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What can we learn from antique ornithology?

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Introduction

Ornithology has a venerable history. Worldwide, birds are both culturally important and one of the most salient reminders of the natural world, and beyond their regular appearances in folklore, literature and art they were among the first subjects of natural history from the classical world to the Renaissance. The study of birds remained a fixture of inquiry through the scientific revolution: Philosophical Transactions of the Royal Society, the oldest scientific journal still published, included ornithological method papers in its very first volume (Boyle 1666), and as scientific practice developed ornithological research kept pace.

A growing interest in the diversity and systematics of birds ultimately led to the formation of dedicated ornithological societies and journals in the second half of the nineteenth century. First were the Society of German Ornithologists (Deutsche Ornithologen-Gesellschaft) in 1850 and the British Ornithologists' Union in 1858; their respective journals '*Journal für Ornithologie*' (now '*Journal of Ornithology*') and '*Ibis*' followed in 1853 and 1859. In America, the American Ornithologists' Union was founded in 1883 with its journal '*Auk*' beginning the same year, followed by the Wilson Ornithological Society (1886) and Cooper Ornithological Club (1893) and their journals shortly thereafter. The Royal Australasian Ornithologists' Union (now part of BirdLife Australia) was founded in 1901, along with its journal '*Emu*'. Amazingly, all these publications are still extant, and digital versions of much of their content are now available back to their first issues.

In common with other branches of science, ornithological research has exploded in recent decades, and with this plethora of new work, it is tempting to disregard the older corpus of knowledge, under the assumption that it has either been superseded or is too

far removed from modern practice to be useful. However, with over 10 000 extant bird species worldwide and the avifauna of many regions still rarely studied, we would encourage the ornithological community to not overlook earlier literature. In this note, we illustrate the potential interest and value of older studies using three diverse articles published in a single journal issue 100 years ago: volume nineteen of *Emu*.

Historical biodiversity

In early 1919, R. Stuart-Sutherland visited the surrounds of Puysegur Point, New Zealand (lat. -46.156, lon. 166.609) and reported his observations of the local avifauna (Stuart-Sutherland 1919). The article notes the presence and gives approximate abundances of 25 species, along with brief descriptions often including habitat and commonly associated species. A further four species are reported found dead after colliding with lighthouse panes.

While less scientific than a modern biodiversity survey, such information represents valuable early data about presence/absence and approximate rarity. By 1919 the extirpation of New Zealand's native bird fauna by introduced predators was well underway, and the article notes the already historical local disappearance of southern brown kiwi (*Apteryx australis*), great spotted kiwi (*A. haastii*), kākāpō (*Strigops habroptilus*), and (the now likely extinct) South Island kōkako (*Callaeas cinereus*). The species observed by Stuart-Sutherland have experienced different trajectories in the past 100 years: some, like the little penguin (*Eudyptula minor*) and tomtit (*Petroica macrocephala*) have declined but remain numerous, while other formally abundant species such as kākā (*Nestor meridionalis*) are now endangered. Conversely, the weka (*Gallirallus australis*), that was only rarely seen and

which Stuart-Sutherland considered certainly doomed by the introduction of weasels, remains merely vulnerable and still inhabits large areas of native forest in both North and South Island.

At the time of Stuart-Sutherland's visit, the Puysegur Point lighthouse was around 40 years old, and would stand for another 33 years before being burnt down by a disgruntled alluvial gold miner from nearby Coal Island who objected to it disturbing his sleep. However, the tower was soon rebuilt and the 'bush-covered, outlandish spot' of Puysegur Point continues to be managed by the New Zealand Department of Conservation, whose staff conduct regular biodiversity surveys throughout Aotearoa. While less reliable and complete than these modern data, older studies such as Stuart-Sutherland's provide early information crucial to benchmarking changes in biodiversity and species distributions and contain the only available information about now-extinct species.

Behavioural ecology of rarely studied species

Outside of Europe and North America, little was known about the behaviour and ecology of many bird species until very recently. This makes even older, informal studies invaluable, especially for researchers interested in conserving or studying said species. One example is work on the reproductive biology of the gibberbird (*Ashbyia lovensis*) published in *Emu* by J. Neil McGilp (1919). This paper contains many useful notes, and references two previous *Emu* articles that gave the first descriptions of the species and its eggs. Like most native birds of the global south, the gibberbird has never been the subject of a formal scientific investigation, making such observations the only sources available.

In addition to describing the gibberbird's nest characteristics (structure, composition, and construction), clutch size, and breeding dates, McGilp's article also contains notes on the gibberbird's preferred habitat, vocalisations, and precise details of its behaviour when disturbed from the nest. Similar interesting content can be found in the two previous articles McGilp cites, including more detailed egg descriptions and photos of sufficient quality that egg shape and pattern could be assessed. Together, articles such as these undoubtedly contain vast untapped resources for future comparative analyses, and are becoming increasingly easy to find and collate.

Information on biological invasions

Today, invasive species are a key ecological and conservation concern worldwide, but the establishment of

species in new territory was also of great interest to ornithologists historically, particularly in Australia and New Zealand. Writing based on information collected from various sources, in 1919 A. H. Chisholm briefly reviewed the introduction of non-native avifauna in Queensland (Chisholm 1919). This article reports successful and failed artificial introductions of a number of bird species, when these species appeared in certain regions, and dates and approximate numbers of known shipments of birds released in deliberate introduction attempts.

The ongoing value of such reports remains clear. Most directly, models of the demography and ecology of current and potentially invasive species are informed by the origin, date, and initial population size of the invasion and by any information about later extent. Secondly, failed introductions are relatively rarely recorded, but provide information about the local selection pressures on invaders and likelihood of establishment; this is crucial to understanding the risks around future natural or artificial introductions. Initiatives such as the Global Avian Invasions Atlas (GAVIA) have collated many historical records to answer these questions, but it is likely that valuable information remains undiscovered in undigitized historical journals, newspapers, and other media such as records of acclimatisation societies in Australia and New Zealand. While individually older reports may contain inaccuracies, particularly articles such as Chisholm's that are substantially based on hearsay, combined with other period sources for verification they can be extremely useful.

Historical articles are also invaluable for recording the attitudes and rationales that led to introduction attempts, and the (already growing) appreciation of the potential dangers of such introductions. For example, Chisholm reports both the Indian myna's (*Acridotheres tristis*) introduction to control locusts, and the Oriental turtle dove's (*Streptopelia orientalis*) introduction to gardens for its 'pleasing music'. Interestingly, the article also reports a failed introduction of the Indian mongoose, released to hunt a plague of rats that followed a locust swarm. Given the problems currently faced by native fauna from introduced mammalian predators, this was undoubtedly a lucky escape for the birds of Australia.

Conclusion

Antique literature contains information that remains useful today. The three above examples illustrate some of the variety afforded by a single century-old volume of *Emu*, and other early books and journal issues hold equally interesting content. As digitising and indexing

older literature becomes increasingly common, collating and validating this information will continue to become easier, and we encourage researchers to seek out the original studies rather than relying on secondary sources. Beyond their value individually and in combination, integrating older studies with modern perspectives can also provide valuable insights: for an in-depth example, see Boland and Cockburn's (2002) fascinating review of the early study of cooperative breeding in Australian birds, and discussion of why this breeding system and the early work studying it went overlooked for so long.

Finally, while we have focused here on 'antique' articles, much more recent literature can also be unjustifiably overlooked. Twenty years on, there is a growing temptation to view the entire 20th Century as outdated when discussing ongoing fields of study, particularly as the volume of new work increases. However, while hypotheses and methods have changed, many older articles remain the best examples of focused experiments or observations of particular behaviours or species, and their introductions and discussions contain valuable complementary perspectives to more recent work. The diversity of study species, environments, and questions in ornithological research means studies

are rarely completely outdated or superseded, and this ongoing value is something we should cherish.

Disclosure statement

No potential conflict of interest was reported by the authors.

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