the authors of the papers involved; the time-lag through these channels significantly reduces impact and dialogue.

Here I suggest that blogs can become an important complement to peer-reviewed papers as a means of exchanging ideas in ecology. I suggest this for several reasons:

- Increasing numbers of ecologists read blogs. I founded, and write for [Dynamic Ecology](#), a blog providing discussion and commentary on topics of interest to academic ecologists and their students. Dynamic Ecology receives 3000–5000 page views per week, from hundreds to thousands of readers. Popular posts on Dynamic Ecology receive several thousand views, a number comparable to or higher than the number of

times that peer-reviewed ecology papers in leading open-access journals like *PLoS Biology* and *PLoS ONE* are viewed or downloaded.

- Blogs are fast-moving. Even lengthy posts typically take only a few hours to write, and blog posts can be published online the instant they are written. Of course, this means that blog posts are reviewed after publication, not before. But the purpose of a blog post typically is not to provide a pre-validated statement of scientific truth on which others are entitled to rely into the indefinite future. Rather, the purpose is to propose ideas for further consideration and discussion (see following point)

- Blogs are a good venue for discussion and debate. Some peer-reviewed journals allow online comments on published papers, but these systems remain little used despite having been available for years. For instance, fewer than 20% of *PLoS ONE* papers attract any comments (Priem et al. 2012). In contrast, many posts on Dynamic Ecology and other leading ecology blogs attract 10–20 comments, and some attract many more. One recent post on Dynamic Ecology—on whether ecologists too often use over-complicated statistical analyses—attracted over 100 comments in less than 48 hours. In contrast to individual papers or entire journals, blogs can build an engaged audience, which makes post-publication "review" (really, informed discussion and debate) a reality.

- Blogs are not only open access, able to be read by anyone, they're also free to authors. Dynamic Ecology is hosted by WordPress (wordpress.com), one of a number of free, easy-to-use websites on which anyone can publish their own blog(s).

- Blogs can be a venue for the exchange of serious, rigorous ideas. Blogs can of course be used for all sorts

of purposes, including such unserious purposes as shameless self-promotion or expression of uninformed personal opinions. But in science, that is not how blogs are used. For instance, I now have a peer-reviewed paper in press at *Trends in Ecology and Evolution* which grew out of a series of blog posts I did (Fox *in press*). The paper argues that the intermediate disturbance hypothesis (Connell 1978) should be abandoned. Arguing for the abandonment of a classic, hugely influential ecological idea is a serious undertaking. Every substantive point made in the paper is one I had made previously on the blog, where I got rapid and thorough feedback from other ecologists, many of whom I'd never met. As another example, a recent *Science* paper claiming the discovery of arsenic-based life was refuted in large part due to blogging by biologist Rosie Redfield. She used her blog to point out the paper's many technical flaws much faster and more forcefully than she could have done in a peer-reviewed comment (see The Loom, <http://blogs.discovermagazine.com/loom/2012/07/08/live-blogging-arsenic-life/>, for details). As a third example, dozens of cases of scientific fraud that were not caught by peer reviewers have been discovered through the efforts of bloggers, as documented by the [Retraction Watch](#) blog. And as noted above, blogs also provide a forum independent of the peer-reviewed literature for serious discussion of scientific issues (e.g., the Dynamic Ecology post noted above, on whether ecologists too often use overly complicated statistics). Serious scientific discussions of great value to their participants and to other readers do not acquire their seriousness and value solely by leading to peer-reviewed papers or to corrections and retractions of peer-reviewed papers.

- Blogs can cover topics not suitable for peer-reviewed papers in ecology journals. Peer-reviewed journals in ecology traditionally, and rightly, focus on publishing new science, and reviews of existing science. But this by no means exhausts the range of topics that ecologists want and need to discuss. Posts on Dynamic Ecology have addressed topics ranging from the drawbacks of complex statistical models, to the conceptual foundations of macroecology, to ways to improve communication between theoreticians and empiricists, to proposed reforms of the peer review system, to the reasons for pursuing fundamental ecological research in a world with pressing environmental problems.

The above list makes the case that blogs are useful. But it doesn't really do justice to the full potential of blogs to transform how ecology is conducted and communicated. In order to illustrate that potential, I next turn to an example from economics: an obscure economics blogger may just have saved the entire US economy.

His name is Scott Sumner, he's an economics professor at Bentley University, and since 2009 he's

written [The Money Illusion](#) blog. He's a macroeconomist, which means he works on the economics of entire countries, as opposed to the "microeconomics" of individual households or businesses. Like many macroeconomists, he started blogging in the aftermath of the 2008 financial crisis and the ensuing "Great Recession". Macroeconomists were mostly blindsided by these events; the broad consensus in the field had been that we knew enough macroeconomics to prevent such serious recessions from ever occurring. In response, many macroeconomists began debating and soul-searching about what caused the crisis, how policymakers ought to respond, and whether the foundations of textbook macroeconomics needed rethinking.

One very important US economic policy-making institution is the Federal Reserve, the US central bank. Very roughly, the "Fed" manages the money supply. When the economy is struggling, it reduces interest rates, thereby injecting money into the economy and spurring consumers and businesses to spend. But what can the Fed do if, as is the currently the case, interest rates are already as low as they can go (interest rates can't go negative)? Until recently, most economists would have answered "nothing" or "not much". On his blog, Scott Sumner answered "a lot". His idea is that the Fed, instead of targeting interest rates, should engage in "nominal gross domestic product (NGDP) targeting." Very briefly and loosely, NGDP targeting attempts to change, not current interest rates, but expectations of future interest rates, on the grounds that economic decisions in the present often reflect expectations about the future (see The Money Illusion blog for details). At the time Scott Sumner began blogging about NGDP targeting, it was far outside the economic mainstream, although not totally unheard of or without antecedents. But over time, NGDP targeting started winning adherents. First, other, more widely-read economics bloggers. Then, some prominent non-blogging academic economists, of various political persuasions and representing various opposing schools of macroeconomic thought. Then Paul Krugman, a Nobel Prize-winning economist, New York Times columnist, and blogger. Then, a senior Federal Reserve official. Then Mark Woodford, perhaps the most influential academic macroeconomist in the world. And in September 2012 the Federal Reserve itself announced, in a break with previous policy, its plan to attempt something fairly close to NGDP targeting (precisely how close is the subject of some debate). In summary: in three years, a radical macroeconomics idea proposed by an initially-unknown blogger has come close to being adopted as the official policy of perhaps the most important economics policymaking institution in the world. For more on this history, see recent articles in The Atlantic (<http://www.theatlantic.com/business/archive/2012/09/the-blogger-who-saved-the-economy/262394/>) and Business Insider

(<http://www.businessinsider.com/who-is-scott-sumner-2012-9>).

Unless you follow economics, it might be difficult to appreciate just how remarkable all this is. Here's an imperfect but useful ecological analogy. Imagine that Steve Hubbell's Neutral Theory of Biodiversity (Hubbell 2001) had not previously been seriously explored in evolutionary biology when it was first proposed. Imagine further that that ecologist who first proposed it was not the already-prominent Steve Hubbell, but someone little known, at an obscure university. Imagine that that ecologist didn't publish Neutral Theory in a Princeton Monograph or a *Nature* paper, but in a series of blog posts. And imagine that Neutral Theory didn't merely become a "hot" research topic (as it has), but within three years was widely accepted by academic ecologists and policymakers as the appropriate basis for national and international conservation policymaking, our best chance to reduce historically-high rates of species loss, and preserve vital ecosystem services.

Now, Scott Sumner's example is an extreme case, and extreme cases are rare by definition. Most bloggers will never have that much influence, just as most scientists will never be extremely widely cited. It takes exactly the right combination of circumstances for an idea to go from blog post to Fed policy as quickly as NGDP targeting did. One of those circumstances is having lots of colleagues who blog. Blogging is central to how economists exchange ideas. Many dozens of economists, including many prominent senior economists, have blogs (see the compilation of economics blogs on [Mark Thoma's Economist's View](#) blog). Even economists who don't blog themselves routinely read and comment on the blogs of others. It is this culture of blogging, not the remarkable influence of a single blogger, that really separates economics and ecology, and that would represent a fundamental transformation in how ecologists share ideas. So will this transformation ever happen? Will blogging ever become as central to the conduct of ecology as it now is to the conduct of economics?

The answer to this question is unclear. Certainly more and more ecologists are writing, reading, and commenting on blogs. But historical factors may prevent blogs from becoming as central to ecology as they are to economics, at least in the foreseeable future. Economists were "preadapted" to take up blogging as a means of sharing and discussing serious ideas. In economics there is a many decades-long tradition of pre-publication sharing of ideas via "working papers" (essentially draft manuscripts), especially those published by certain institutions such as the National Bureau of Economic Research. Not that peer-reviewed journals don't matter at all in economics, but their role is more to ratify the outcomes of discussions that have already been going on for years via writing and revision of working papers.

Blogging for economists is just another way of accomplishing what was previously accomplished via sharing of working papers, albeit a more democratic and open way (traditionally, you had to have the "right" connections in order to get copies of the "right" working papers). Ecologists lack a tradition of pre-publication sharing and discussion of ideas in written form. We sorely need to develop one.

Further, the unexpected economic crisis prompted many economists to take up blogging. They wanted a faster-paced and more open way to do the intellectual soul-searching that was widely seen as necessary. They also needed to respond to the need for policy advice. Economies, and economic policy, operate on much faster timescales than do peer-reviewed journals. In contrast, ongoing ecological crises weren't unexpected. There has been no huge, unexpected real world event that would prompt ecologists who aren't currently bloggers to start blogging. And ongoing ecological crises, while urgent, mostly don't play out on timescales of days, weeks, or months, and so ecologists aren't asked to develop or revise policy advice on such short timescales.

I suspect that these historical factors are the most important impediments to development of a stronger culture of blogging in ecology. It is true that ecologists also lack explicit incentives to blog: blogging isn't rewarded by hiring committees, tenure and promotion committees, or granting bodies. But economists lack those incentives too, and yet many economists blog, including such prominent economists as the aforementioned Paul Krugman, Harvard professor and former Presidential adviser Greg Mankiw, Stanford professor and former Presidential adviser John Taylor, 2012 Nobel Prize in Economics recipient Alvin Roth, and many others. Similarly, I have heard numerous ecologists remark that they would like to read more blogs, or even blog themselves, but lack the time to do so. But economists also have many competing demands on their time. The issue is not lack of time, but time allocation. In ecology, allocating time to blogging is becoming more common but remains a somewhat unconventional choice.

So if blogging is ever going to become as important to the conduct of ecology as it is to economics, I think it will be a slow process. The culture of an entire field doesn't change overnight. But the example of economics gives us a vision of what the endpoint of that slow process of change might look like. Blogging isn't, and can't be, a replacement for the peer-reviewed literature, but it can be a hugely valuable complement.

Acknowledgements

The ideas described here reflect my own experience as a blogger, my reading of various economics blogs, and

conversations with macroeconomist and blogger Nick Rowe.

Special Issue Editors

Christopher Lortie – lortie@yorku.ca
York University

Jarrett E. Byrnes – byrnes@msi.ucsb.edu
University of Massachusetts Boston

References

- Connell, J. 1978. Diversity in tropical rain forests and coral reefs. *Science* 199:1302–1310. [CrossRef](#)
- Fox, J.W. In press. The intermediate disturbance hypothesis should be abandoned. *Trends in Ecology and Evolution*. [CrossRef](#)
- Hubbell, S.P. 2001. The unified neutral theory of biodiversity and biogeography. Princeton University Press.
- Priem, J., Piwowar, H.A., and B.M. Hemminger. 2012. Altmetrics in the wild: using social media to explore scholarly impact. arXiv:1203.4745v1.