

Editorial

Ecological publishing nowadays: the abandonment of binoculars and the raise of the Artificial Intelligence

There was a time in which each researcher used to go to the post office to ship his/her manuscript to the Journal and the answer with the reviewers' comments were similarly delivered by the postman. That time was up to twenty years ago, a lapse of time that seems a geological era in the world where we live. Of course, now no one shares doubts that those changes in publishing, introduced thanks to internet, were a great opportunity for researchers allowing faster publication time and an easier availability of papers. However, now publishing is changing again. One of the main changes that biologists are facing is that field studies are often considered as low-level research and relegated to low-rank journals. A recent paper highlighted that from 1980s until now fieldwork-based publications decreased by 20% in comparison to a rise of 600% and 800% in modelling and data analysis studies with a strong increase in such difference occurred in the last five considered years. Moreover, only 55% of papers published in top journals are fieldwork based that is in contrast with the 93% of lower-rank journals (Ríos-Saldaña *et al.* 2018). Another recent paper showed that the representation of long-term ecological and environmental studies in reports written to inform policy for administrators and stakeholders was greater than their representation in the ecological literatures and, at the same time, funds for long-term studies drastically decreased (at least in the United States) over the past decade (Hughes *et al.* 2017). Furthermore, we are experiencing a still dramatic lacking of basic biological data (in some cases even for common species) about populations size, distribution, behaviour and reproductive biology just to give some example (see also the paper by Massa & Borg in this issue, Gil-Sánchez 2018). So far, ecological researchers and ornithologists in particular, are facing to the paradoxical situation in which there is a dramatic urgency for field-based data but collecting these data is progressively considered a minor issue also by the scientific community.

In general, this situation reflects the Society's disconnection with wildlife and it is pushed by the request of synthesis and global patterns. Concerning a researcher's point of view, competition among biologists is high, funding opportunities for research is scarce and therefore career opportunities too, and if a researcher wants to go on with his/her activity needs to publish on high rank journals having a short time for collecting field data or having not time and resources at all for fieldwork. To this situation, that is not completely new, now we add that journals select meta-analysis and modelling papers because it is supposed that they are more cited. We are in the big data era and is available an increasing number of platforms allowing the use of large data set, such as the citizen-science ones (Kobori *et al.* 2016). So, a question arises, what is the need of doing field studies? First of all, collecting data on the field is, in most of cases, an essential prerequisite to understand natural dynamics and events. It is not only a matter of biophilia, the intrinsic attraction of human for nature (Wilson 1984, McCord 2012). In a passionate paper Dijkstra (2016) stated that: "*biological research is an interaction between the inventory of life's diversity and the investigation of the forces shaping it*", this is a charming point of view but beyond it we cannot avoid to put the "boots on the ground" to see what happens. And the least we can do is to acknowledge the importance of the call made by Ríos-Saldaña *et al.* (2018) to the scientific community to raise up the profile of fieldwork-based investigations. Field data collection is expensive, time demanding and often the results of such activity are published after several years, and this is amplified in long-term studies. While we need to show that yearly metric of our

institution is competitive as well as we need to answer fast to institutions about their requests related, for instance, to the environment status. Lastly, all of us need to *tweet* something about our research. All of these needs do not really fit with field studies. But there is some more. Many young researchers that started a Ph.D. in the last few years do not have scheduled field activity. Data are already available and they have "only" to arrange analysis and paper writing. However, the first meaning of a Ph.D. course was different. It was expected that a student after graduating, along his/her path to become a researcher, spent from three to five years for a research. Such a long time was motivated by the fact that the Ph.D. student should make: the study design, data collecting, data analysis and paper writing. All the steps of a research. Probably in its own life after a Ph.D. the young researcher was expected to become part of a team and working only on some aspects of a research. But, being a Ph.D. part of the academic learning process, the student should be trained to carry out a research as a whole. This should be the meaning of becoming a researcher. Since now this approach is changing, it is not so rare to meet young researcher that completely do not know the species that are studying. How can a researcher model the flight behaviour of a bird without having spent time observing its study species in the field under different conditions of weather, ground morphology, social interactions? It seems impossible to reply to this question. But I can see the risk of compartmentalization of the learning and, in general, of the scientific process. In this way a researcher will be something different, a fieldworker (with almost no chances for career), a data analyst, a fund raiser, and so on. As a counter trend signal on last October the 2nd European Meeting of Young Ornithologists was held in Turin (Northern Italy) and together with the meeting's organizers, Avocetta has promoted a survey on the participants that will be published on our journal. Most of the young ornithologists at the meeting were field ornithologists and, despite the limited sample of researchers, it is an information that should be taken into account.

But changes are not all there. More changes are just behind the corner and it is not clear yet the role of an automatization of the publishing process in the next future. The last news is that AI (Artificial Intelligence) will be tested soon in the peer-review process. Most of the largest Publishers are introducing machine-learning software to replace part of the peer-review process, but not the final decision yet. As a first step AI might verify automatically if the statistical analysis is correct and might do a first screen of the manuscript extracting what the software identifies as the main statements (Heaven 2018). All the journals spend time to find good and available reviewers as most of the researchers do not accept review requests. There is not enough recognition for reviewers and it is even difficult to report peer-review activity on a curriculum vitae, that in most cases it is not considered by evaluators of a job interview. On the other hand, working on a peer-review requires time and concentration and this is why most researchers decline the journals' requests. Publishers are trying to bypass all these problems by computerization of the review process (no more a peer-review in the end) rather than gratifying and supporting the human reviewers. Even more, it seems that it is a new gimmick of the Publishers to raise money from the scientific community through selling a new editorial product. They are promising that AI will improve the peer-review process and boost the quality of published papers. But it is not clear how a software might replace the evaluation of a scientific hypothesis in the context of every branch of science. Or if the presented hypothesis is enough supported by the findings of the manuscript, if it is well exposed in the light of published literature, and so on. How can a software replace the knowledge gathered by an experienced researcher along the years not only in terms of notions, but also regarding the whole framework of the research branch? It is not for a Luddite feeling, but there is something that is not persuasive in this news. The idea that a series of algorithms could contribute in deciding if my next paper will be accepted leaves me somehow confounded. Don't you?

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