

Editorial

Mind the (gender) gap: prospects and strategies for women's career in ornithology

On a small island, someone is patiently looking at the ocean, waiting for the shearwaters to come back to their nests, the hair blown by a gentle breeze, a laptop full of notes open on the legs. On the other side of the globe, perched on a high ladder, a scientist is checking a Pygmy Owl nest box. A cautious song breaks the stillness of the morning: spring is coming and soon the taiga will be alive with breeding activities. In a small lab, under a buzzing lamp, a young researcher is hunched over a pile of ancient bird bones. Each one echoes past stories of changing climate, warning us about the future. A lonely figure stands against a hazy sky, meditating on the battles won and those still to be fought, the sea far in the background, a flock of Honey Buzzards gliding smoothly above the head. All these people have two things in common: they are passionate ornithologists, spending their lives to deepen the knowledge on bird life, either in the field, in a laboratory or in front of a statistical software. And they are women. Only a few years ago, ornithology was a matter for men. Or at least, this is what emerges, at first glance, from the history of ornithology. Famous and internationally recognized personalities such as John Gould, Tommaso Salvadori or Ernst Mayr have overshadowed the work of female colleagues who for centuries have seen their involvement and activity in certain cultural areas, including the scientific one, strongly hindered by social and cultural rules. In fact, if we dig deeper, we discover that ornithology was not entirely dominated by men, since bird life-history, behaviours and evolution

have always attracted the attention and interest of many women, likely the most unconventional ones. The record of the most remarkable women's contribution in ornithology persists still today in the Latin name of the *Falco eleonora*, testifying the love for birds of Eleonora d'Arborea (1340-1404), Queen of Giudicati of Sardinia. With the *Carta de Logu*, in 1392, she legislated protection for hawks and falcons and prohibited the hunting of adult birds and the harvesting of chicks. This is believed to be the earliest-known bird-protection law. After Eleonora d'Arborea, we have to wait approximately four centuries before finding another prominent female character among the ornithologists, namely Florence Merriam Bailey (1863-1938), known as the "Victorian woman whose writing popularized watching birds instead of wearing them" (Meier 2018). In a period where bird feathers were the trendiest adornment for fans and dresses, women across the globe had an impact on the world of ornithology in various ways. Thanks to their brilliant minds, intuitions and skills they shook up solidified beliefs in the field and boosted new ideas using new approaches that eventually advanced our knowledge on birds. For instance, the abovementioned Florence Merriam Bailey changed the focus of studying birds from shooting them to observing them with binoculars, and promoted modern birdwatching. Similarly, Margaret Morse Nice, one of the most influential amateur ornithologists of all time, pioneered a new form of ornithology in the USA, demonstrating how to conduct a long-term and comprehensive study of animal behaviour and life-history by using bird-banding techniques, and introduced the study of territoriality in birds. Besides these unrecognised ornithologists there are other

women, such as Althea Rosina Sherman and Louise de Kiriline Lawrence, who devoted their entire lives to study a single species or their specific aspects (e.g., the Chimney Swift, and Red-eyed Vireo, respectively). Moving forward to the present days, the list of female ornithologists who substantially contributed to study and to protect the birds is much longer, including Helen James (Smithsonian National Museum of Natural History) or Laurel Tucker, and indeed it would be impossible to name all of them. However, despite female representation has increased fast, sex ratio in this field is still far from being balanced.

In order to raise awareness on the importance of female work in ornithology, during February and March 2021 the CISO launched a series of online conferences, “Le Donne nell’Ornitologia” - “Women in ornithology” (available at <https://www.ciso-coi.it/en/attivita/le-donne-nellornitologia/>), focused on the research and on the conservation and dissemination activities carried out by women. The initiative was intended to celebrate the International Day of Women and Girls in Science, promoted by the United Nations on 11th of February, and involved 30 Italian speakers scattered all over the world. The talks ranged from alien species to endemic ones, from orientation to breeding biology, from parasites to migration, from anti-poaching to citizen science. Some speakers were senior scientists occupying leading positions at universities or other institutions. Others were young women committed to making their way in research, or volunteers who devote most of their spare time to bird conservation and environmental education. The conferences had a great impact on the Italian public, each one reaching more than 2.500 views.

But why is this topic rising so much interest? Is there still a need, in the 21st century, to talk about the gender gap? The evidence-based answer clearly states “Yes there is”. Globally, only one out of three people employed in research is a woman (with a few exceptions: for example, in Myanmar that proportion soars to an impressive eight out of ten). If we look at the highest levels, the situation is even worse: in Europe, just over 10% of the senior research positions

are occupied by women and a bare 3% of the Nobel Prizes have been so far awarded to female scientists (UNESCO 2021). This is striking, if we consider that women constitute more than 50% of all students in a number of scientific disciplines, such as life sciences (Khan et al. 2020). Such a phenomenon, often referred to as “leaky pipeline” (Shaw & Stanton 2012, Walker 2018), is driven by a plethora of factors, ranging from parenthood, which usually weights especially on mothers, or caregiving of elderly or ill members of the family, to the lack of female role models and mentors for girls pursuing a scientific career, or men-dominated working environments, where a woman may feel somewhat isolated (e.g. Hansen 2020, Lerman et al. 2021). But there are also other barriers, more subtle and vicious, that hinder the progression of women’s careers in science. The most prominent is the pervasive stereotype about women not being suited to be researchers; in order to overcome such a common thinking and access a position or a grant, women generally have to prove to be much more competent than their male counterparts endowed with the same skills (Williams 2015). Indeed, female work tends to be undervalued compared to male’s one, to such an extent that the same research could be rated worse (even by women!) if the name on the top of the page is feminine, as shown by a famed 2012 study appeared on PNAS (Moss-Racusin et al. 2012). It is not surprising, therefore, that women publish less and in lower ranked journals, and are less likely to be the last or the sole author of a paper, especially (and strikingly) in the wealthier Countries (see e.g. Holman et al. 2018, Odic & Wojcik 2020, Rock et al. 2021).

While women are the ones carrying the burden of inequity, it is the whole society that ultimately pays the highest cost. In a world facing major threats such as global change, habitat loss and running extinctions, every voice in the choir of Science makes a huge difference. Moreover, gender-diverse research groups have already shown to be more innovative and productive than male-only ones (Malekjani 2017). Ornithology, and research in general, can no longer

afford to exclude half of the population due to a retrograde socio-cultural heritage. Luckily, the gender gap is narrowing, but not fast enough (Holman et al. 2018). A stronger inclusion of women in science will demand an efficient strategy to address the current issues and those to come in the near future.

And here is the tricky question, what is the best strategy for accelerating this gender-gap filling process? Tricky question and a dilemma too. In a recent questionable debate between the authors of the Italian talk show “Propaganda Live” and the foreign policy analyst and journalist Rula Jebreal, the tv host Diego Bianchi stated they invite their guests based on their competence and not for their gender (<https://bit.ly/3w4tZdj>). So if we want to generalize, provocatively if you wish, a woman should be called to cover a task when she is the most competent person in a specific expertise field, regardless of her gender, or should she? Back to our grounds, let's look at an example. In the next ornithological meeting, should the scientific committee select the talks after an assessment of the best abstracts, regardless of speaker genders? or, alternatively, should it balance quality and gender of...who? the first author? the senior one? At the last Italian Ornithology Congress organised by CISO in 2019, women accounted for 35% of the participants. We are still far from gender balance, but the percentage is rapidly rising from the first congresses. As with all complex issues, there is not a single, unique point of view to provide the Solution, but probably to acquire fresh, new perspectives with fresh, new initiatives. By organising the talk series “Le Donne nell’Ornitologia”, the CISO aimed at shining a light on the research and activities conducted by female Italian ornithologists working both in Italy and abroad. The purpose of the CISO was to promote female role models in the many, diverse fields of ornithology, and therefore encourage the future generation of female scientists, teachers and volunteers, thus making further steps toward a gender-balanced ornithology. The goal was also to spark interest of people that knew little about birds and bird-related studies and conservation, with talks

that encompassed several of the most fascinating aspects of this amazing discipline. The outstanding involvement of the speakers and of the public, the interesting discussions raised and the general success of the event are a clear indication that we might be moving in the right direction. The next few years will be crucial to complete the task.

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