

#TheTweetingBird: The Rise and Impact of Social Media in Ornithology



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Steve has spent much of his 30-year career communicating science at different levels. He has run the British Ornithologists' Union for the last 20 years and is responsible for delivering most of the society's activities including all social media and communications. His recent focus has been on peer-to-peer communication, educating his research community about the benefits of using media and in particular about altmetrics.

When you publish your research, you look for impact. Impact comes in different forms, but most publishing academics strive for their work to be cited, providing them with some level of merit from their peers within their research community.

Since 2014, a new measure of impact has been around—altmetrics—which measures not the scientific quality of the research article, but an article's online attention by way of tracking mentions in news media, on blogs, and across (some) social media platforms.

In some sectors, scientists have been very slow adopters of social media. That isn't true for ecology, and in particular, ornithology (avian science), and, rather appropriately, ornithologists have taken to Twitter (tweet-tweet) like ducks to water to promote their research. So it isn't particularly surprising that some of the more meaningful early studies connecting the online attention of research articles to citations have come from these areas.

Peoples et al found that Twitter can predict the citation rate of ecology articles,¹ and our own recent study used Altmetric data to show that not only did online mentions predict future citations in ornithology, but that Twitter contributed 75% of all the altmetrics of ornithology articles.²

More recently, and more broadly, Ortega showed that papers in journals with their own Twitter accounts are tweeted up to 46% more than papers in journals without a Twitter account, and this activity translated to an up to 34% increase in citations of a journal's own articles.³

The question I am frequently asked by nonornithologists is how did the (to many, obscure) field of ornithology achieve this?

Ornithology in the Social Age

Ornithology has an established and mature community on social media thanks largely to several key, early-adopting, stakeholders including my own society, the British Ornithologists' Union (BOU). We took to Twitter and Facebook in 2011 to promote not only articles from our own journal (*IBIS*), but all ornithology articles. Our rise on these two platforms has been steady, and on Twitter we now have over 12,000 followers (by far the largest journal/society account in ornithology). We tweet around 20 times a day, mostly about new avian research articles. Many other ornithology journals and societies are now on Twitter, but the BOU is the only account that genuinely promotes all ornithology, tweeting and posting on any article, from any journal (even our fiercest rivals), for as a community society we see way beyond our own society's needs and are there to serve our community as broadly as we can.

Twitter has fast become the platform of choice for ornithologists. Most of the content remains science focused, with relatively little chat. Twitter also uses a hashtag system: Hashtags collate all mentions of a particular tag which can be saved by the user for quick access to all tweets on that tagged topic. These tags have also led to the establishment of community tags providing groups with distinctive identities. In 2012, the BOU established the #ornithology hashtag to promote all aspects of ornithological research on Twitter. This soon took off and the tag is well established and a key driver for our community. From tracking the use and reach of the tag, we know it has grown from around 150,000 impressions a day in 2014 to circa 1.5 million impressions a day at the end of 2017.

The third factor contributing to ornithology's perfect Twitter storm is education. From the onset, the BOU adopted

the role of community educator on all things social media, and latterly altmetrics. We have a masterclass blog series which informs about Twitter best practices, the benefits of promoting your own research, which platforms to use, and the role of altmetrics and how researchers can track the attention of their own research articles.

As a result, ornithology researchers taking up social media in recent years have found a ready-made community to hook up with, and audience to tap into.

Online Mentions and Citations

Understanding that in ornithology we have a well-established and mature community on Twitter, we wanted to explore whether Twitter activity around published ornithological research was measurable, and whether or not online activity translated into citations of the research articles being promoted.

We looked at the Altmetric Attention Score (AAS) of over 6,000 research articles published in 10 ornithology journals between 2012 and 2016. Even over this relatively short period the AAS of articles have increased, which might be expected given the increased use of social media during the same five-year period. An important finding was that Twitter was by far the most important contributor (75%) to the overall AAS of ornithology articles, followed by news media (13%), blogging (8%), and Facebook (2%) (Fig. 1).

We then looked at a subset of these ornithology articles, plus articles published in broader ecology journals, published in 2014 and cited in 2015 and 2016. Here we found a positive correlation between online mentions (measured by AAS) and the number of future citations. This relationship was strongest for articles published in journals with a lower Impact Factor (Fig. 2). Articles published in higher Impact Factor journals appeared to be higher cited regardless of online activity.

We can't establish whether articles which received more online mentions were cited more due to this increased attention, or whether more 'citable' articles get more online

mentions because of their higher quality/relevance. However, either way, it appears that AAS can provide a more immediate measure of articles' future scholarly impact in ornithology.

Given the academic, community, and wider societal benefits of promoting your research, there are several ways in which an individual can publicise their work online. Twitter is the most important, being the largest contributor to ornithology altmetrics, and arguably being the easiest way to share links to published articles online.

Things you can do to promote your own research:

- Tweet—the single biggest impact you can make on the online attention of your research
- Post on Facebook
- Blog about your research
- Add references to your published research on Wikipedia

All of these easy-to-do activities are covered in more detail in our article.²

With all the energy and time that you put into your research, publicising and promoting your published article should be viewed as equally important, with benefits to the individual, science community, and wider society through outreach, education, and conservation.

The BOU—160 Years Old and Digital, Dynamic, and Social

This year the BOU celebrates its 160th anniversary. Like many, particularly older, societies have found, adapting to the fast-changing worlds of science, journal publishing, and society as a whole is both daunting and difficult.

The BOU is a small learned society with around 1,250 members globally publishing a single journal, *IBIS*, with an impact factor of 2.279 (2016) and ranked second of 24 journals in ornithology. Our actual society size belies the size of our global ornithology community as seen by our social media presence (Fig. 3).

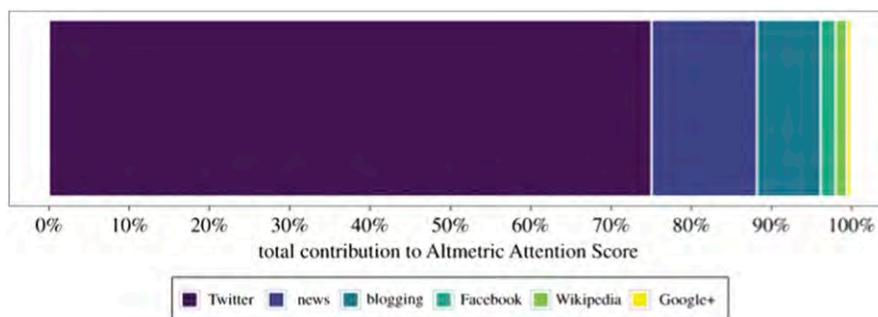


Figure 1. Twitter is by far the largest contributor to ornithology articles' altmetrics. Reproduced from Finch et al.²

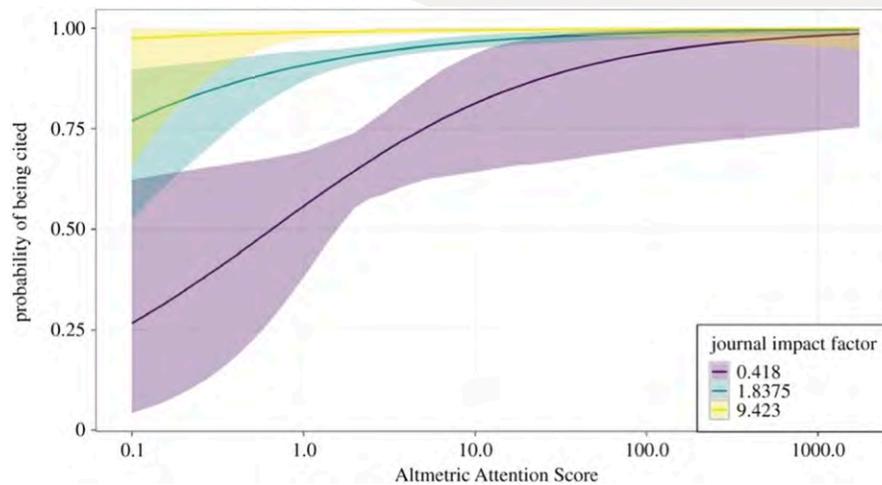


Figure 2. The association between AAS, journal Impact Factor, and the probability of being cited. Articles promoted on social media from lower Impact Factor journals show the greatest increase in the probability of being cited. Reproduced from Finch et al.²

Like many small societies, our resources are very limited and come largely from our small membership and income from our journal. We are therefore very careful about where and on what we spend our finite resources.

The digital age has allowed societies to reduce some costs with better use of online communication. Even so, for small societies this has not been as marked as people think, with the main saving being the switch from costly printed postal

communication to members to digital delivery. Social media however enables us to widen communication at the society level as well as broaden the promotion of ornithology as a whole to a larger audience than we were previously able.

The BOU has continued to grow its online presence, including across social media (Fig. 3). We use social media and other tools to not only promote ornithology to the widest possible audience, but to promote ourselves as an active and dynamic society and to drive people to our website. Social media is key to this and accounts for 20% of our overall society website traffic (it was <5% in 2013). We've similarly grown traffic to our journal website, and at the end of 2016 social media accounted for 7.5% of traffic (1.5% in 2013).

More recently, we combined our social media skills and our experience of running conferences to run our first Twitter conference. Our largest two-day face-to-face event had around 60 presenters and 200 delegates. Our recent two-day Twitter conference had 67 presenters and an audience of over 3,000 people with a potential reach of 4.5 million! Twitter conferences deliver other benefits too—they are more inclusive and diverse, allowing people from all around the world to take part, people who would otherwise not be able to attend a face-to-face event. And with all the presenters and audience taking part from wherever they were at the time, Twitter conferences are also very environmentally friendly!

I think there are few more important roles a society can have than to educate its research community about changes in their field, including areas such as communicating their own science for themselves. Most scientists who have not yet taken to social media are either sceptical or ask why have they not joined in the conversation earlier. One test I use is to



Figure 3. The BOU's social media use—year joined and number of followers. Twitter is the largest contributor to ornithology articles' altmetrics, Facebook a minor contributor; Instagram and Weibo do not count towards altmetrics.

ask someone how many profile views they get per month on sites like ResearchGate or their online department profile. It's usually in the tens at best. My Twitter profile views average around 2,500 a month!

Over the last five years, the BOU has managed to combine new technologies and media with traditional society activities and should act as an example of how a small society can adapt and prosper in the new digital and social age. Don't be afraid!

Communicating Science

Studies such as our own² are contributing to a growing body of evidence in a language that scientists themselves can understand. The benefits of communicating science on social media are becoming increasingly clear at the individual researcher, community society, journal publisher, and wider societal levels.

Funding bodies are also paying increased attention to science communication, in particular altmetrics, as this provides them with a ready-made indicator of the attention a piece of published research has attained. As this new metric matures and becomes both better understood and trusted, it will provide funders with evidence on which of their spending reached a wider audience. This may be a crude way of viewing science funding, but because much of the money scientists spend comes from the taxpayer, it's a measure funders can use themselves to better explain their funding practices.

Science communication isn't for everyone. I've often said that some scientists shouldn't go near it—they simply aren't good at communication. That's fine. I'm not much cop at

many things either, and I leave them to others (like the analysis for our paper!). But that should only serve to encourage researchers to broaden their search for collaborators that can bring in different skills to their research or paper, including individuals in their field who are good at communication and in particular, know how to get the best out of social media to promote their research.

For Further Reading: The BOU's Online Resources

We educate our ornithology research community using our blog ([#theBOUblog](#)). I have penned a series of articles highlighting the benefits of using social media to promote research and how best to do it (e.g., which platform to use, a Twitter masterclass series). All our social media online resources can be accessed via the BOU website '[Social media—bringing it all together](#)' page.

References

1. Peoples B, Midway S, Sackett D, Lynch A, Cooney PB. Twitter predicts citation rates of ecological research. *PLoS One*. 2016;11:e0166570. [Crossref](#)
2. Finch T, O'Hanlon N, Dudley SP. Tweeting birds: online mentions predict future citations in ornithology. *R Soc Open Sci*. 2017;4:171371. [Crossref](#)
3. Ortega JL. The presence of academic journals on Twitter and its relationship with dissemination (tweets) and research impact (citations). *Aslib J Inf Manag*. 2017;69: 674-687. [Crossref](#)

ISMTE Resources



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