# canberra bird notes

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*Canberra Bird Notes* 50(1) (2025): 1-3

# EDITORIAL

## The 50th volume of *Canberra Bird Notes* (*CBN*)

By the end of 2014 when the Canberra Ornithologists Group, now Canberra Birds, celebrated its 50th anniversary 39 volumes of *Canberra Bird Notes* (CBN) had been produced, originally as a *Monthly Newsletter.*

In 2025 *CBN* publishes its 50th volume and I offer some thoughts and wishes for its continuance.

The first volumes suggested the 'mission' of this publication was:

> …as a *newsletter* for members of the Canberra Branch of the R.A.O.U. and other interested persons. It is intended purely as an informal medium of communication and does not constitute a recognised journal (CBN No. 1).
>
> Despite the disclaimer, much of the content is good citizen science mixed with a diverse range of personal insights into many aspects of bird biology, ecology and behaviour. https://canberrabirds.org.au/publications/canberra-bird-notes/
>
> It will be our policy to keep the contents predominantly local in flavour. However, by 'local' we consider it reasonable that the south-eastern corner of N.S.W. as well as the A.C.T. should be included. In addition, we shall print short notes, etc. of a more general nature which may otherwise go unpublished in our more established ornithological journals. (CBN No. 2, November 1968)

Over the years, many notable articles by many, many authors have been published in *CB*N. However, considering its future, there are some concerns.

The number of contributions to *CBN* is declining and the author base is shrinking. This may in part be a consequence of changes in the way birdwatching is being conducted in recent years. With the advent of a phone app (ebird) for recording bird observations, the focus has shifted to achieving long annual species lists (a fine pursuit in itself), but it seems few observers have more ambitious projects.

Not enough questions are being asked or lines of enquiry pursued in depth to raise our understanding of local bird communities or bird biology, yet the need for such projects is greater than ever.

The avifauna of our area, wider Australia and the world has seen many changes over time and significant declines in bird populations. **We can no longer be assured that we will still see today's birds tomorrow!**

The decline of many species has been attributed to various factors, such as habitat loss and fragmentation, intensification of agriculture, pesticide use, invasive species and climate

change.[1] More recently, concerns have been raised that a lack of food (caused by reduced invertebrate populations, notably insects), may further accelerate the decline of bird species.[2]

With a decline in their food base, insectivores will be more affected than seed-eaters, as studies have shown in North America,[3] but many seed-eating birds also require insects for rearing their young. An analysis of population trends in woodland birds over a 21-year period in the ACT found a decline for 32 species[4]: 65% of these species are insectivores. Of 16 declining species, previously regarded as common, 81% are insectivores. Several of the others have a partial diet of insects.

As has been pointed out, extinction and decline in invertebrates go largely unnoticed.[5] No doubt the same applies to birds.[6]

Against this background, it becomes very important to document the current status of our birds at as many sites as possible for future comparative studies and conservation measures. Individual observers can contribute to such assessments by monitoring particular species or communities at sites of their choosing, taking care to follow consistent protocols.[7]

A couple of notable cases from recent years, published in *CBN*, may serve as positive examples: Jack Holland has greatly raised our understanding of the biology and phenology of the Pacific Koel in Canberra in several articles. Geoffrey Dabb has provided detailed written and photographic accounts of a remarkable breeding event between New Holland and White-cheeked Honeyeaters at the Jerrabomberra Wetlands Reserve, and has documented the breeding history of the resulting hybrids over many years. Zebedee Muller and Luke Downey, from the young generation of observers, have surveyed our mountain ranges for the presence of White-throated Nightjars.

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[1] Bennett *et al.*2024 *Emu – Austral Ornithology* 124: 123-145; Hallmann *et al.* 2014 ***Nature*** 511: 341–343; Lees *et al.* 2022 *Annual Review of Environment and Resources* 47: 231-260; Rigal *et al.* 2023 https://doi.org/10.1073/pnas.2216573120; Rosenberg *et al*. 2019 *Science* 10.1126/science.aaw1313, 9 pp.

[2] Braby *et. al.* 2023 *Emu – Austral Ornithology* 123: 255-257.; Cowie *et al.* 2022 *Biological Reviews* 97: 640-663; Hallmann *et al.* 2017 *PLoS ONE* 12 (10): e0185809. https://doi.org/10.1371/journal. pone.0185809; Wagner 2020 *Annual Review of Entomology* 65: 457-480; Watson 2011 *Emu* 111: 10-15; Woinarski *et al.* 2024 *Cambridge Prisms: Extinctions* 2e23: 1-11.

[3] Nebel *et al.* 2010 *Avian Conservation and Ecology* 5(2) 1.

[4] Bounds *et al.* 2021*) Long-term Trends in ACT Woodland Birds 1998- 2019.* Canberra Ornithologists Group, ACT.

[5] Woinarski *et al.* (2024) *Cambridge Prisms: Extinctions* 2e23: 1-11

[6] Bennett *et al.* 2024 *Science* 10.1126/science.aaw1313, 9 pp.; Bounds *et al.* 2021*) Long-term Trends in ACT Woodland Birds 1998- 2019.* Canberra Ornithologists Group, ACT.

[7] Bennett *et al.* 202 *Science* 10.1126/science.aaw1313, 9 pp.; Cowie *et al.* 2022 *Biological Reviews* 97: 640-663.

It is clear that contributions from ‘citizen scientists’ have to go well beyond the compiling of species lists if we want to monitor and understand the current dynamics of the birdlife around us.

I urge readers of *CBN* to consider adding to our knowledge of local bird populations by making detailed observations and compiling them into articles which can be shared. Only in this way can *CBN* have a long-term future. The editors and others in Canberra Birds will be happy to discuss any projects and provide advice.

***The Editor***

# *ARTICLES*

*Canberra Bird Notes* 50(1) (2025): 4-20

## BIRDING IN THE UK – A CANBERRA-BASED BIRDER'S IMPRESSIONS

JOHN HURRELL

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### Introduction

I was at the wetlands the other day watching a group of cattle egrets when a harrier flew over and spooked them. As the egrets flew off, they were joined by a Glossy Ibis. A short while after, a White-winged Black Tern flew over and hawked for insects.

The ibis and tern were lifers for me. Not a bad day's birding at Jerrabomberra you might think. But no, the wetlands were at Dungeness in Kent in the UK and the ibis and tern were UK lifers; I had already seen them both at the Jerrabomberra Wetlands. Admittedly the egrets were Western Cattle Egrets rather than Eastern Cattle Egrets and the harrier was a Marsh Harrier rather than a Swamp Harrier but close enough in size, looks and behaviour to be instantly recognizable.

**Figure 1. Glossy Ibis and Western Cattle Egrets. Dungeness, Kent.**

**Figure 2. Glossy Ibis. Jerrabomberra Wetlands.**

The ibis and tern are either rare or uncommon in both the ACT and the UK. Seeing these two birds at Dungeness got me thinking about UK birding and how it compares to birding in Australia and more specifically birding in the ACT.

I have only been birding for the last five years, mainly in the ACT but with the odd foray further afield. I have also birded in the UK when visiting family and friends, usually for several months each year, so I have recent experience of birding in both Australia and the UK. I am aware that some more experienced Canberra-based birders have visited the UK on occasion, but probably not so often and not for such long periods.

The aim of this article is to describe my birding experience in the UK from the perspective of a Canberra-based birder. In addition, the article compares the status of those bird species that have been seen both in the ACT and in the UK.[1]

**Background**

My wife and I live in Canberra but also travel to the UK for extended periods each year to visit our children and grandchildren. We generally stay with family in Walton-on-Thames, a suburban town in the county of Surrey just south of London. We usually visit over the UK summer but we have occasionally visited during the other seasons.

**Canberra-based birding in Australia**

I do most of my Australian birding in the ACT but more recently I have been venturing further afield, either by myself or with a more experienced birding friend.

My main sources of information for birding within the ACT are:

- eBird, the Canberra Ornithologist Group (COG) website, and networking with other local birders.
- My main sources of information for birding further afield in Australia are eBird and bird books, including the Australian Good Birding Guide series of guides written by Ted and Alex Wnorowski. I also read the Tim Dolby Bird Trip Reports if they cover areas I plan to visit.
- When birding in Australia I use the Pizzey & Knight Birds of Australia and the Morcombe & Stewart Guide to Birds of Australia mobile phone apps primarily to identify bird calls. I also sometimes record bird calls using the Merlin Bird ID.

**Birding in the UK**

I do most of my UK birding locally in Surrey but also when on UK family holidays in Norfolk, Devon and Scotland. More recently I have been doing day trips and longer visits to coastal sites in neighbouring Sussex and Kent.

My main sources of information for birding in the UK are:

- Bird listings provided by (1) eBird, (2) a British developed bird sighting platform called BirdTrack, and (3) a paid subscription service called Rare Bird Alert,
- UK Bird organisation websites including the British Trust for Ornithology (BTO) website, Royal Society of Protection of Birds (RSPB) websites, county bird club websites, county Wildlife Trust websites and UK Bird Observatory websites.
- Birding books including the "*Where to Watch Birds in ...*" series of guide books, and a book titled RSPB British Bird Finder.
- Birding magazines.
- I use Collins Bird Guide mobile phone app to help identify bird calls. This app is equivalent to the Pizzey & Knight Birds of Australia, and the Morcombe & Stewart, mobile phone

[1] Please note that this is not a scientific article. I have used the terms UK and Britain (British) interchangeably. I have also used the terms ACT and Canberra interchangeably

apps. I use the Merlin Bird ID app both to record bird calls and to help identify birds by their calls.

- In Scotland I use a free mobile phone app called Where to Watch Birds in Scotland, which has been developed by the Scottish Ornithologists Club (SOC), also known as the Scottish Birds Club. The app has a map with birding sites that you can click on to provide details of the site and what birds might be seen there.
- eBird

As in Australia the UK eBird listings are useful but visiting birders need to be aware that relatively few British birders use eBird. Moreover, my impression, based on numerous conversations with UK birders, is that the more dedicated and experienced birders tend not to use it.

It is also important to note that eBird uses US bird names by default,2 so for example, the default eBird name for what British birders call Shore Larks is Horned Larks, and what British birders call Goosander eBird calls a Common Merganser. It took me a while to discover the disconnect between eBird and local bird names, and in the meantime I had lots of confusing conversations with local birders when I asked whether they had seen birds they had never heard of.

Fortunately, it is quite easy to change eBird preferences to use British bird names. Anyone wishing to use eBird in the UK should consider changing their Species Name Display to English (UK). Even then eBird normally prefixes British bird names so that, for example, what British birders call a kingfisher[3] eBird calls a Common Kingfisher and what British birders call a hobby eBird calls a Eurasian Hobby.

Visiting birders should also be aware that, as in Australia, eBird does not provide public access to site level listings of bird species deemed to be sensitive. Sensitive species are those that are at risk of capture for the illegal wildlife trade, hunting, or disturbance of nests, roosts, or individual birds from birdwatchers or photographers. Some birds species are considered sensitive all year round, others only during defined periods, for example when they are breeding. So, for example, you will not find UK eBird listings for Peregrine Falcons during the period 7th March to 31st July, nor Golden Eagle listings at any time.

The list of sensitive bird species includes some birds that are likely to be on any visiting birder's target list, including European Honey Buzzard, Hen Harrier, Eurasian Goshawk and Dartford Warbler. Birders wishing to see these birds need to rely on alternative sources of information.

- BirdTrack

BirdTrack is managed by the British Trust for Ornithology (BTO). Birders can enter bird listings into BirdTrack using a mobile phone app or via its website.

The BTO is a far less well-known institution than the RSPB but does the bulk of scientific research on birds in the UK. The Australian equivalent of the BTO, and to some extent the RSPB, is BirdLife Australia, which does both scientific research and bird conservation.

[2] This is a very simplistic generalisation of what is a fairly complex issue regarding the taxonomy of birds, an interesting and sometimes contentious topic, but not the subject of this article.
[3] There is only one resident species of kingfisher in the UK.

The BTO focusses on bird science, research, monitoring and data, and publishing articles. The BTO claims to have 60,000 bird enthusiasts gathering data on their behalf, including compiling bird listings on BirdTrack.

In my experience a lot of British birders do not use either eBird or BirdTrack, but some British birders do use BirdTrack in preference to eBird.

It is not, I believe, unreasonable to assume that the more experienced British birders would tend to use BirdTrack in preference to eBird.

I do not list on BirdTrack as I find it far less intuitive and functional than eBird. I do, however, use it as a secondary source of bird listings.

The BTO website provides a wealth of data on the over 600 birds seen in the UK, and is an excellent source of information for anyone wishing to target a particular species of bird.

- Rare Bird Alert

Whenever I am in the UK I subscribe to the Rare Bird Alert news service. There are differing levels of services including pagers but I get the bird sightings delivered to a Rare Bird Alert mobile phone app.

The Rare Bird Alert website lists alerts which are also available to non-subscribers – albeit without the exact location details. They also provide daily and weekly news summaries which are also available to non-subscribers. Note that the sightings are not just of rare birds but also scarce (uncommon) birds and birds of particular interest, for example birds migrating through the UK.

There is an alternative subscription service called BirdGuides. I have used both and they provide an almost identical service.

Note that, at the time of writing, both Rare Bird Alert and BirdGuides offer free trials of their services for new potential subscribers.

- Merlin Bird ID

As in Australia, I use the Merlin Bird ID to record bird calls.

I also use the app to help identify bird calls using its Auto ID capability. I find the identification by sound feature a very useful aid to identification. It is far from infallible but works well for certain species of birds. I have not managed to use the Auto ID capability effectively in Australia.

- County Bird Clubs

Most counties have their own county birding organisation, and their websites can be very useful sources of information.

For example, the Surrey Bird Club website has a page listing recent notable sightings, which is updated daily. Interestingly, however, the list is a bit quirky because it only covers birds seen within the Vice County of Surrey – that is in the county as it existed in the late nineteenth century before numerous boundary changes. The result being that the list does

not cover Staines Reservoir, Surrey's most important birding hotspot,[4] but does cover some bird sites that are now in Greater London.

Another example, the Kent Ornithological Society webpage also has a page listing recent notable sightings, which is updated daily, but the daily updates are only available to club members. Non-members have to wait a week to see the sightings.

- Royal Society for the Protection of Birds (RSPB)

  The mostly popular and widely known birding organisation in the UK is the Royal Society for the Protection of Birds (RSPB). The RSPB manages over 200 nature reserves throughout the UK. Non-RSPB members often have to pay an entry fee for the larger sites, so if visiting a number of sites it might make sense to join the RSPB on a temporary basis.

  The RSPB publishes numerous bird books. I recently discovered a book called the *RSPB British Bird Finder* at Foyles Bookshop in London. Unlike like most bird guides, which are geographically based – i.e. what birds you might see if you visit a particular site or region – this guide is bird-centric. It provides advice on how (where and when) to find and watch more than 250 species of birds that can be seen in the UK. I wish I had found this book earlier during my trips to the UK.

- County Wildlife Trusts

  In addition to the RSPB reserves most, if not all, counties have wildlife trust reserves. For example, the Norfolk Wildlife Trust manages 46 reserves, some of which are exceptional birding hotspots.

- "*Where to Watch Birds in ....*" Guide Books

  There is a series of guides for birders entitled "*Where to Watch Birds in ...*" There is a guide for the whole of Britain and also several regional guides, including for Wales, Southeast England, East Anglia, and Surrey & Sussex. Unlike the Australian Good Birding Guide series of guides, which were all written by Ted and Alex Wnorowski, the Where to Watch Guides are authored by different birders. All the guide books are well structured but not all the information is arranged in identical fashion so I will describe the *Where to Watch Birds in Surrey and Sussex* guide book, which was co-authored by Matt Phelps and Ed Stubbs, and issued in early 2024.

  I did not have a copy of the previous Surrey and Sussex guide, mainly because it had been written over 15 years ago. I was very keen to buy the latest guide, not least because Ed Stubbs lives about half an hour from Walton-on-Thames and had a very readable blog about birding in his local patch, which I subscribed to.[5] I had also had some contact with him in his role as an eBird moderator for Surrey, and found him very knowledgeable and approachable.

  The Surrey and Sussex guide book is very structured. Each site is described in terms of: map coordinates, habitat, timing, species and access, and most sites have maps. One of the things I like about the guide is that it does not just list the birds that have been seen at a particular site, it also tries to give an honest assessment of the likelihood of seeing specific

[4] And ten minutes' drive from Heathrow Airport.
[5] No longer available, sadly.

species. It also covers when birds are most likely to be seen. Another very useful feature is that it has a list of local birding organisations and other links.

- Birding Magazines

  There are two monthly UK birding magazines that I am aware of. One is called *Birdwatch* and is associated with the GuideBirds bird-alert service. The other is called *Bird Watching*. Both magazines include topical and timely information, so for example, magazines published during the summer months tend to focus on summer visiting birds.

**Personal impressions**

The most notable difference between birding in Australia and in the UK is the sheer number of British birders, and the corresponding number of British bird reserves and wildlife trust reserves that cater for these birders and other members of the British public. As an example, in the summer of 2022 a colony of European bee-eaters nested in a disused quarry in Trimmingham, Norfolk. The RSPB mounted a 24-hour guard and established a temporary car park and viewing area in an adjoining field. It is believed that some 15,000 people, myself included, visited the site, with many more watching the birds via a webcam.

*Bird Reserves*

As a more general observation, many of the UK reserves appear to be better funded and resourced than Australian reserves.

The photographs on the left were taken at RSPB Pulborough Brooks in West Sussex. Like many of the larger RSPB and wildlife trust reserves, Pulborough Brooks has a visitor centre, with a cafe and shop selling binoculars, spotting scopes and books. Some reserves will let you rent binoculars for the duration of your visit. Not all the staff at the visitor centres are necessarily knowledgeable about birds but sometimes there are guides, usually at bird hides, who will happily help you identify bird species, sometimes with the aid of spotting scopes. Some of the bird hides are very impressive multi-storeyed buildings and most reserves are careful to ensure that the hides are well positioned and offer good views of the birds. The more popular reserves also make an effort to ensure a good variety of habitats for the birds, by, for example, creating scrapes and managing reed beds. The UK has centuries of experience of managing peat beds and reed beds, peat was used for fuel and, until recently, as an ingredient in potting mixes, whereas reeds were used to thatch roofs.

**Figures 3, 4, 5. RSPB Pulborough Brooks, West Sussex.**

I had intended including some photographs of the visitor centre and shop at RSPB Dungeness in Kent, but on visiting the reserve in December 2024 there was a notice advising that the shop was to close in the New Year following an RSPB review of loss-making

facilities. One of the local birders told me that there had been a fall-off in visitor numbers since the reserve had somewhat controversially demolished some of its hides.

Some reserves are very popular. I recall one visit to RSPB Titchwell Marsh on the North Norfolk coast. The North Norfolk coast is very popular with birders as it has a large concentration of birding hotspots. The reserve is not particularly large but has diverse habitats including reedbeds, saltmarsh and freshwater lagoons, as well as woodland and coastal beach. It holds a wide variety of water-birds and is a stopover location for passage migrants, and the beach is a good spot for sea watching. There was a large crowd of birders there to twitch a Rose-coloured Starling that had been reported coming in to evening roost with hundreds of Common Starlings. Waiting for the starlings to arrive, I could not help overhearing two birders who were complaining that Titchwell Marsh was like a birding "Disneyland." I understood what they were saying but the reality is that if you are visiting the UK the more popular reserves do provide an opportunity to see a large variety of species in a relatively short period of time. That said, there are plenty of quieter reserves where it does not take a lot of walking until you are likely to be on your own.

*Bird Notification and Alerts*

One major difference when birding in the UK compared to Australia is the ready availability of timely broadcasting of rare and scarce birds via Rare Bird Alert and BirdGuides. The sheer numbers of birders means that the UK is able to sustain two bird-alert systems. These systems rely on sufficient subscribers to enter information. It does not seem to matter which service you subscribe to, after a short while the information is generally available on both sites. I have also noticed that some of my eBird listings of rare birds eventually ended up on Rare Bird Alert.

It is not just twitchers that use the alert services, alerts can be filtered so that only local alerts are received. Use of the service also helps birders build up a picture of bird activity. It is, for example, very obvious when passage migrants start moving through the UK in spring and autumn. For example, one day in late August I noted on Rare Bird Alert that Black Terns appeared to be migrating South. I decided to visit Staines Reservoir on the chance that they might stop there to feed, and was rewarded with a sighting of one.

I am not entirely sure why eBird is not used more widely in the UK. It may be a case of "not invented here" or birders not wishing to change their existing methods of listing birds. Not surprisingly the BTO prefers birders to use their own BirdTrack system rather than eBird.

The BTO BirdTrack system is the UK functional equivalent of the BirdLife Australia BirdData system.[6]

I have not conducted any specific research but it appears to me that many birders prefer to list rare birds using the two alert systems, rather than via eBird or BirdTrack. Or it may just be that the alert services provide a far easier means of extracting information in a timely manner.
British Birders

[6] I had very little knowledge of BirdLife Australia prior to writing this article. In particular, I had never used BirdData before and although I had occasionally accessed BirdTrack information, I was not aware of its BTO scientific heritage and purpose.

As in Australia there are lots of different types of birders including twitchers, patch birders, and people who just like to watch bird behaviour. Some birders like to seawatch, others like to "vismig" - that is, watch migrating birds.

Many British birders enjoy gull watching. A subcategory of British birders love watching gulls so much that they are called larofiles.[7] This specialised bird watching might seem a little strange to Canberra birders who probably only give our Silver Gulls a second glance in case there is a tern mixed in with them, but there are some twenty five species of gulls to be seen in the UK. Moreover, the larger gulls take four years to reach adult plumage and the immature stages of some species can be difficult to distinguish, especially when there can be individual variations within a species. These larofiles enjoy nothing more than scanning through hundreds of loafing gulls to find a rare vagrant. Personally I find it extremely frustrating that I do not have the skill set to identify any but the more obvious gull species.

I am always keen to try to learn from local, more experienced birders and will often ask them for advice or whether they have seen any notable birds. Almost without exception the British birders I have met are friendly and happy to share their knowledge. That said, I would advise against asking a British birder "what sort of seagull is that?" unless you want a lengthy discourse on why there is no such thing as a seagull.

I once met, albeit unknowingly at the time, Lee Evans, one of the most famous, or notorious depending upon your viewpoint, and obsessive British twitchers. Lee has appeared in numerous newspaper articles and was a main character in a 2010 BBC documentary entitled "Twitchers: a Very British Obsession". He was also subject to legal action from other top twitchers when he posted a ranking based on how many birds he thought his competitor twitchers had actually seen rather than listed! Lee made it to the church for his second wedding but not to the reception as a rare Isabelline Shrike spotted in Dorset proved to be a more attractive proposition.

I was following up a Rare Bird Alert of a Ferruginous Duck on a private lake in Thorpe Park, about a twenty-minute drive from Walton-on-Thames. The Ferruginous Duck is a (rare) vagrant from Eastern Europe that sometimes visits the UK in winter. It turned out that there was very restricted access to the Park and I was unable to pick it out among hundreds of other ducks on the far side of the lake. I was very grateful when three birders – obviously hard-core twitchers - turned up with massive spotting scopes and showed me the duck, before rushing off to see another rare bird somewhere. I like to have photographic evidence of rare birds so I posted a photograph on a UK Bird Identification Facebook Page asking for confirmation that it was indeed the Ferruginous Duck. Lee Evans confirmed the identity and established that it was he who had pointed it out for me. I found him very helpful.

Britain is a relatively small group of islands and you are never too far from the coast. Many British birders carry spotting scopes. I have a fairly small spotting scope that I bought whilst birding in Norfolk. I bought it from a birding shop called CleySpy in the small village of Glanville near the NWT Cley Marshes Reserve,[8] a major UK birding hotspot with, at the time of writing this article, some 323 species listed on eBird. The shop sells binoculars, spotting scopes, thermal imagers and birding clothing. They are happy to let you try out scopes in an adjoining field. I tried out several spotting scopes before deciding which scope to buy. In

[7] After Laridae, the gull family.
[8] Cley is pronounced to rhyme with spy.

addition to CleySpy there are several online companies in the UK selling a vast range of binoculars and spotting scopes, a much larger range than available in Australia, and generally cheaper to buy. My scope is fairly good in most situations but not good enough to identify small waders at any significant distance. Birders visiting estuaries or other coastal sites should be aware of the influence of tides. Occasionally I have been caught out visiting sites at the wrong time, for example when the tide is too far out to see waders clearly, or too far in so that the waders have flown off somewhere else to roost.

*Protected Birds*

Notwithstanding the two rare bird-alert systems, it is sometimes difficult to obtain information about some of the rare or scarce birds in the UK, especially if they are breeding. As previously explained eBird does not list sensitive birds and presumably birders do not post sensitive data on the alert systems.

As an example, I had read that Honey Buzzards sometimes bred in the UK but was not sure exactly where. Then I was told by a birder that Honey Buzzards were reliably seen at Swanton Novers in Norfolk, a three-and-a-half-hour drive from Walton-on-Thames. There were no records of them on eBird. Eventually I managed to see them on a birding trip to Norfolk, from a viewing area – a temporary car park in a field.

I had no idea that Honey Buzzards were breeding in some numbers not far away from Walton-on-Thames, in neighbouring Sussex. That is, until I read Where to Watch Birds in Surrey & Sussex, which provided a small list of sites where the Honey Buzzard, a passage migrant and migrant breeder, might be seen. One of the more reliable sites at Woolbeding Common on the South Downs was (just) under an hour's drive from Walton-on-Thames. I subsequently learned by word of mouth that it had been a (relatively) well-kept secret that Honey Buzzards were successfully breeding in Sussex and it was only because they were thriving that it was decided that a small number of viewing sites could be disclosed. Note that the locations are not breeding sites as such but viewing areas where the buzzards might be seen on say a ridge line.

*The Lazy Twitcher*

As mentioned earlier, I am not an avid twitcher – some might say I am a lazy twitcher. I will travel short distances to twitch. I was very lucky when on holiday in Devon when a rare visitor to Britain, a Desert Wheatear, turned up at one of the local beaches. But I am very reluctant to travel too far just in the hope of seeing a rare migrant when there is a good chance it will not be there. I have, however, driven for two or three hours in the hope of seeing scarce or rare birds that have been reported over several days in the same location. In fact, my sighting of the Glossy Ibis and White-winged Black Tern at Dungeness was a result of them being reported there over several days prior to my visit.

Another rare bird I twitched was a Bonaparte's Gull at Oare Marshes in Kent, a two-hour drive from Walton-on-Thames. The Bonaparte's Gull is a rare summer vagrant from North America, but a single bird has been turning up every summer at the marshes since 2013. The gull looks similar to the Black-headed Gull, a common resident at the marshes. I was despairing of ever picking out the Bonaparte's Gull when I was helped out by a passing local birder who pointed to the gull nearest to me. The birder also kindly told me where I could find a pair of Turtle Doves, an iconic British bird that has significantly reduced in numbers and is on the UK Red List. I was recounting my trip to some friends when one remarked that she thought it was lovely

that I could get so enthusiastic about seeing "a pigeon and a seagull". Who said Poms are no good at sledging?

My last twitch was on Boxing Day 2024. A Yellow Warbler had been reported at New Hythe in Kent on Christmas Eve, about an hour's drive from Walton-on-Thames. The warbler was an extremely rare vagrant from America, it had only been listed once before in England. Going out on Christmas Eve or Christmas Day was obviously out of the question but it so happened that my younger daughter needed a lift to her hotel on Boxing Day and the hotel was on the way to New Hythe. Turned out the journey took much longer than anticipated, the M25 was like a car park, I got there just as the light was fading. I joined about forty other twitchers watching the warbler feeding in some Alder trees, and chasing off some of the local Chaffinches.

**Figure 6. Twitchers watching a Yellow Warbler at New Hythe, Kent.**

*Birding Seasons*

As mentioned earlier most of my trips to the UK are during the British summer - that is the Canberra winter. Given that in Canberra winter is generally a quiet time for birding and summer a lot more active, one might assume that the same holds for Surrey. But that is not the case; birding in summer in Surrey and South East England in general is relatively quiet. Yes, there are the usual summer visitors but relatively few scarce or rare birds.

Obviously for Australian birders visiting the UK for the first time, summer is an excellent time to visit. Arguably, however, the real birding excitement for British birders is in spring and autumn when passage migrants pass through the UK to and from the Continent. And there is always a chance of rarities turning up from the USA or the Continent, having been blown off course when there is major storm activity. Many of the rarities are found at the northern and southern extremities of the UK, like the Shetland and Scilly Islands. There are bird tour companies that organise visits to these islands during peak migration periods, but they can be quite hit and miss as, to some extent, they depend upon favourable wind conditions that might not eventuate.

Fortunately, there are a number of sites on the East Coast that act as funnels for passage migrants. They generally do not boast quite as many rarities as Shetlands or the Scilly Isles but are much closer to home. I have visited two such notable sites – the Portland Bird Observatory in Dorset and the previously mentioned Dungeness Bird Observatory in Kent. Of possible interest, both observatories offer inexpensive hostel-like accommodation. Some of the most exciting birding is when exhausted migrating birds "fall" that is stop for a break after first reaching land after a long flight over the sea. Unfortunately, I have not been lucky enough to witness a fall, but I live in hope.

Winter has its moments too when owls and raptors, and large numbers of ducks, geese, waders and gulls come from the cold North to overwinter. I was very jealous last Christmas when eight Short-eared Owls overwintered at Staines Moor - one of my local Surrey birding patches, when I was back in Canberra. The Short-eared Owl is very photogenic, not least because of its

unusual habit of hunting during the day, so the thought of eight owls hunting in a small area not much bigger than a few football pitches was very appealing. So much so that I arranged a family summer[9] holiday in the Orkney Islands off Northern Scotland. It was surely just a coincidence that Short-eared Owls breed in the Orkneys in summer.

That said, I should probably warn those birders planning to visit the UK during winter that the weather can be atrocious, with strong winds and torrential rain, or fog and drizzle. Yes, some birds come to shelter in the UK over winter but they have come from the Arctic Circle or similar.

*Iconic British Birds*

I am less interested in exotic rarities than in what I would call iconic birds, that is, reasonably uncommon birds that, for whatever reason, many birders consider to be highly desirable to see, whether they be resident or passage migrants. One of the attractions of these iconic birds is that there is some reasonable chance of finding them. For example, every autumn a small number of ant-eating woodpeckers called Wrynecks pass through the UK, not a lot, but in sufficient numbers to provide some chance of a sighting. The Wryneck is colloquially known as snake-bird due to its ability and habit of twisting its neck when disturbed. Whilst on a week's holiday in Devon I made several trips to a birding site about half an hour's drive away, where wrynecks had been reported in previous years, but had no luck. On the last day I went for a walk with my wife at our local beach, which is not a birding hotspot, and noticed a small group of birds in some bushes close to the Gastro bus where we have our daily coffee. I went to investigate and was thrilled to get a brief glimpse of a wryneck, which took my UK bird species total to 200.

Another iconic bird, which I have not yet seen, is the Bohemian Waxwing. The waxwing is an occasional late autumn/winter visitor to Britain from far North Scandinavia and Russia. Normally they number a few hundred but every few years there is an irruption of waxwings who arrive in their thousands. One endearing feature of the waxwings is that they turn up at urban sites like supermarket car parks to feed on hawthorn berries.

Even land-locked Surrey has a few iconic birds. I know I should not have favourites but I particularly enjoy the challenge of finding and seeing shier birds like Lesser Spotted Woodpeckers, Dartford Warblers, Hawfinches, Nightingales and Goshawks. The Eurasian Goshawk is a fierce and powerfully-built, forest-dwelling hawk that preys on squirrels, rabbits and birds. It is quite secretive but does display flights during the breeding season.

**Birds seen both in Canberra and in the UK**

Australian birders visiting the UK would easily recognise quite a few of the waterbirds, and some of the birds introduced into Australia such as the blackbird and starling. I have compiled a table of birds that have been seen both in the ACT and in the UK. The table is for general interest only. I was actually surprised at the number of birds I listed. Especially when the table only includes birds of the same species and not, for example, the different species of cattle egrets.

A list of similar species would be much larger. Regarding water birds, the Australian birder would recognise the British versions of egrets, spoonbills, bitterns, gannets, avocets and curlew

[9] Although visitors to the UK should note that "summer" is a relative term when talking about the Scottish islands.

as such. More generally, Australian birders would easily be able categorize swans, ducks, gulls, terns and grebes without necessarily knowing exactly which species they were. Similarly, Australian birders would appreciate the broad equivalence of many British and Australian raptors. For example, the Marsh and Swamp Harriers, the Spotted and Hen Harriers, the Eurasian and Collared Sparrowhawks, the Common and Nankeen Kestrels, the Eurasian and Australian Hobbies, and the Red and Black Kites. hirundines (swallows and martins) and corvids (crows and ravens) are also quite recognizable.

Passerines are a harder proposition. For example, the UK does not have honeyeaters or thornbills and Australia does not have woodpeckers or tits. Australian robins are not related to the European Robin.

The UK does not have any endemic parrots, although the Ring-necked Parakeet has successfully colonised parts of the UK. Sitting in the garden in Walton on a summer evening I usually see a hundred plus parakeets flying over towards their roosting site.

So as a general observation, there lots of similarities between the UK and Australia regarding water birds, raptors, hirundines and corvids, but significant differences regarding parrots and passerines.

*Methodology*

I compiled a list of birds seen in ACT using a combination of the COG Bird Info table and the latest eBird ACT species list. Note that there are some birds listed in eBird but not in the COG Bird Info Table.

I compared the ACT bird list to the latest edition of The British List,[10] compiled by the British Ornithologist's Union (BOU), to identify those birds seen both in Canberra and the UK.
I identified 34 species of birds seen both in the ACT and in the UK.

I have listed the status of the 34 bird species in the ACT using, where possible, the COG Bird Info table "Status in ACT" column, which categorises birds as:[11]

Very common, common, uncommon or rare.

Resident, visitor, summer (or winter) migrant, or vagrant.

Breeding, non-breeding.

The COG list also identifies those listed species that have been introduced into Australia. Vagrants are not assigned as very common, common, uncommon or rare, on the assumption that they are rare. Where species have been listed in eBird but not in the COG Bird Info table I have assumed that they are (rare) vagrants.

I have also listed the status of the 34 bird species in the UK using the British List supplemented by information from the BTO website. The website has a database called BirdFacts which provides key information and data on all the birds seen in the UK. To aid the comparison, whilst noting that this is not a scientific article, I have used information from the BTO website

[10] *The British List: A Checklist of Birds of Britain* (10th Edition) first published 14 June 2022.
[11] There are some other terms used occasionally, such as "extinct," "accidental" and "escapee" which are not relevant to this article.

to give supplementary information, and a personal assessment on the commonality, or otherwise, of the birds seen in the UK.

One complication in providing a comparison is that COG and the BOU use slightly different methods and terms when describing the status of species. In particular, the British List does not explicitly identify all bird species in terms of commonality. However, birds categorised as vagrants are implicitly considered to be rare and some migrants are identified as being "scarce migrants". My assumption is that the BOU's "scarce" is broadly analogous to COG's "uncommon".

The British List does not use the term "visitor". Bird species are either residents, migrants or vagrants, with rare species being generally classified as vagrants. Moreover, although both COG and British List describe certain birds as rare, the terms have slightly different meanings. The British List is comparatively sparing in its use of the term "rare".

Another feature is that the British List sometimes has multiple status categories for an individual bird species. For example, depending upon the location and time of year, the British blackbird population can be a combination of Resident Breeder (RB), Migrant Breeder (MB), Passage Migrant (PM) and Winter Migrant (WM).

*Results*

| | Bird Species | Status in ACT | Status in UK |
|---|---|---|---|
| **1** | Northern Shoveler | Vagrant. Not included in COG Bird Info. | Common. Migrant breeder plus Winter Migrants from Scandinavia. |
| **2** | Mallard | Uncommon. Resident Breeder. Introduced species. | Common Resident Breeder. Winter Migrant. |
| **3** | Great Crested Grebe | Rare Breeding Visitor. | Common Resident Breeder. Winter Migrant. |
| **4** | Eurasian Coot | Very Common Resident Breeder. | Very common Resident Breeder. Winter Migrant. |
| **5** | Caspian Tern | Vagrant. | Vagrant |
| **6** | Whiskered Tern | Vagrant. | Vagrant. |
| **7** | Common Tern | Vagrant. | Common Migrant Breeder. |
| **8** | Baillon's Crake | Vagrant. | Vagrant. Casual Breeder. |
| **9** | Curlew Sandpiper | Vagrant. | Scarce Passage Migrant. Mainly Autumn. |
| **10** | Common Sandpiper | Vagrant. | Common Migrant Breeder. Passage Migrant. Winter Migrant. |
| **11** | Wood Sandpiper | Vagrant. | Small breeding population in far North Scotland. Passage migrant. Mainly Spring. |
| **12** | Sharp-tailed Sandpiper | Uncommon Non-breeding Summer Migrant. | Vagrant |
| **13** | Marsh Sandpiper | Vagrant. | Vagrant |

*Table continued next page*

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| | Bird Species | Status in ACT | Status in UK |
|---|---|---|---|
| **14** | Common Greenshank | Vagrant. | Common. Resident Breeder. Migrant Breeder. Passage Migrant. Winter Migrant. |
| **15** | Ruddy Turnstone | Vagrant. | Common. Casual Breeder. Passage Migrant. Winter Migrant. |
| **16** | Red Knot | Vagrant. | Passage Migrant. Winter Migrant. Just called Knot. |
| **17** | Red-necked Stint | Vagrant. | Very Rare Vagrant. |
| **18** | Pectoral Sandpiper | Vagrant. | Scarce Migrant from North America. |
| **19** | Bar-tailed Godwit | Vagrant. | Common. Passage Migrant. Winter Migrant. |
| **20** | White-winged Black Tern | Vagrant. Not included in COG Bird Info. | Scarce Migrant. |
| **21** | Great Cormorant | Common Resident Breeder. | Common Resident Breeder. Passage Migrant. Winter Migrant. Just called Cormorant. |
| **22** | Little Egret | Rare Non-breeding Visitor. | Resident Breeder. Passage Migrant. |
| **23** | Great White Egret | Uncommon Non-breeding Visitor. | Scarce Migrant. Casual Breeder. |
| **24** | Glossy Ibis | Rare Non-breeding Visitor. | Scarce Migrant. |
| **25** | Osprey | Vagrant. | Breeding Summer Migrant. Passage Migrant. |
| **26** | Barn Owl | Rare Non-breeding Visitor. | Common Resident Breeder. |
| **27** | Peregrine Falcon | Uncommon Resident Breeder. | Common Resident Breeder. |
| **28** | Rock Dove | Very Common Resident Breeder. Introduced Species | Uncommon Resident Breeder and inter bred with feral pigeons |
| **29** | Eurasian Skylark | Common Resident Breeder. Introduced Species. | Common Resident Breeder. |
| **30** | Common Starling | Very Common Resident Breeder. Introduced species. | Very Common Resident Breeder. |
| **31** | Common Blackbird | Common Resident Breeder. Introduced Species | Very Common Resident Breeder. |
| **32** | House Sparrow | Common Resident Breeder. Introduced species | Very Common Resident Breeder. |
| **33** | Common Greenfinch | Uncommon Resident Breeder. Introduced Species. | Common Resident Breeder. Winter Migrant. |
| **34** | European Goldfinch | Common Resident Breeder. Introduced species. | Very Common Resident Breeder. |

*Analysis*

The most obvious feature of the comparative list is that a large majority (24) of the 34 common bird species are water birds, and of the remaining 11 species 7, such as the starling and blackbird, are introduced. That leaves only 3 birds: 2 raptors and 1 owl.

The majority (20) of the 24 water birds are (rare) vagrants in, or rare visitors to, the ACT. Two exceptions are the Eurasian Coot and the Great Cormorant, which are very common and common Resident Breeders respectively. Another exception is the Great White Egret which is an uncommon Non-Breeding visitor to the ACT and a Scarce Migrant and Casual (occasional) Breeder in the UK. The final exception is the Mallard which is an Uncommon Resident Breeder and an Introduced species in the ACT, and a Common Resident Breeder in the UK.

An obvious inference from the list is that some water birds are very widely distributed. Regarding their rarity in the ACT, in general most of the waterbirds listed are quite commonly seen in Australian coastal areas and it is only because the ACT is well inland that they are less often seen here.

The one major exception is the Northern Shoveler that visited Jerrabomberra Wetlands in September 2019 and July 2020. Northern Shovelers are widely distributed in the Northern hemisphere, but are rarely seen any appreciable distance south of the Equator. Most sightings in Australia appear to be of the odd individual which has made a "wrong turn", as it were.

The UK "wrong turn" equivalent of the Northern Shoveler sighting in the ACT, is the Red-necked Stint. The BTO describes the Red-necked Stint thus: "Closely resembling a Little Stint, this small sandpiper normally migrates from breeding grounds in north-east Siberia to Australia; consequently, this is an extremely rare visitor to Britain." The British List advises that the Red-necked Stint was first recorded in the UK in July 1986 and only 7 individuals have been recorded in total.

Arguably the results are somewhat skewed because I have compared the ACT with the whole of the UK, with all its coastline. Certainly, many of the waterbirds listed are not commonly seen in land-locked Surrey, although the Staines Reservoir gets a fair share of scarce and rare waterbirds.

The egrets and ibis results are, I believe, quite interesting. It is not so long ago that sightings of these birds in the UK would have been very rare events. Many British birds are in decline due to loss of habitat and climate change but some larger waterbirds - namely egrets, ibis, spoonbills and bitterns - are increasing in numbers, in part due to climate change and also due to work done by the RSPB and various wildlife trusts in creating and maintaining suitable habitats.

For example, the Glossy Ibis is classified a Scarce Migrant in the UK. Previously it was classified as a (rare) Vagrant. The Glossy Ibis is no longer considered rare following a series of mass arrivals in the 2000s. Similarly, the Great White Egret, which is also classified a Scarce Migrant in the UK, was also formerly a (rare) Vagrant, but began colonising in around 2010. The Little Egret first bred in Britain in 1996 and since then has successfully colonised much of southern Britain.

The Baillon's Crake is widely distributed throughout Africa, Eurasia and Australasia. Until recently it was more commonly seen in south-east Europe. It was first recorded in the UK pre-

1819, but to date only 88 individuals have been recorded. Recently, occasional incursions of Baillon's Crakes into north-west Europe, including the UK, have been linked to drought conditions in southern Spain, pushing birds from breeding sites there to move further north, including the UK.

The Peregrine Falcon is very widely distributed and can be found almost everywhere on the globe, except extreme polar regions and higher mountain ranges. It is very adaptable and can nest in cities. There is a livestream cam of a Peregrine nest in the centre of Woking, a town in Surrey.

The Osprey is widely distributed throughout the world and can be found on every continent except Antarctica

The Barn Owl is also very widely distributed throughout the world and can be found in most areas, except for polar and desert regions.[12]

In Australia the Rock Dove is an introduced species of feral pigeon. The British List distinguishes between Rock Doves and feral pigeons; truly wild Rock Doves are confined to northern rocky coasts and islands and nest in sea caves and on steep cliff ledges.

All the passerines listed are introduced species in Australia.

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https://surreybirdclub.org.uk

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https://kentos.org.uk

[12] Please note that since I compiled the list of common species, the Barn Owl species has been split into three: the Eastern Barn Owl – in Europe, Africa and Western Asia, the Western Barn Owl – in Southeast Asia and Australasia, and the American Barn Owl – in North and South America.

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# A GERYGONE OBSERVATION AND THE PHENOMENON OF MULTIPLE NESTS

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On the morning of 14 Dec 2024, the authors visited Campbell Park and Mount Ainslie Nature Reserve. We returned southwards on Scotts Track, at the edge of the woodland on the east side of Mount Ainslie. The initial light cloud cleared, and the day became warm: at 09:00 h, Canberra Airport, 4 km to the south-east, recorded 20.8 C with almost no wind.[1] The bush was green after recent rain. Multiple White-throated Gerygone (*Gerygone olivacea*) were seen and heard throughout the visit, among other birds.[2]

At about 08:30 h, bird activity either side of the track caused us to stop at 35°16'20.2" S, 149°10'51.8", approximately 100 m north of the 'Triangle Dam' (Figure 1A). A pair of White-throated Gerygone was active around a nest in a small copse of trees about 10 metres to the east of the track, and one of the birds flew repeatedly across the track close to us and above our heads; on each occasion it flew to another nest to the west of the track. We stood still during the period of observation, not approaching either nest, and let the more active bird fly over and around us. The eastern nest was partially hidden in the canopy of a small Yellow Box (*Eucalyptus melliodora*), about 3 metres from the ground, under a larger Blakely's Red Gum (*E. blakelyi*), in a location with a grassy understorey, a shrubby clump of wild rose (*Rosa* sp.), and much St Johns Wort (*Hypericum perforatum*) (Figure 1B). The western nest was in a sapling red gum over a grassy understorey. The two nests were about 7 metres apart, separated by the track. Both nests looked the same, each appearing as a hanging globe woven into eucalypt foliage.


**Figure 1. Site location. (A) Scotts Track, looking southwards. The two gerygone nests were east and west of the track at this point. (B) Vegetation to the east of Scotts Track at this point. The eastern gerygone nest was located in the canopy of the smaller tree, a Yellow Box.**

[1] bom.gov.au/climate/dwo/202412/html/IDCJDW2801.202412.shtml

[2] The full bird list for the visit is at ebird.org/checklist/S205310166 or ebird.org/checklist/S205308332

Most gerygone activity was associated with the eastern nest. One bird was continually present at or near the nest during 20 minutes of observation, one of the birds was seen to carry food to the nest through a side entrance, and one of us could faintly hear nestlings in the nest at that moment. We concluded that the eastern nest was being used for breeding. The several visits by one of the birds to the western nest were relatively brief (less than 1 minute each time), and in spite of careful observation there were no signs to indicate that the western nest was being actively used for breeding: the bird simply fluttered around the nest, and was not observed to take food or nesting material to or from the nest.

After some 10 minutes, a Noisy Friarbird (*Philemon corniculatus*) landed in canopy branches about half a metre from the eastern nest. Both gerygones immediately mobbed the friarbird, swooping repeatedly very low over its head with high-pitched churring calls ('djyhuu-djyhuu-djyhuu'). A few minutes later, a Grey Fantail (*Rhipidura albiscapa*) joined the gerygones in mobbing the friarbird. The friarbird moved to within a few centimetres of the base of the nest, approaching it from the rear (the side opposite the nest opening), but was not observed to attack it. A second friarbird flew in towards the front of the nest, and eventually both friarbirds and the fantail flew off. The vigorous defence of this eastern nest by the gerygones was consistent with it being an active nest containing nestlings.

Noisy Friarbirds are reported to be nest predators of nestlings and eggs, including in HANZAB (BirdLife Australia 2023a), but references to this behaviour can all be traced back to a single, second-hand account of friarbirds robbing nests of Common Starling (*Sturnus vulgaris*) (Chaffer 1945). The range of bird species known to be nest predators is increasing, and includes some unexpected species such as the Eastern Whipbird (*Psophodes olivaceus*) (Guppy *et al.* 2017; see also review of nest predators by Fulton 2018). The vigorous defence of the eastern nest by the gerygones is consistent also with them perceiving the friarbirds as potential nest predators. However, the proximity of a friarbird to a gerygone nest may not necessarily indicate potential predation; the HANZAB entry for White-throated Gerygone (Birdlife Australia 2023b) notes "One nest, possibly containing eggs, was destroyed by a Noisy Friarbird taking material for its own nest 100 m away (NRS[3])." The reasons for the behaviour of the Noisy Friarbirds therefore remain unclear.

At a repeat visit two weeks later, on 28 Dec, a White-throated Gerygone was heard singing at the site, but not seen. Many Noisy Friarbirds were in the vicinity, catching and eating cicadas.

The HANZAB entry for White-throated Gerygone (BirdLife Australia 2023b) records two instances of the species building multiple nests either in the same tree or relatively close nearby, and not always because the original nest was destroyed. For example, Donaghey (1962), who monitored gerygone breeding over several years at Fuller's Bridge, Sydney, described pairs abandoning their first-built nest and proceeding to raise a brood in a second nest constructed nearby, once even in the same tree. The other observation is cited as 'NRS'.

For well over a century there has been interest in the phenomenon of birds building multiple non-breeding nests, a behaviour found across a wide range of bird species. The various explanations suggested for this behaviour were summarised by Berg *et al.* (2006), with the most recent review and critique being that of Macqueen and Ruxton (2023); the behaviour may of course have different adaptive functions for different species or in different circumstances. First-built nests may be in a poor location or poorly constructed, such as by a bird on its first

[3] NRS, Birds Australia Nest Record Scheme, now referred by HANZAB to Birds Australia Records Committee

nest-building attempt, with subsequent nests being better constructed or better concealed, as Beckmann *et al.* (2016) concluded for Grey Fantail (*Rhipidura albiscapa*). Creation of a nest that is not used can also form part of courtship signalling, mate choice and pair bonding (Macqueen and Ruxton 2023), as proposed for example for the Australian Reed Warbler (*Acrocephalus australis*) (Berg *et al.* 2006). Where nests are long-lived, different nests may be used in different years, which may hinder predators and/or allow a period for the levels of nest parasites (such as flies or mites) to reduce. Alternatively, some species exhibit polygyny (Macqueen and Ruxton 2023), in which one male breeds with several females that each occupy a different nest in one broad territory. Lastly, some species, such as finches, construct roosting nests that can be confused (by observers) with breeding nests.

None of these potential explanations appears to fit well with the observation described here of a White-throated Gerygone visiting two nearby nests. We suggest that a further possible explanation discussed in the above reviews and elsewhere may be applicable in this instance: that the nest deduced to be less active, the western nest, may have been a 'decoy nest', built to confuse or distract predators or brood parasites (cuckoos). The distraction or deception would be promoted by regular visits by one member of the pair to the dummy nest.

Decoy nests and false nesting structures are well known across passerine birds. Examples globally are listed by Galligan and Kleindorfer (2008), and these structures can take many forms and often involve social nesting. Decoy nests have been suggested to have a role in breeding success of Large-billed Gerygones (*Gerygone magnirostris*) through reduced predation or brood parasitism on the active nest, although it is also possible that the presence of old nests near active nests may simply indicate repeated nesting in a favourable (previously successful) location (Noske *et al.* 2013, Noh *et al.* 2021). Some species combine the false nest and the real nest in one: Yellow-Rumped Thornbills (*Acanthiza chrysorrhoa*) build a false nest atop the active nest, and Galligan and Kleindorfer (2008) found that this form of nest mimicry contributed to reduced brood parasitism. On occasion, data from experimental nest manipulation has supported the decoy nest hypothesis, such as for Marsh Wrens (*Cistothorus palustri*) (Leonard and Picman 1987), although such nests may also function in attracting mates to a territory.

Our observation adds to the two other recorded observations of White-throated Gerygones as multiple nest builders, although it is not clear why this behaviour may occur. It would be useful if any other observations of multiple nests being attended by White-throated Gerygone or other local passerines were recorded so that patterns of behaviour might emerge.

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# TOLLGATE ISLANDS, NSW
# HISTORIC FIRST BREEDING RECORD OF SHORT-TAILED SHEARWATERS IN NSW

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Late in 1958 Short-tailed Shearwaters (*Ardenna tenuirostris*) were finally confirmed as a breeding species in NSW (Davies, 1959). On 10 December breeding birds were discovered on the Tollgate Islands in Batemans Bay (lat: 35º 44'58" S, long: 150º 15'39" E) by a team that included, in addition to Stephen Davies, F.N. (Norman) Robinson and Ederic C. Slater (both from CSIRO). The Short-tailed shearwaters were found in mixed colonies alongside breeding Wedge-tailed Shearwater (*A. pacifica*) on the southern island (see island description in McKean and Fullagar (1976); Carlile *et al*. (2015)). It should be noted that the so-called southern island is in fact the western island of the two main isles.

**December 1958**

Norman Robinson's surviving Wildlife Survey Section notebooks (MIPartners archive) have 6 pages of detail, dated 10 December 1958 – the day mentioned by Davies as the date of first discovery on the Tollgate Islands. Because of their historical importance, we report here on this previously unpublished additional information drawn as completely as possible from the notes recorded in these notebooks. We have used current taxonomic nomenclature, replacing Norman's *P. ten*(*uirostris*) and *P. pac*(*ificus*) appropriately.

The transects were numbered and described as follows, noting that all but one was called the 'Summit Rookery', with number 7 called 'South East Rookery':

1. NW corner of South Island 50 yards to twisted stump. Along ridge
2. 70 yards from Twisted Stump to E end of Shag Rock along ridge
3. 100 yards from Twisted Stump to Banksia Tree east (cairn of rocks) (Slater's Knob)
4. Rocky Cairn on summit (Slater's Knob) 150 yards SE along ridge to Banksia Scrub
5. NE from Cairn (Slater's Knob) to single dead Banksia Stump. 50 yards
6. From Slater's Knob S to edge of Namandra (=*Lomandra*) 100 yards
7. SE from Banksia Stump
8. From Twisted Stump SW to Saddle over cave. 150 yards

**Table 1. Numbers of two species of shearwater found in burrows on eight transects on South Island, Tollgate Islands, NSW, 10 December 1958.**

| Transect | Short-tailed Shearwater | Wedge-tailed Shearwater | Length transect (yards) |
|---|---|---|---|
| **1** | 0 | 1 | 50 |
| **2** | 0 | 2[1] | 70 |
| **3** | 0 | 3[2] | 100 |
| **4** | 0[3] | 5 | 150 |
| **5** | 0 | (1[4]) | 50 |
| **6** | 7 | 1 | 100 |
| **7** | 11[6] | 0 | ? |
| **8** | 0 | 2 | 150 |
| **Total** | 18 | 15 (14?)[5] | 670+ |

[1] Three *A. pacifica* seen off transect; [2] One *A. pacifica* seen off transect; [3] One *A. tenuirostris* egg (cold) found on surface; [4] One *A. pacifica* on egg close to Slater's Knob (counted on transect 5);[5] see details in text.

The field notes are mostly in Norman's handwriting and indicate they worked an area starting in the NW corner of South Island (the Summit Rookery) and from here they completed 8 transects and, apparently from searching burrows, found 14 (possibly 15) Wedge-tailed Shearwaters (Table 1). There seems to be some doubt about the only Wedge-tailed Shearwater reported for transect 6 because an annotation suggests it had already been recorded on transect 5. However, it was clearly included in the summary (see below). It was not until they completed transect 6 that they came across Short-tailed Shearwaters.

According to the notes, they continued to work two more transects, the first in what was noted as the South East Rookery (unrecorded length), finding 11 Short-tailed Shearwaters and the last (transect 8 of 150 yards) in the area termed the Summit Rookery, accounting for two more Wedge-tailed Shearwaters but no more Short-tailed Shearwaters. In total, as noted in the field notebook, 18 Short-tailed Shearwaters and 15 Wedge-tailed Shearwaters were listed, but one of the latter was double counted. It is not exactly clear how these transects were distributed and how wide the transect search area was. Neither is there any time given, so it can only be presumed they worked by day. However, it seems quite clear that the SE side of the southern island of Tollgate Islands was the main area where they found Short-tailed Shearwaters, but there is no indication that they visited the north island.

A sketch map in the notebook indicates features mentioned in the transect descriptions (see above) but does not show the actual transect locations. A fair copy of this map is shown in Fig. 1 and an approximation of the transect distributions is shown in Fig. 2.

**Figure 1. Sketch map of South Island of Tollgate Islands copied from Norman Robinson's Notebook.**

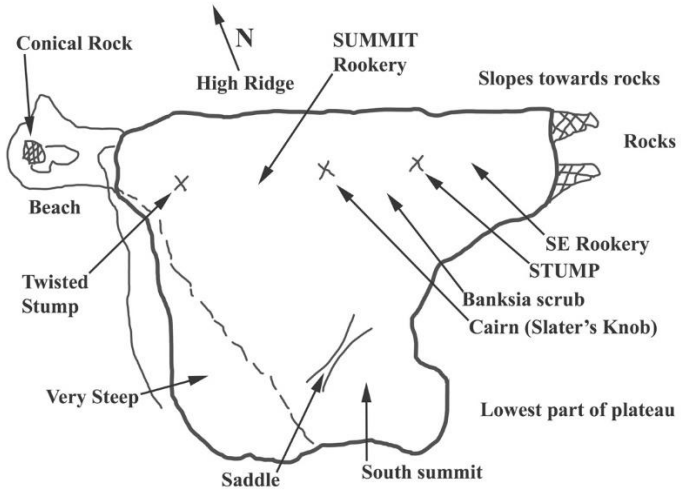
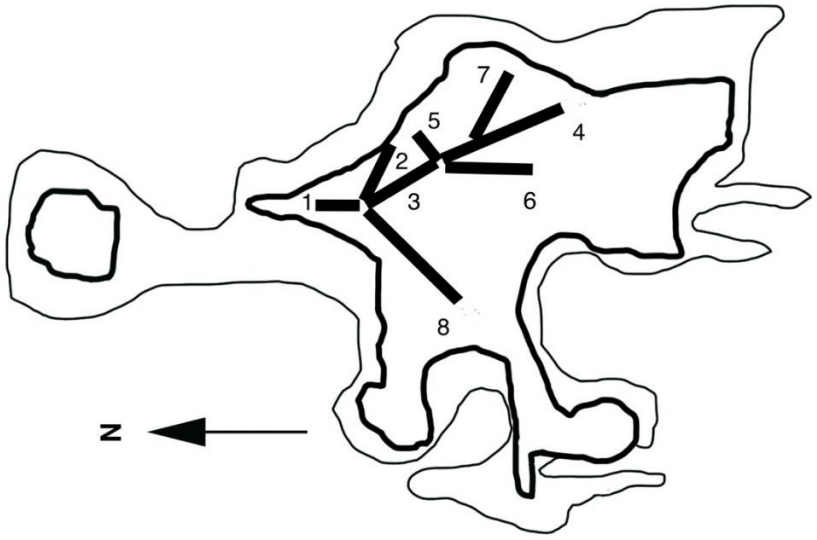



**Figure 2. Probable distribution of eight transects survey in 1959 superimposed on outline of Tollgate Islands South Island (based on Google Earth view). Thin line is approximate high tide, thicker line roughly shows boundary of plateau and thickest lines location of 8 transects. Transect 6 was recorded as 100 yards. Note: True N differs from that indicated on Fig 1.**

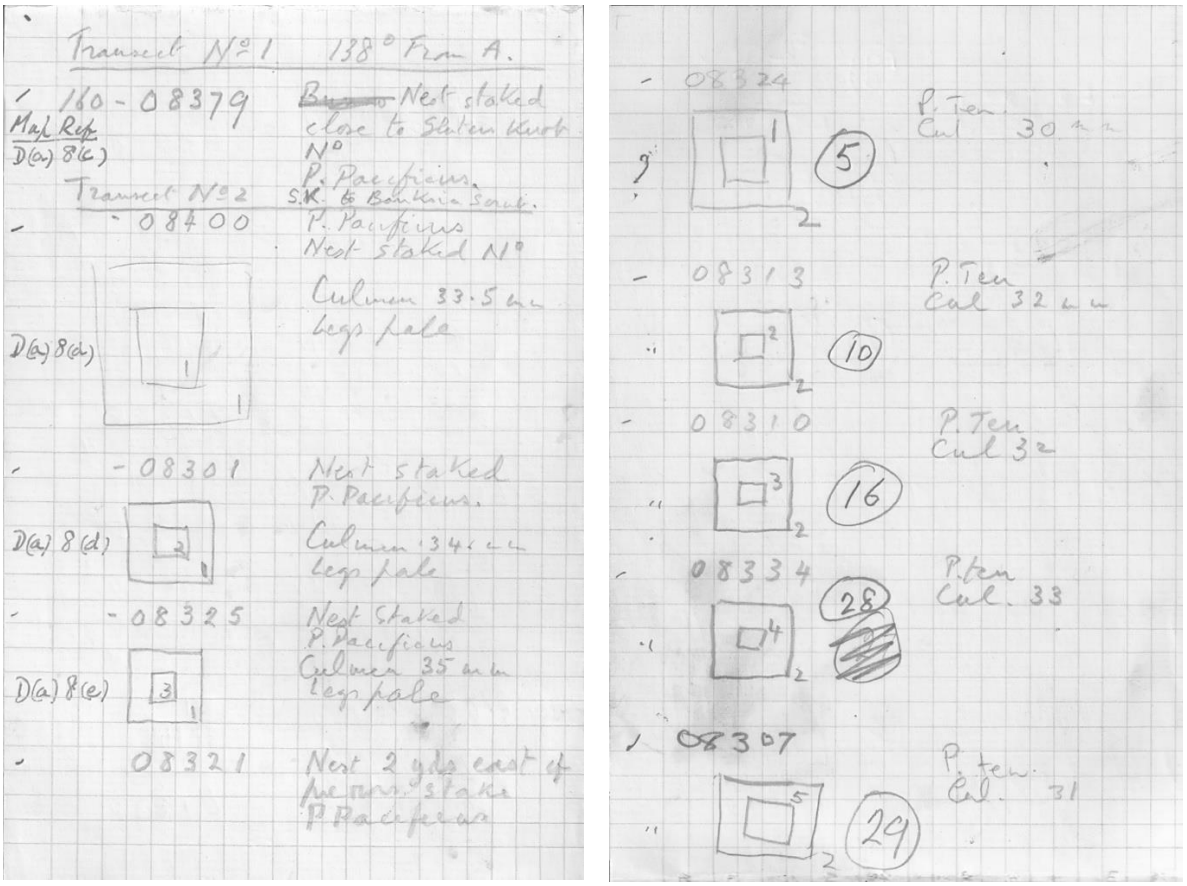



At the end of the entry for this visit to the Tollgate Islands, Norman notes: *(1) First week in April (or end of March) band young of both species, (2) Select about 50 burrows, (3) November 17th – Dec. 3rd to ascertain egg laying calendar of* [A.] *tenuirostris.* It seems that he intended to adopt this schedule in 1959.

**April 1959**

It is clear from Norman Robinson's notebook that he and a small party, consisting of Keith Hindwood along with Ederic and Chris Slater, returned to the Tollgate Islands four months later (4-7 April 1959). There are 28 pages of field notes covering this visit. Most pages are devoted to recording details of each chick examined (see examples, Fig 3) but we can summaries the findings as follows.

**Figure 3. Two pages from Norman Robinson's April 1959 notebook. One showing details noted on the 4th April (left) and the other (right) from two days later. The curious squares with numbers appear alongside all such entries in this notebook.**




On 4 April 1959 they banded four *A. pacifica* chicks and three *A. tenuirostris* (one adult and two chicks) on the north island and then completed an extensive survey by transects on the southern island, where the first Short-tailed Shearwaters had been found the previous December. They examined, banded and measured (culmen– often with a description of leg colours) and added a further 45 *A. pacifica* chicks (marked using blue stakes) and 73 *A. tenuirostris* chicks (brown stakes), though it seems that a few sites were not staked. All of the banding details are in the ABBBS (Australian Bird and Bat Banding Scheme) archives. A coding system was used on South Island (see Fig. 3) and recorded in the notebook in the form of a diagram that presumably identified each stake but there is no explanation of how this system worked! The number of shearwater chicks handled in April 1959 is shown in Table 2.

**Table 2. The number of chicks of two species of shearwater found in burrows on eight transects on South Island, Tollgate Islands, NSW, April 4-7 1959.**

| Transect* | Short-tailed Shearwater | Wedge-tailed Shearwater |
|---|---|---|
| **1** | 1 | 16 |
| **2** | 16 | 9 |
| **A** | 6 | 0 |
| **B** | 0 | 0 |
| **C** | 38 | 1 |
| **From M** | 12 | 19 |
| **Totals** | 73 | 45 |

* Descriptions as follows:
Transect No. 1. 138º from A. (Finishes close to Slater's Knob). Worked on 5/4/59
Transect No. 2. SK [Slater's Knob] to Banksia Scrub [5/4/59]
A. Transect Stump to Flag – 6/4/59
B. Transect 5 yards west of above [6/4/59]
C Transect East of A [6/4/59]
From (M) (Bearing to Flag (E) 285.5º. to (L) 248º – 7/4/59

Norman notes the following:

*(A). Bearing to (B) West End of Shag Rock 71.5º. Bearing to (C) Pinnacle Rock on N. Island 46º. Bearing to (D) on N. Island 28º. Bearing to (E) S. Island 225º.*
*(F). Cairn of stones (Slater's Knob) to Pinnacle Rock (C) N. Island 38º. To Shag Rock (B) Isl. 64º. 23º to (D) N. Isl. 247º to (E) S. Isl.*
*(G). To Slater's Knob (F) 348º. To (E) S. Island 269.5º.*
*(H). To Twisted Stump (J) 161º. To West End Shag Rock (B) 55º. To (A) 328º.*
*(K). To Twisted Stump (J) 357º. To (L) 261º.*

These details help position most of the features of his sketch map (Fig. 1), prepared the previous year. There follow notes on each bird extracted from at least 6 transects but details are confusing. It seems some transects were almost certainly the same as those examined in December 1958. For example, transect 1 in 1959 is probably similar to 1 + 2 of 1958 and transect 2 in 1959 similar to transect 4 of 1958, but others seem like additional transects. However, the overall summary is that they found 45 Wedge-tailed Shearwater chicks and 73 Short-tailed Shearwater chicks after three days' work (see Table 2) The number of empty burrows examined, including those burrows where a chick might not have been extracted, is not recorded.

Finally, Norman adds a note on **Mutton Bird Time Table** as follows:

***September**: (last week) mature breeding birds return to nesting islands. **October**: (2nd and 3rd weeks) mortality rises in Sydney* [beach washed] *(? mature birds). **November**: (beginning) mature birds leave nesting islands, mortality rises during whole month* [beach washed].

*20th/22nd egg laying commences.* ***January****: (10th-23rd) Hatching.* ***April****: During this month parent birds leave*. [From] *3rd week to first in* ***May*** *young leave.*

## Comment

Clearly, in 1959 there was a well-established mixed colony of Short-tailed and Wedge-tailed Shearwaters on the Tollgate Islands. Short-tailed Shearwaters were especially numerous on the south island, where the initial discovery was made. Although in December Short-tailed shearwaters were only extracted from two of the 8 transects examined, they were found four months later in April on 5 of the 6 transects examined and in greater numbers. In the first survey of December 1958 the ratio of Wedge-tailed Shearwaters to Short-tailed Shearwaters was 1:1.3 but four months later, at the end of the breeding season, the ratio among chicks was 1:1.6.

Was this discovery of Short-tailed Shearwaters breeding on the Tollgate Islands evidence that this species was colonizing northwards? Maybe. We have little evidence to confirm that it was certainly absent beforehand. It might not have been recognized. Species identification of these two shearwaters was not particularly well understood in the past and few competent observers had thoroughly searched the NSW islands up to this time, so it may simply have been overlooked.

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# BREEDING SUCCESS OF THE GANG-GANG COCKATOO IN PERI-URBAN CANBERRA FOR THREE BREEDING SEASONS: 2021 TO 2023

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***Abstract:*** *The nesting ecology and behaviour of wild Gang-gang Cockatoos* (Callocephalon fimbriatum) *is poorly known. This paper summarises observations made at 135 breeding attempts over three seasons within urban and peri-urban Canberra and continues our observations since 2017. Through visual observations and observations using endoscopic and remote sensing cameras, we report on breeding success, and hollow competition over the 2021-22, 2022-23 and 2023-24 breeding seasons. Of 391 hollows checked with an endoscope, where Gang-gang Cockatoos had displayed prospecting behaviour, 40% were empty and 12% contained Brushtail Possums. Eight bird species regarded as nest competitors were also recorded. Camera images from eleven known breeding sites operated for 311 nights. Possums and Gliders were recorded on 15% of nights or 24% if Gang-gang behaviour at the nest site is taken into account. Avian hollow competitors visited on 70% of the days. The Sulphur-crested Cockatoo was the most frequent visitor. From 135 breeding sites there were 71 clutches laid with a nesting success of 53% and a fledging success of 59%. The relaying of clutches at sites where clutches had been laid in the previous year was low at 32%. The high failure rate between nesting attempts and the laying of clutches suggesting that breeding success was limited by hollow competition from birds or mammals rather than predation. Reasons for nest failures, if known, are detailed. Brushtail Possum predation is the major reason amongst known nest failures. It is likely that possum management would lead to increased Gang-gang nest productivity.*

## Introduction

The nesting ecology and behaviour of wild Gang-gang Cockatoos *Callocephalon fimbriatum* is poorly known (Higgins 1999, Cameron *et al.* 2021). A lack of information about the distribution and breeding of Gang-gang Cockatoos in the ACT led to the creation of a citizen science project run by the Canberra Ornithologists Group (COG). In 2014, with help from the Atlas of Living Australia, an online survey program was developed to allow the general public to record Gang-gang Cockatoo observations in the ACT. By 2017, Gang-gang Cockatoo sightings were also being uploaded to NatureMapr (Canberra Nature Map; CNM) and iNaturalist.

From 2017 to 2019, over 400 records were submitted to CNM of Gang-gang Cockatoos displaying breeding behaviour. At the same time, a dedicated land care group 'The Red Hill

Regenerators' (RHNR) were able to locate and document Gang-gang Cockatoo breeding at 10 sites within Red Hill Nature Reserve and adjoining open space (Davey *et al.*, 2019).

Since then, observations have continued and we have used in-tree motion-detecting cameras and ground-based endoscopic cameras to monitor Gang-gang Cockatoo nest occupation, nesting behaviours and breeding success in greater detail (Davey and Mulvaney, 2020, Davey *et al*., 2021).

In this paper, we report on details of the 2021-22, 2022-23 and 2023-24 seasons where greater emphasis was placed on standardised survey effort, repeat observations, and more frequent use of endoscopic cameras, to provide information on hollow competitors, predators and nesting success rates. With the more detailed records, past observations may not be comparable.

## Methods

Over three breeding seasons there were 467 separate sightings of Gang-gang Cockatoos in or around a hollow, each with up to five images uploaded to either Canberra Nature Map (CNM) or iNaturalist. Images were prioritised depending whether they showed Gang-gang Cockatoos within, entering or leaving hollows or whether multiple sightings were recorded from one hollow.

Four hundred and three prioritised tree hollows were visited by at least one of the authors. Visited hollows included all nest trees identified prior to the 2021-2022 breeding season. Sites were watched for the presence of Gang-gang Cockatoos and, on occasion, the trunk of the tree was scratched with a stick to elicit any responses from the hollow. The majority of sites were visited on multiple occasions and by early November hollows could be identified as sites at which birds had begun or were intending to breed. Endoscopic cameras attached to 12m poles were used to examine the interior of the hollow and determine whether the hollow was occupied (by any species), contained newly created wood chips, or was flooded. Reconyx HyperFire 2 remote sensing cameras were placed near the hollow entrance on sites that were difficult to monitor through observation or poling. All sites were inspected at strategic times to determine if a clutch had been laid, to check chick survival and to determine, if possible, the date of fledging.

Gang-gang Cockatoo breeding success was classified as follows:

- Stage 1. Nesting attempt. Starting mid-October and determined through direct observations of pairs utilising a hollow on more than one occasion, and/or poling of the hollow revealed a distinctive hollow base lining of beak sized chunks of bark and wood.
- Stage 2. Incubation. By climbing, and/or poling determined the presence of a clutch.
- Stage 3. Chick rearing. By climbing, and/or poling at an appropriate time, usually estimated as a point half-way through the nesting period, determined sex and number of chicks.
- Stage 4. Fledging. By climbing, observations, and/or poling determine whether the chicks have fledged or about to fledge. We assume that fully grown chicks observed at the hollow entrance will fledge successfully. On the rare occasion where fledging is confirmed, this is either due to direct observations of fledglings flying for the first time (in person or on camera) or of fledglings being fed by adult Gang-gang Cockatoos close to the nest site.

All sites designated as Stage 1 were checked in subsequent years.

In this study, we define "nesting success" as the number of sites at which Gang-gang Cockatoos laid divided by the number of sites at which Gang-gang Cockatoos showed intent to breed.

We define "fledging success" as the number of sites with at least one chick fledged divided by the number of clutches laid.

## Results

### *Observations from poling*

Over three breeding seasons 391 tree hollows where Gang-gang Cockatoo activity had previously been observed were inspected using an endoscope camera and the contents recorded (Table 1).

**Table 1. Hollow contents observed using an endoscope at 391 hollows where Gang-gang Cockatoos displayed prospecting behaviour. Hollow content surveys took place between late-October and mid-February.**

| Feature or species in hollow (N=391) | Number of hollows | % |
|---|---|---|
| Empty | 157 | 40.1 |
| Gang-gang Cockatoo | 74 | 18.9 |
| Empty but with Gang-gang Cockatoo chewed bark pieces | 31 | 7.9 |
| Brushtail Possum | 45 | 11.5 |
| Flooded | 20 | 5.1 |
| Empty but with some green leaf material suggesting possum or Galah litter | 17 | 4.3 |
| Sulphur-crested Cockatoo | 16 | 4.1 |
| Australian Wood Duck | 10 | 2.6 |
| European Honey Bee | 8 | 2.0 |
| Crimson Rosella | 5 | 1.3 |
| Krefft's Glider | 4 | 1.0 |
| Boobook Owl | 1 | 0.3 |
| Laughing Kookaburra | 1 | 0.3 |
| Little Corella | 1 | 0.3 |
| Rainbow Lorikeet | 1 | 0.3 |

Nearly 19% of hollows were utilised for potential nesting by Gang-gang Cockatoos and a further 8% showed bark lining typical of Gang-gang Cockatoo nest preparation. These hollows were either not used or nesting was interrupted (e.g. by competition or predation) early in the season before being poled.

Forty-five hollows contained Brushtail Possums (*Trichosurus vulpecula*), and Krefft's Gliders (*Petaurus notatus*) was found in four. European Honey Bees occupied eight hollows. Other hollow-nest competitors included Australian Wood Duck (*Chenonetta jubata)*, Sulphur-crested Cockatoo (*Cacatua galerita*), Galah (*Eolophus roseicapilla*) and Crimson Rosella (*Platycercus elegans*. Rainbow Lorikeet (*Trichoglossus moluccanus*), Little Corella (*C. sanguinea*), Southern Boobook (*Ninox boobook*) and a Laughing Kookaburra (*Dacelo novaeguineae*) were each found in one hollow. Parrots were found in 24 (6%) of the inspected

hollows and were only half as common as possums. The Brushtail Possum, Krefft's Glider and Laughing Kookaburra can also be regarded as nest predators.

Some competitor species line their nesting or denning hollows with green vegetation or, more likely, eucalyptus leaves. On 17 occasions such material was found in hollows, suggesting that they were occupied during the breeding season but not at the time of inspection. It is also likely that some of the empty hollows without any material were utilised by hollow denning or sheltering species, but not at the times of inspections.

***Observations from remote sensing cameras***

Over four breeding seasons, remotely-activated trail cameras were placed within 1m and focused on the entrance of hollows where nesting was attempted. Data from 2020-21, see Davey *et al.* 2021, are included in a different format to allow for comparison over four seasons. From observations and camera images, it was possible to classify breeding at specific hollows into three development stages: nest selection, incubation and chick rearing.
There were 311 nights when cameras were in operation. Three sites were monitored during the nest selection stage, five during the incubation stage, seven during the chick rearing stage and five that were abandoned before egg laying (Table 2).

*Possums/Gliders*

Possums were only recorded at night, that is, between 6:00pm and 6:00am. In addition, there were occasions when the sitting bird would defend the site by coming to the site entrance and displaying with raised wings. Often the assumed predator could not be seen so the event was either due to a possum or glider and here is referred to as a 'Scare'.

**Table 2. Number of nights for four nesting phases from eleven sites over four seasons showing percentage of nights in which possums or gliders were present. See text for definition of Nest selection, Incubating, Rearing and Scare.**

| | **Nest selection** | **Incubating** | **Rearing** | **Abandoned** |
|---|---|---|---|---|
| Number of sites | 3 | 5 | 7 | 5 |
| Number of nights camera active | 30 | 52 | 143 | 86 |
| Number of nights a visit occurred | | | | |
| Scare | | 7 (13.5%) | 22 (15.4%) | |
| Brushtail Possum | | 15 (28.8%) | 5 (3.5%) | 17 (20%) |
| Ringtail Possum | | | | 3 (35%) |
| Krefft's Glider | 1 (3.3%) | 2 (3.8%) | 3 (2%) | |
| **Total visits** | 1 (3.3%) | 24 (46.1%) | 30 (20.9%) | 20 (23.2%) |

All sites recorded possum or glider visitations at one time or another, although visits were variable between sites and may well depend on the location of the site and the surrounding habitat. Over 311 nights possums or gliders visited 15% of nights or 24% if a scare is taken into account. Ringtail Possums were recorded from one site only.

At all but one site Brushtail Possums were observed visiting or defensive behaviour was recorded. It would appear that Brushtail Possums are more likely to visit during the incubation stage than the rearing stage.

From these observations it would appear that the Brushtail Possum is a frequent visitor to nesting sites and may be a major site competitor and/or predator influencing Gang-gang Cockatoo breeding success. On 6 Dec 2022 a predation event was detected, with the Brushtail Possum killing the sitting female and then occupying the site (Fig. 1). A year later at the same site the harassment of fully grown chicks caused both chicks to fledge early. Why the female was not on site and whether the chicks survived is unknown.


**Figure 1. Brushtail Possum predating female adult Gang-gang Cockatoo at nest site.**

*Other hollow competitive species*

There were 219 days (70% of all days) when potential hollow competitors were recorded. The most common visitors to the nesting sites were the Sulphur-crested Cockatoo (37% of days), Crimson Rosella (25%) and Eastern Rosella (*P. eximius)* (16%). Other occasional visitors included the Australian Wood Duck, Galah, Common Myna (*Sturnus vulgaris)*, Little and Long-billed Corella (*C. tenuirostris)*, Australian King Parrot (*Alisterus scapularis)* and Laughing Kookaburra.

We observed no evictions of Gang-gang Cockatoo adults or any of their eggs by hollow competitors. Eggs are very rarely unattended and once a nest is established Gang-gang Cockatoos seem able to defend their hollow from competitive bird species.

**Breeding success**

*Nest success*

The number of breeding sites, number of clutches and breeding success is shown in Table 3.

**Table 3. Breeding success for three seasons. Nesting success taken as the number of sites that produced clutches compared to the number of breeding sites. Fledging success taken as the number of fledged young compared to the number of clutches.**

| Year | Breeding sites | No. clutches | No. fledged clutches | Nesting success (%) | Fledging success (%) |
|---|---|---|---|---|---|
| 2021-22* | 44 | 20 | 13 | 45.5 | 65.0 |
| 2022-23 | 40 | 21 | 12 | 52.5 | 57.1 |
| 2023-24 | 51 | 30 | 17 | 58.8 | 56.7 |
| Three-year total | 135 | 71 | 42 | 52.6 | 59.2 |

* At one site two clutches of different pairs were laid

Of the hollows where nest preparation occurred, 53% resulted in nesting and 59% of those nests successfully fledged at least one young.

A greater number of sites were located in 2023-24 compared with the previous seasons. Nesting success increased slightly with each season although, comparing fledging success, there was a decrease.

Comparing the four stages of breeding, the greatest failure rate was between the nesting attempt stage and the laying of clutches (Fig. 2).

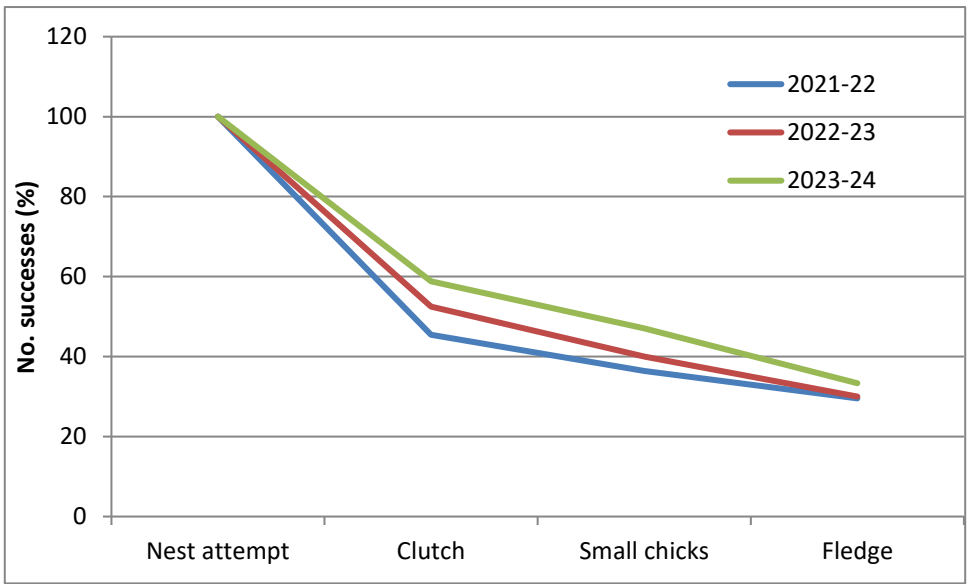


**Figure 2. Success rate between the various breeding stages.**

*Clutch size and sex ratio*

Gang-gang Cockatoos lay one or two eggs in a clutch (Higgins ed., 1999). (In the majority of cases we know the number of eggs laid, with the average clutch size over the three seasons being 1.7. In the few cases where we do not know the number of eggs laid, we take the clutch size to be the same as the number of chicks.

The number of clutches that produced fledglings, the number of young and the sex ratio of 42 fledged clutches are shown in Table 4.

**Table 4. Number of clutches that produced fledged young, number of young and sex ratio of 42 fledged clutches.**

| Year | No. fledged clutches | No. chicks | Male | Female | Unknown | Sex ratio Male:Female |
|---|---|---|---|---|---|---|
| 2021-22 | 13 | 22 | 13 | 7 | 2 | 0.5 |
| 2022-23 | 12 | 20 | 9 | 11 | 0 | 1.2 |
| 2023-24 | 17 | 29 | 17 | 11 | 1 | 0.6 |

There were three chicks where the sex was not determined, so from 68 chicks the sex ratio was 0.7 females to every male. This ratio was also recorded amongst the 50 chicks observed during the 2018-19, 2019-20 and 2020-21 seasons (Davey and Mulvaney 2020, Davey *et al.* 2021). Only in 2022-23 were more females raised than males.

*Time of breeding*

In 2021-22 fledging occurred between 1 January and 15 February (n=13), with eleven of the clutches fledging during January and the last in mid-February, see Figure 3. Taking a period of four weeks for incubation and eight weeks for chick rearing (Forshaw and Cooper, 1981), egg-laying would have occurred from early October to mid-November.

In 2022-23 fledging occurred between 12 January and 14 February, with the exception of one clutch fledging as early as 13 December.

For the 2023-24 season, fledging occurred between 20 December and 6 February, with one clutch not fledging until 25 February. The majority fledged in January and 2023-24 was the most protracted of the three seasons.

*Reasons for breeding failure*

On only a few occasions can we be confident of the reasons for breeding failure (*i.e.* where Stage 1 did not progress to Stages 2, 3 or 4). In most cases hollow competitors or predators have been recorded using the site shortly after nest preparation by adults or around the time when eggs or chicks are removed or destroyed. In these cases, we assume the presence of these competitors/predators is the reason for nest failure.

Of the 135 nesting sites, there were 65 cases where no clutches were laid. In most of these cases (34) it was unknown why there was no further nesting attempt. For the remainder, the major subsequent nest occupier was the Brushtail Possum (Table 5).

Of the remaining 70 cases, 15 clutches did not produce chicks, with the Brushtail Possum a major contributor to the loss. Of the remaining 55 clutches 12 did not survive.

The presence of predators and predation appeared to be responsible for 35 nest failures over three breeding seasons, whilst the presence of hollow competitors during the nest preparation stage appears responsible for seven.

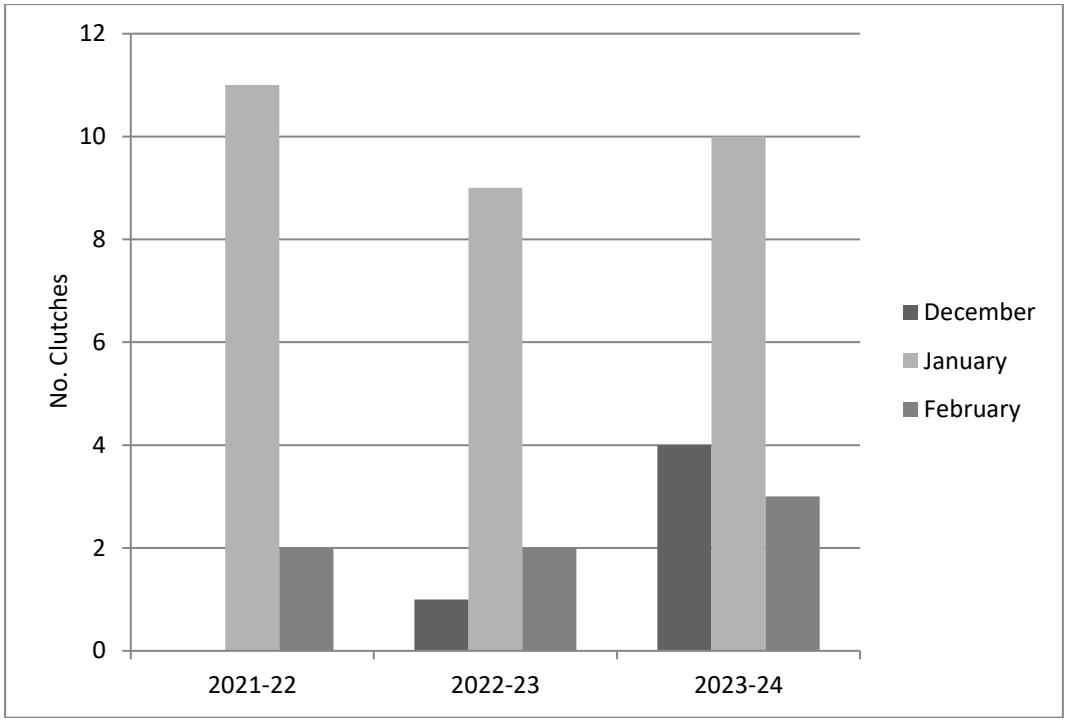


**Figure 3. Distribution of fledging times.**

The flooding of four nest hollows led to the drowning of all dependent chicks during heavy and unseasonal rainfall on 30 November 2023, when an overnight fall of 101 mm was recorded at a nearby suburb.

**Table 5. Number and reasons for failure at three stages of breeding over three seasons. The total number of Stage 1, Stage 2 and Stage 3 occurrences (successful or unsuccessful) was 135, 70 and 55 respectively**.

| Reasons for failure | No. Stage 1 failures | No. Stage 2 failures | No. Stage 3 failures | Total failures |
|---|---|---|---|---|
| Unknown | 34 | 4 | 1 | 39 |
| Flooded | 3 | 1 | 3 | 7 |
| Brushtail Possum | 18 | 6 | 2 | 26 |
| Krefft's Glider | 3 | | 4 | 7 |
| Ringtail Possum | 1 | | | 1 |
| Brushtail Possum/Galah | 1 | | | 1 |
| Galah | 2 | | | 2 |
| Sulphur-crested Cockatoo | 1 | 1 | | 2 |
| Sulphur-crested Cockatoo/Galah | 1 | | | 1 |
| Bees | 1 | | | 1 |
| Unknown predator | | 2 | 1 | 3 |
| Kookaburra | | 1 | | 1 |
| Starvation (abandonment) | | | 1 | 1 |
| Branch fall | | | 1 | 1 |
| Total failures | 65 | 15 | 12 | 92 |

*Re-use of nesting sites in subsequent years*

For the 2021-22 breeding season there were 44 sites where Gang-gangs showed nesting interest (Stage 1). In the following season nesting interest occurred at 22 of these sites. Of the 40 sites where a nest reached Stage 1 in 2022-23, 25 reached Stage 1 in the following season.

For the 2021-22 breeding season there were 20 sites where a nest reached the egg laying stage (Stage 2), and from these sites only three reached Stage 2 in the following season. Of the 21 sites where a nest reached Stage 2 in 2022-23, ten reached Stage 2 in the following season.

For those sites where a nesting interest (Stage 1) was shown in the previous year the nesting interest in the following year was at around 56% whilst the reuse of sites in which clutches had been laid in the previous year was lower. Of 41 sites where eggs were laid, only 13 (32%) had eggs the next year.

Three nesting sites were used in every year (2021-2024), but only one of these sites fledged chicks in every year.

**Discussion**

The general public have been most enthusiastic to post images of Gang-gang Cockatoos at hollows, and without their contributions this project would not have been possible; this is a wonderful example of the value of Citizen Science. Like most cockatoos, the Gang-gang Cockatoo spends most of the year showing interest in tree hollows either by peering inside, chewing bark at hollow entrances or cleaning out and enlarging potential nesting sites. These behaviours often occur across multiple sites by individuals and pairs, which makes it especially difficult to locate the sites at which the birds intend to breed. It is from reported observations by the general public that we are able to locate the critical breeding sites we report on in this study.

We do not know how many nests were missed and are not in a position to determine population size. Over a period of two weeks, in September and October 2021, a study by the ANU and ACT Parks Service attempted to estimate Gang-gang Cockatoo population size, using a distance sampling protocol (see Bibby *et al.* 1992, Buckland *et al*. 1993), across lowland areas of the ACT. In that study, 87 km of survey transect (urban areas - 402 transects at 100m; surrounding nature parks - 222 transects at 200m) returned only 22 Gang-gang Cockatoos detections, including 12 individuals and 10 groups of two to four (see Taylor *et al.* 2025), but the significant survey effort indicates that the population of Gang-gang Cockatoos in Canberra is not large.

Our confidence that we are finding most nests in the Canberra area is increased by the hundreds of people involved in reporting hollow activity, and since surrounding nature parks are well covered by tracks and roads, most potential breeding habitat is likely to have been covered at one time or other during a season.

*Hollow competition and predation*

Aggressive interactions with site competitors over hollows were observed between Gang-gang Cockatoos and Sulphur-crested Cockatoos, Rainbow Lorikeets and Galahs, while during the 2021-2022 season a Sulphur-crested Cockatoo pair nested in one of the 41 hollows known to be nest sites for Gang-gang Cockatoos in previous seasons. Nevertheless, the concerns of Ley (2016) and Smith and Smith (2019) that competition from other hollow-nesting parrots is a cause of significant Gang-gang Cockatoo decline in the Greater Sydney area is not reflected in

the observations in the Canberra area. The low level of hollow occupation by other hollow - nesting parrots is not because they are uncommon in the area. Half of the nest sites identified occur in the vicinity of Red Hill Nature Reserve and, during winter, approximately 600 Little Corellas and 400 Sulphur-crested Cockatoos roost on an adjacent golf course (Callaway 2019). Galahs are also abundant throughout the area, while Rainbow Lorikeets are becoming increasingly common. Canberra was declared the capital in 1909, prior to the widespread use of diesel tractors and chemical fertilisers, while leases have always been short-term (a discouragement to clearing). The Australian Capital Territory did not suffer the degree of clearance that occurred in other woodland areas and the remnant Box-Gum woodlands in the Territory are the largest remaining anywhere (ACT Government 2004). It is possible that a lower level of clearance has preserved more hollow-bearing trees, or higher densities of such trees than elsewhere, thus reducing the level of competition.

A reason for the low level of hollow occupation may well be that Gang-gang Cockatoos appear to require specific hollow dimensions (see Taylor *et al*. submitted). The Gang-gang's ability to find a nest hollow is probably aided by its ability to tolerate disturbance within the vicinity of a nest tree. They often utilise hollows within suburbia, including high disturbance sites such as next to major roads, a school yard and nature strip trees, which may not be suitable for less disturbance-tolerant potential competitors.

Four of the five hollows in which evidence of Australian Wood Duck use was observed are known former Gang-gang Cockatoo nest sites. Aggressive interaction between a Gang-gang Cockatoo pair and a pair of Wood Ducks was observed at one nest site. However, Wood Ducks are early breeders and both Wood Ducks and Gang-gang Cockatoos have been known to nest in the same hollow in the same year. They seem to be hollow co-users rather than competitors, but this may not always be the case. Similarly at two nest sites, Gang-gang Cockatoo pairs nested relatively late in the season, moving into a hollow once it had been vacated by nesting Galahs. With predicted changes to the Canberra climate and the potential impact this could have on the breeding timeline of wildlife, interactions between nesting birds that share the hollow resource is worthy of long-term monitoring.

On three occasions, pairs of Gang-gang Cockatoos with a known nest were observed driving other birds away from nearby hollows with woodchip bases. It is suspected that at least some Gang-gang Cockatoos prepare multiple hollows within a season. It is unknown whether vacant hollows (those not containing a nest) are the result of: (1) Gang-gang Cockatoo pairs having multiple and potential surplus nest hollow options, or (2) nesting attempts by Gang-gang Cockatoo pairs that are infertile, or (3) nests where a predator or competitor has prevented nesting or removed eggs or chicks.

Brushtail Possums were more likely to be observed in hollows than any other hollow-nesting competitor and, in the Canberra area, they are probably the greatest Gang-gang Cockatoo hollow competitor. The degree to which possums are a Gang-gang Cockatoo predator is unknown and warrants further investigation. However, they are a known predator of adult birds and are suspected of being the primary predator of eggs and chicks. Over the three years, we have direct evidence of possum-chewed chick carcasses in 5 (7%) of nests, and possums were found in a hollow soon after the loss of eggs or chicks from a further eight nests. Thus 13 (20%) nests may have failed due to possums.

Female Gang-gangs spend the night on the nest from when eggs are laid until chicks fledge. During this 12-week period, on average in Canberra they will be visited by Brushtail Possums

on 10% - 25% of nights. At only one site did an adult suffer predation, and this was the only occasion when two possums were involved. Of the 125 nesting events it would appear that 12 predations of eggs or chicks by possums occurred. Cameras detected Brushtail Possums on 9% of nights, with an additional 7% of nights where a female defended a nest site but no predators were detected. On no other occasion did this lead to a predation, so on most occasions a female Gang-gang Cockatoo appears to be able to defend both herself and a nest hollow.

However, their ability to defend may vary through the breeding season, or between birds. We observed one example of a second Gang-gang Cockatoo pair (recognisable because the original nesting female had a distinctive pink feather spot on her face) establishing a nest and successfully fledging a chick in a nest where laying by an initial pair had apparently been interrupted, possibly by Krefft's Gliders who were observed in the tree on the night of egg loss. However, on other occasions when Krefft's Gliders were suspected of predation, they were observed in a nest hollow within a few days of hatching and it is suspected that they are targeting newly hatched chicks.

We suspect that the presence of a Brushtail Possum may result in Gang-gang pairs avoiding an otherwise suitable hollow or aborting a nesting attempt. When inspecting sites with the endoscope, on many occasions a Brushtail Possum was found in a tree with multiple hollows. In none of these occasions were Gang-gang Cockatoos present in the same tree. On one occasion Gang-gang Cockatoos and Sulphur-crested Cockatoos nested in the same tree.

Garnett *et al*. (1999) found that without preventing Brushtail Possum access to nest trees of the Glossy Black-Cockatoo (*Calyptorhynchus lathami)* on Kangaroo Island, most nests were likely to be predated. They found that the increase in productivity of Glossy Black-Cockatoo by the protection of nests against possums is evidence for possums being the primary threat on the island for this species. It seems likely that similar possum management in the Canberra area is likely to increase Gang-gang nest productivity.

Despite possum predation, flooding events, hollow competitors and variations associated with the weather, observations on the abundance of Gang-gang Cockatoos in the Canberra area since 1985 appears to suggest that the numbers are relatively stable (Davey *et al.* 2019), while observations from the Canberra Ornithologist Group's woodland survey suggests a very low reporting rate with a slight increase in the last 20 years across Canberra's woodland areas (Bounds *et al*. 2021).

*Breeding success*

In 53% of cases, once a pair had shown an interest in a site (indicated by entering the hollow) clutches were subsequently laid. The 47% of cases where clutches were not laid was probably due to a range of factors, including couple infertility, disturbance by competitors or predators and pairs preparing multiple hollows, while it is also likely that in some cases a clutch was laid but was undetected by us before being predated. In total 71 clutches were detected and there was a moderate chance of fledging success at 59%.

The highest rate of failure was between the time when sites were selected for breeding and when clutches were laid. Bearing in mind that possums can be a hollow competitor or a predator, there is little reason for a predator to usurp a Gang-gang Cockatoo from a site when there are no eggs or young present. It would therefore appear that the failure rate is the result of competition rather than predation.

Individual Gang-gang Cockatoo nesting hollows can be used across multiple years, however the percentage of nests where egg laying occurred in two consecutive seasons is low (32%). The drivers of nest selection by Gang-gang Cockatoos in any given year are unclear, but are likely to be multiple and potentially interacting. For example, one nesting hollow that is subject to flooding was successfully used by Gang-gang Cockatoos in the drought season of 2019-2020, then was not occupied again until the 2023-2024 season. As part of an effort to improve Gang-gang Cockatoo conservation, the authors are encouraging the identification of Gang-gang Cockatoo nest trees across its range. Eight in Victoria and NSW have been observed for at least two consecutive seasons, of which only one hollow was successful in both years.

There is little indication in our data that a successful nest event in one year is a strong predictor of a successful nest attempt at the same site in subsequent years. Without individuals being marked it is not possible to tell if an individual or pair bred at the same site or at another site across years. Three Gang-gang Cockatoos with distinctive markings, Baldy (a male with a reduced crest) and Cheeky Rose and Rose Eye (females who have distinctive pink spots on their faces) were regularly observed within 1km of a previously utilised nest tree across two or three subsequent nesting seasons. Over four seasons Baldy and his partner nested twice but in different trees, Cheeky Rose also nested in two different trees, while Rose Eye only nested once in the last three years. New sites continued to be found in areas searched previously, so pairs are either not breeding every year, or they are selecting different nest sites, or some nest sites are not being found.

For the Gang-gang Cockatoo, over the three seasons from 68 clutches there were 106 eggs (or 132 eggs assuming a clutch size of two), of which 71 chicks fledged, giving a fledging success of 67% (or 53.7%). This is higher than what Higgins (1999) recorded for the Galah (42%) or Sulphur-crested Cockatoo (35%).

In 2002, the Gang-gang Cockatoo was listed as nationally endangered on the basis of a 69% decline in Gang-gang Cockatoo occurrence within 500m radius surveys between 1999 and 2019, and an estimated 10% loss in the remaining population as a result of the 2019/2020 bushfires (DAWE 2022). However, the population in the Canberra area appears to be stable (Davey *et al.* 2019). In accordance with the COG study, we have found a moderate fledging success rate in the Canberra area, a rate that may be increased by creating barriers that restrict possum access to nest hollows.

In summary, despite our efforts there is still a need to determine abundance, individual movement, breeding distribution and success within the ACT, none of which is possible without marking individuals or further increasing our nest-based surveillance. Descriptions in Higgins (1999) of Gang-gang Cockatoo breeding habitat appear to differ from that in urban Canberra. How important this difference is and whether the ACT urban population acts as a source or sink to the overall Gang-gang Cockatoo population is unknown.

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Poling and the use of an endoscopic camera were permitted under Animal Ethics licence ANU Ethics Protocol A2021_40 Stojanovic.

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# OBSERVATIONS OF MIGRATORY WADERS FROM LAKE BATHURST, NEW SOUTH WALES, 1980 - 2022

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***Abstract:*** *This article summarises the observations of migratory waders from Lake Bathurst, gathered during monthly surveys over 41 years. Of the 22 species recorded, most use the East Asia-Australian Flyway to get to Australia. Many of these species have suffered major population declines over recent decades. At the lake declines were most notable for Curlew Sandpiper, Red-necked Stint and Double-banded Plover. Most rarer species (1-70 records/41 years) were recorded between 1982 to 1999, with much fewer records during the following years to 2021. Years with a higher number of records of rarer species could be either years with large-scale wet or dry conditions. Further, peak numbers of Sharp-tailed Sandpipers were reached in a year with wet conditions over inland to eastern Australia (1995), and likewise in a year with dry conditions across the same region (2014). These observations point to the importance of local site conditions when waders decide where to stay. Pacific Golden Plovers from southern coasts on their return migration do also move across land and not just along the east coast as the literature suggests Numbers of migratory waders recorded at Lake Bathurst were the outcome of interactions between overall population changes, large-scale weather patterns (rainfall), the varying water levels of the lake, including periods of low water or none, and the spread of the invasive weed Serrated Tussock* (Nassella trichotoma), *depriving waders of key resting and foraging habitat at the lake.*

## 1. Introduction

On behalf of the Canberra Ornithologists Group (COG; now Canberra Birds), I have organised and conducted monthly surveys of waterbirds at Lake Bathurst, New South Wales, for 41 years (April 1980 to February 2022) (Lenz 2014, 2019). The lake lies within the COG Area of Interest (COG AoI). In the Canberra Region it is the most significant site for migratory waders.

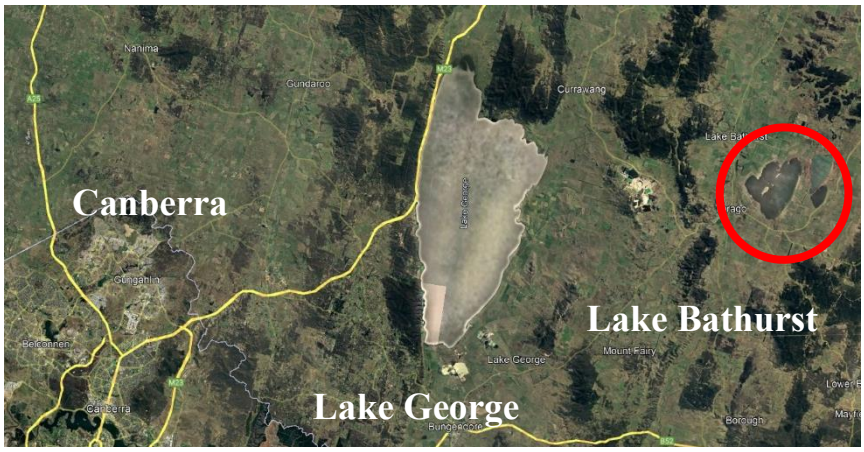


**Figure 1. Location of Lake Bathurst.**

Many migratory wader species which use the East Asia-Australasian Flyway to get to Australia have suffered significant population declines (Clemens *et al.* 2016; Studds *et al.* 2017; Hansen *et al.* 2022) over recent decades. This was also noted at Lake Bathurst.

This article summarises the available records for a total of 22 migratory wader species seen at Lake Bathurst during the survey period.

**2. The site**

Lake Bathurst is located at 35°02′S, 149°41′E, 680 m above sea level, on the New South Wales Southern Tablelands, 50 km north west of Canberra, Australian Capital Territory (Fig. 1). It extends to ~1350 ha when full and its depth can reach 7 m (Braithwaite 1982; Abell 1995), although over the observation period it has never been full to capacity. It was at its highest, with a maximum water depth of 3.3 m between 1989 and 1993 (Abell 1995). At the close of my involvement with the surveys the lake had filled to near capacity after three years of La Niña (2020 to 2022). Since 2013 it is a KBA/IBA site of Birdlife Australia.

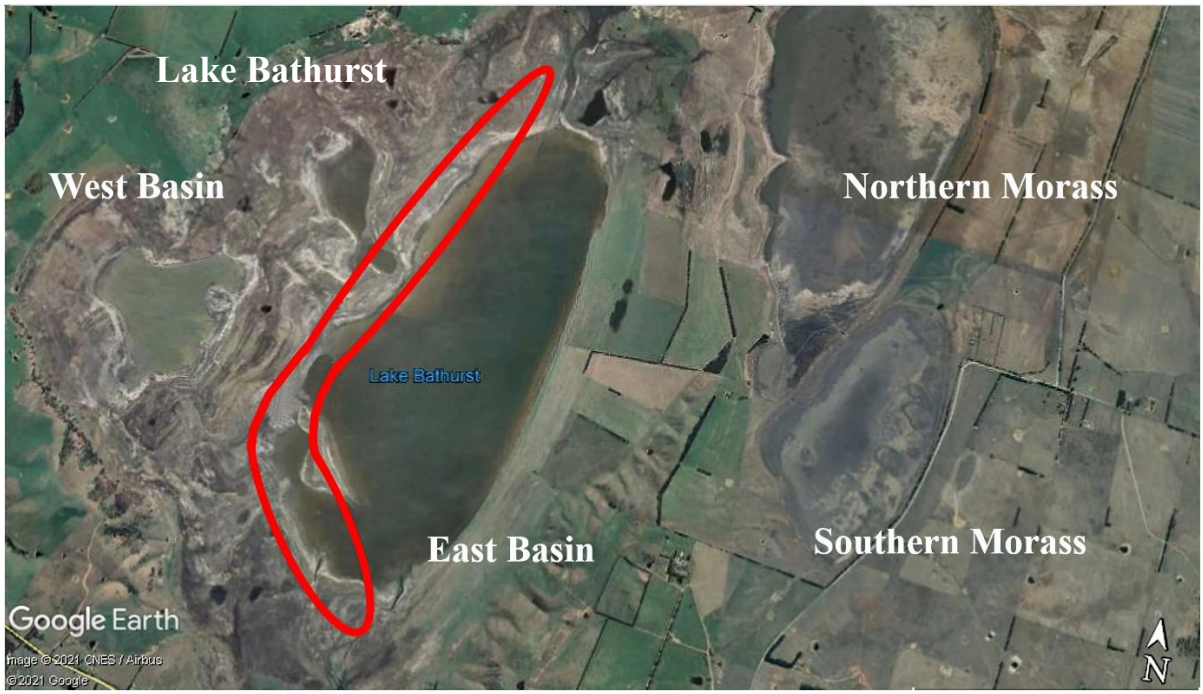


**Figure 2. Map of Lake Bathurst and the Morasses. At lower water levels the lake splits into an East and West Basin. The encircled area on the western side of the East Basin covers the stretch of grassland and shoreline favoured by migratory and non-migratory waders (see text).**

To the east, two small ephemeral lakes, the Southern and Northern Morasses (maximum size ~125 ha and ~300 ha, respectively) are separated from Lake Bathurst by wave-built ridges. The lakes contain fresh water; Lake Bathurst is saline. The Morasses are fed by creeks whereas Lake Bathurst is sustained by groundwater discharge (Abell 1995). All three lakes are used by waterbirds and they move readily between them (Lenz 2014).

The bed of Lake Bathurst is composed of sand and gravel. The water is clear. The submerged water plant Milfoil (*Myriophyllum propinquum*) forms dense stands at higher water levels, and Widgeon Grass (*Ruppia* sp.) becomes the dominant underwater vegetation when waters recede and the lake turns more saline (Braithwaite 1982; Abell 1995).

When water levels fall, parts of the shoreline can be covered in mats of drying water plants. Midge larvae in the decaying plant material provide a rich food source for waders, and birds are concentrated along those sections of the shore.

There is no reedy vegetation along the lake's shores.

In most years of the survey period Lake Bathurst was separated into a major 'East Basin' and a smaller 'West Basin' (see Fig. 2) with dry lake bed and a few pools in between. At times the lake dried up completely. The longest dry periods stretched from 2003 to 2006 and from 2008 to 2009, 2015, and 2018 to 2019 (see Table 1). Shrinking to drying out and partial refilling have been the norm over much of the observation period (Lenz 2014, 2019). However, even small areas of water can provide suitable habitat for waders.

**Table 1. Periods when Lake Bathurst and the Morasses were partly or completely dry.** (At times the Morass held pools of water for longer than the main lake).

| Year | Months | Year | Months |
|---|---|---|---|
| 1987/1988 | Dec to Apr | 2008 | Jan to Dec |
| 1997 | Mar to Jun | 2009 | Jan to Dec |
| 1998 | Feb to June | 2010 | Jan to Oct |
| 2000 | Jan to Dec | 2015 | Jan to Dec |
| 2001 | Jan to Aug | 2016 | Jan to May |
| 2003 | Jan to Dec | 2017 | Apr to Dec |
| 2004 | Jan to Dec | 2018 | Jan to Dec |
| 2005 | Jan to Jun | 2019 | Jan to Dec |
| 2006 | Mar to May; Sep to Dec | 2020 | Jan to Jun |
| 2007 | Jan to May | | |

**Figure 3. Extensive stands of the weedy grass Serrated Tussock (*Nassella trichotoma*) on dry lake bed up to the water's edge.**

In parts of the lake area the introduced weedy grass Serrated Tussock (*Nassella trichotoma*) was widespread from the beginning of the surveys. However, during longer dry periods, especially from 2008 onwards the grass spread rapidly and colonised large new areas of the dry lake bed (Fig. 3). The land (lake bed) to the West of the East Basin was stocked with sheep, which kept a wide belt of grass adjoining the water cropped. This provided an ideal resting and foraging area for smaller waders, such as Red-capped Plovers (*Charadrius ruficapillus*), Double-banded Plovers (*Charadrius bicinctus*), Red-necked Stints (*Calidris ruficollis*), and other species (see Fig. 2). Eventually Serrated Tussock also colonised these parts of the

grassland fully, and the sheep were removed. Whenever water came back, the weed became the shoreline vegetation (Fig. 3). Thus, waders were deprived of a favoured area.

## 3. Survey methods

Surveys were carried out less regularly in the first year but at monthly intervals whenever possible from June 1982 onwards. Only very few extra visits were made, usually targeting a particular species. Lake Bathurst was fully accessible via private properties. Surveys were carried out by walking along the shore at a certain distance to avoid alarming the birds un duly. The Southern Morass could only be surveyed from a road and the Northern Morass was not accessible. The use of telescopes was essential. The surveys were carried out by varying numbers of observers (see Lenz 2014). From mid 2021 the lake filled to such an extent that large sections could no longer be easily reached and surveyed.

## 4. Documentation of records

Before details of observations from Lake Bathurst, statements on the distribution/status in Australia for each species are given, from up to five sources: Lane (1987); *The Handbook of Australian, New Zealand and Antarctic Birds* [HANZAB] (Marchant and Higgins 1993; Higgins and Davies 1996); Geering *et al.* (2007); Hollands and Minton (2012); and Cooper *et al.* (2014, 2016). These statements allow us to put the local observations into a wider perspective, especially if a species is known to be mainly coastal or also occurs in inland Australia.

The taxonomic sequence of the species follows the BirdLife Australia *Working list of Australian species* (version 4.3, October 2023) (Germech 2022).

For rarer species, references to the COG Annual Bird Reports or the relevant Lists of COG's Rarities Pannel are given where available.

At any survey (one per month) the numbers for each species are pooled from all parts of the lake system (the parts of the main lake, and the Southern Morass). The number of records for a given species is the total number of months over 41 years with a record of this species.

A few observations from surveys at Lake George, ca. 15 km to the SW of Lake Bathurst (see Fig. 1), are also included. Migratory waders at Lake George were mainly recorded at low water levels when I had to walk out to the water's edge, and always covered only a small portion of the large lake.

## 5. The species

Grey Plover (*Pluvialis squatarola*)

*Occurrence in Australia*
Lane (1987): …exclusively almost coastal;
Marchant and Higgins (1993): Coastal, but occasionally on inland wetlands;
Geering *et al*. (2007): Mostly coastal;
Hollands and Minton (2012): ...entirely coastal;
Cooper *et. al*. (2014): …rare visitor to NSW, with only a few reports each year…mainly found along the coast, but occasionally birds appear well inland.

*Lake Bathurst*
Number of records: 7; with 2 observations on following days, most likely of the same birds.
Present: September to February
Numbers: 1 to 3

| **Grey Plover** | | | | |
|---|---|---|---|---|
| **Date** | **No. birds** | **Observers** | **Rarities List (R)/Annual Bird Report (A)** | **CBN: volume, (issue), year, page** |
| 24. 11.1985 | 1 | J Grant, L Beardsell | (A) 1985/1986 | 12 (2), 1997, 56 |
| 14.12.1990 | 3 | R Thomas | (R) 29 | 16(2), 1991, 40 |
| 15.12.1990 | 3 | M Lenz, R Thomas | (R) 45 | 23(1), 1998, 16 |
| 23.02.1991 | 1 | P Milburn, R Thomas | | |
| 21.09.1991 | 2 | P Milburn, R Thomas | (R) 41 | 19(4), 1994, 74 |
| 22.09.1991 | 1 | M Lenz | (R) 45 | 23(1), 1998, 16 |
| 19.10.1991 | 1 | P Milburn | (A) 1991/1992 | 21(4), 1996, 96 |

Pacific Golden Plover (*Pluvialis fulva*)

*Occurrence in Australia*
Lane (1987): …occurs predominantly on coastal mudflats…Small numbers move through inland south-eastern Australia. In late February and March…move northwards up the east coast. No birds move through the inland;
Marchant and Higgins (1993): Usually coastal, rarely far inland;
Geering *et al*. (2007): Usually found in small flocks in estuaries, intertidal mudflats, salt-marshes and short grass in paddocks and crops;
Hollands and Minton (2012): …frequents mudflats, wetland edges and sewage farms…Fairly common summer migrant around whole of Australian mainland coast...rare inland;
Cooper *et. al*. (2014): In NSW…likely to be seen singly or in small groups in coastal regions. Inland records are thought to be individuals migrating across the continent to the southern Australian coast.

*Lake Bathurst*
Number of records: 70
Present: September to March (Fig. 4); one injured bird present from March to August 1990; it attained breeding plumage during its stay.
Numbers: Max. 57 (Mar 1999); 47 (Nov 1999)

The literature suggests that Pacific Golden Plovers do not move across inland Australia on their return migration during February and March (Lane 1987, Marchant and Higgins 1993) but travel along the east coast. Our observations at Lake Bathurst indicate that not all birds follow the coast; some may take a more inland route (Fig. 4). Notably, group size seemed to increase during the return passage (Fig. 4).

Most records (77%; 54 of 70) fall in the period 1984 to 1999, and only 23% (16 of 70) in the following years to 2021.

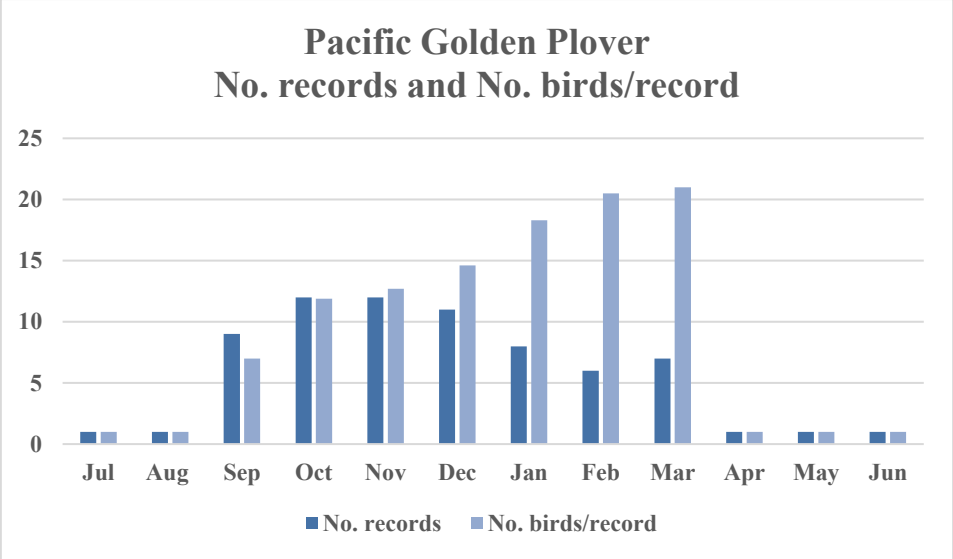


**Figure 4: Pacific Golden Plover: Seasonal distribution of the Number of records and Number of birds per record.**

Double-banded Plover (*Charadrius bicinctus*)

*Occurrence in Australia*
Lane (1987): It also occurs at a number of inland salt lakes in Victoria and southern NSW;
Marchant and Higgins (1993): ...occurs in e. and s. Australia...In NSW widespread in coastal regions. Occasional inland records;
Geering *et al*. (2007): …mostly found on intertidal sand and mudflats and on ocean beaches but also occasionally on sub-coastal fresh and saltwater lakes;
Lake Bathurst is listed as a site with internationally significant numbers for this species (p. 79);
Hollands and Minton (2012): Autumn and winter migrant, mainly to coastal south-eastern Australia…frequently in inland in south-east;
Cooper *et. al*. (2014): Estuaries are favoured by this species in NSW; however, birds can sometimes be recorded at inland swamps. It is often reported from Lake Bathurst, with numbers as high as 500, or more than 1% of the wintering population in Australia.

*Lake Bathurst*
Number of records: 112 (Fig. 5A).
Present: February to August; reported in all years except when the lake was dry
Numbers: max. 241 (July 1992) (Fig. 5B)

The earliest arrival was of a single bird on 1 Feb 1998. No more than 5 birds were recorded in February, the main influx occurred from March onwards. Group size increased towards the return migration (Fig. 5A).

Dow (1988) includes in her review of rarities from the Canberra Region between 1964-1974 remarkable estimates of 500 to 1000 Double-banded Plovers (Mark Clayton) from the lake in late June to mid July 1971 (see also Cooper *et al*. 2014). The highest number of plovers recorded between 1980 and 2022 was significantly lower: 241 birds. Overall numbers have declined (Fig.4). Serrated Tussock has in more recent years overgrown the species' favoured rest and feeding areas.

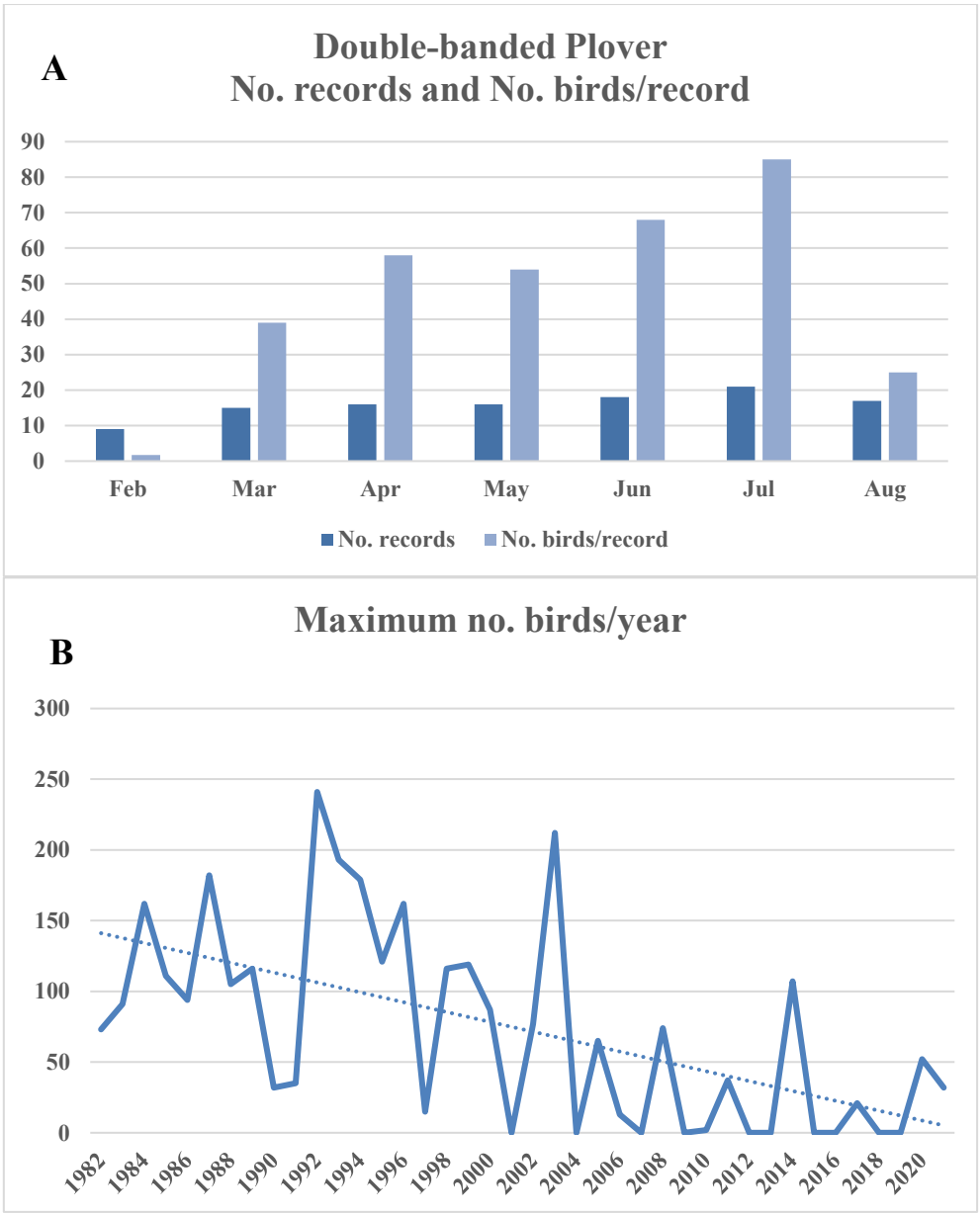


**Figure 5. Double-banded Plover: (A) Seasonal distribution of the Number of records and the Number of birds per record; (B) Maximum number of birds per year.**

Oriental Plover (*Charadrius veredus*)

*Occurrence in Australia*
Marchant and Higgins (1993): Seasonally common on blacksoil plains of n. WA, NT and Gulf Country of Qld.; stragglers to s. regions;
Geering *et al*. (2007): …usually solitary or in small to large flocks …on dry grassland and thinly vegetated plains in inland areas;
Hollands and Minton (2012): Summer visitor throughout Australia but mainly inland and in the north;
Cooper *et. al*. (2014): …there is a steady but low number of reports…from NSW…NSW is at the margins of the species' range.

*Lake Bathurst*
Number of records: 1
Present: October
Numbers: 1

| **Oriental Plover** | | | | |
|---|---|---|---|---|
| **Date** | **No. birds** | **Observers** | **Rarities List (R)/Annual Bird Report (A)** | **CBN: volume, (issue), year, page** |
| 22.10.2012 | 1 | P Milburn | (R) 83 | 38 (3) 259 |

'The bird was foraging on a dry mudflat [to the North of the lake] with scattered granite outcrops, the vegetation being dominated by *Wilsonia rotundifolia.* It was among a dispersed flock of Banded Lapwings (*Vanellus tricolor*). The Oriental Plover favoured the damper areas…The bird was observed for 1 hour.' (P Milburn).

Little Curlew (*Numenius minutus*)

*Occurrence in Australia*
Lane (1987): Small numbers reach southern and eastern Australia;
Higgins and Davies (1996): Widespread N of 20-21° S, scattered records elsewhere inland;
Geering *et al*. (2007): ...majority of the population migrates to the sub-coastal plains of northern Australia;
Hollands and Minton (2012): Summer migrant to northern WA, NT and northern Qld. Accidental to southern States;
Cooper *et al.* (2016): In NSW this species is an uncommon migrant with most records at coastal sites, though there have been several inland records.

*Lake Bathurst*
Number of records: 7
Present: October to February
Numbers: 1 to 11

| **Little Curlew** | | | | |
|---|---|---|---|---|
| **Date** | **No. birds** | **Observers** | **Rarities List (R)/Annual Bird Report (A)** | **CBN: volume. (issue), year, page** |
| 07.02.1982 | 11 | J Brooke, M Doyle, J Penhallurick | (A) 1981/1982 | 8(1), 1983, 25 See Brooke (1982) |
| 23.01.1988 | 3 | M Lenz, P Milburn | (A) 1987/1988 | 14(3), 1989, 62 |
| 24.01.1992 | 1 | M Lenz | | |
| 04.11.1994 | 5 | M Lenz | (R) 46 | 23(2), 1998, 42 |
| 27.10.1997 | 1 | M Lenz | (R) 46 | 23(2), 1998, 42 |
| 30.11.2016 | 1 | M Lenz | (R) 91 | 42(3), 2017, 326 |
| 20.10.2021 | 1 | M Lenz | (R) 100 | 47(1), 2022, 78 |

Eastern Curlew (*Numenius madagascariensis*)

*Occurrence in Australia*
Lane (1987): … exclusively coastal;
Higgins and Davies (1996): Widespread in coastal regions in N, E and S…Rarely recorded inland;
Hollands and Minton (2012): Summer migrant to all of coastal Australia…Rarely inland;

Cooper *et al.* (2016): This species has been reported from all estuaries in NSW and inland reports are rare.

*Lake Bathurst*
Number of records: 1
Numbers: 1
Present: August

| **Eastern Curlew** | | | | |
|---|---|---|---|---|
| **Date** | **No. birds** | **Observers** | **Rarities List (R)/Annual Bird Report (A)** | **CBN: volume. (issue), year, page** |
| 21.08.1983 | 1 | M Lenz | (A) 1983/1984 | 10(2), 1985, 56 |

The bird was seen the only time I visited the lake in the afternoon (to check nest numbers of the Hoary-headed Grebe (*Poliocephalus poliocephalus*)). It flew low over the lake from S to N and called several times. It may well have landed at the northern end of the lake.

Bar-tailed Godwit (*Limosa lapponica*)

*Occurrence in Australia*
Lane (1987): … is exclusively coastal;
Higgins and Davies (1996): Widespread along e. and se. coast…Few inland records in NSW and Vic: …records include… L. Bathurst W of great Divide;
Geering *et al*. (2007): Found mainly on intertidal mudflats and rarely far from the coast;
Hollands and Minton (2012): Summer migrant around coast of whole of Australia. Occasionally inland;
Cooper *et al.* (2016): …found around the coast of all parts of Australia...In the past the Bar-tailed Godwit has been recorded inland, either singly or in small groups.

*Lake Bathurst*
Number of records: 11 (+ 1 Lake George)
Present: October to December
Numbers: 1-2

| **Bar-tailed Godwit** | | | | |
|---|---|---|---|---|
| **Date** | **No. birds** | **Observers** | **Rarities List (R)/Annual Bird Report (A)** | **CBN: volume, (issue), year, page** |
| 22.10.1989 | 2 | M Lenz | (R) 27 | 15(3), 1990, 67 |
| 19.10.1991 | 2 | P Milburn | | |
| 26.10.1996 | 1 | M Lenz, P Milburn | (R) 41 | 19(4), 1994, 75 |
| 07.11.2005 | 1 | M Lenz | (R) 68 | 31(3), 2006, 168 |
| 31.11.2005 | 1 | M Lenz | | |
| 31.10.2011 | 1 | M Lenz | (A) 2011/2012 | 38(1), 2013, 33 |
| 07.11.2011 | 1 | D Mantle | | |
| 21.11.2011 | 1 | M Lenz | | |
| 30.10.2013 | 1 | P Milburn | (A) 2013/2014 | 40(1)41 |
| 28.12.2013 | 1 | M Lenz, P Milburn | | + |
| 29.10.2014 | 1 | M Lenz, P Milburn, K Windle | (A) 2014/2015 | 41(1), 2016, 38<br>Date given incorrectly as 14.10.2014 |
| *Lake George* | | | | |
| 22.10.1990 | 1 | M Lenz | (R) 46 | 23(2), 1998, 42 |

Black-tailed Godwit (*Limosa limosa*)

*Occurrence in Australia*
Lane (1987): Single birds or small flocks occur regularly at inland sites;
Higgins and Davies (1996): …Widespread but scattered inland records;
Geering *et al*. (2007): Found in both freshwater and muddy coastal habitat…over most of Australia, but more common in the north…;
Hollands and Minton (2012): Summer migrant to coastal Australia…Less common inland;
Cooper *et al.* (2016): In NSW…small numbers are recorded inland in most years…

*Lake Bathurst*
Number of records: 1
Numbers: 2
Present: September

| **Black-tailed Godwit** | | | | |
|---|---|---|---|---|
| **Date** | **No. birds** | **Observers** | **Rarities List (R)/Annual Bird Report (A)** | **CBN: volume. (issue), year, page** |
| 20.09.1987 | 2 | M Lenz, S Beattie, A Etheridge | (A) 1987/1988 | 14(3), 1989, 62 |

Ruddy Turnstone (*Arenaria interpres*)

*Occurrence in Australia*
Lane (1987): There are a few inland records… in October and November;
Higgins and Davies (1996):… occasional records inland (probably on passage);
Geering *et al*. (2007): Found predominantly on rocky coastlines, on coral and sand islands…;
Hollands and Minton (2012): Summer migrant to all Australian coasts;
Cooper *et al.* (2016): In NSW…found mainly along the coast… small numbers are recorded from sewage treatment plants or flooded areas inland, mostly in spring…

*Lake Bathurst*
Number of records: 9
Present: September to early December
Numbers: 1-2

| **Ruddy Turnstone** | | | | |
|---|---|---|---|---|
| **Date** | **No. birds** | **Observers** | **Rarities List (R)/Annual Bird Report (A)** | **CBN: volume. (issue), year, page** |
| 28.11.1982 | 1 | M Doyle | (A) 1982/1983 | 9(3), 1984, 89 Date incorrectly given as 12.12.1982 |
| 27.10.1985 | 1 | M Lenz | (A) 1985/1986 | 12(2), 1987, 58 |
| 20.11.1988 | 1 | M Lenz | (A) 1988/1989 | 15(4), 1990, 97 |
| 21.09.1991 | 1 | P Milburn | (R) 41 | 19(4), 1994, 75 |
| 22.09.1991 | 2 | M Lenz | (R) 45 | 23(1), 1998, 16 |
| 19.10.1991 | 1 | M Lenz, P Milburn | (R) 41 | 19(4), 19 94, 75 |
| 07.10.1993 | 1 | J Nicholls | (R) 38 | 19(4), 1994, 14 |
| 26.10.1993 | 1 | M Lenz | (R) 46 | 23(2), 1998, 43 |
| 06.12.1999 | 1 | M Lenz | (R) 46 | 23(2), 1998, 43 |

Great Knot (*Calidris tenuirostris*)

*Occurrence in Australia*
Lane (1987): They are exclusively coastal;
Higgins and Davies (1996): NSW scarce on coast S to about Narooma…Rarely inland;
Geering *et al*. (2007): Found…on sandy or muddy estuaries and coasts with broad intertidal mudflats;
Hollands and Minton (2012): Summer migrant to coastal Australia;
Cooper *et al.* (2016): It occurs predominantly on the coast in NSW, though there are occasional inland records.

*Lake Bathurst*
Number of records: 2
Present: September, December
Numbers: 1-2

| **Great Knot** | | | | |
|---|---|---|---|---|
| **Date** | **No. birds** | **Observers** | **Rarities List (R)/Annual Bird Report (A)** | **CBN: volume. (issue), year, page** |
| 22.09.1991 | 2 | M Lenz | (R) 44 | 22(1), 1997, 27 |
| 29.12.1995 | 1 | M Lenz | (R) 46 | 23(2), 1998, 43. |

Red Knot (*Calidris canutus*)

*Occurrence in Australia*
Lane (1987): It is almost exclusively coastal;
Higgins and Davies (1996): NSW, Vic. Widespread round coast…Few inland records;
Geering *et al*. (2007): Rarely found far from the coast;
Hollands and Minton (2012): Summer migrant to coastal Australia…;
Cooper *et al.* (2016): Although the reporting rate …in NSW is low, sightings are regular in coastal areas. The species is only occasionally recorded from inland NSW where all records are from September-October.

*Lake Bathurst*
Number of records: 5 (+2 Lake George)
Present: September to January
Numbers: 1-5

| **Red Knot** | | | | |
|---|---|---|---|---|
| **Date** | **No. birds** | **Observers** | **Rarities List (R)/Annual Bird Report (A)** | **CBN: volume. (issue), year, page** |
| 23.11.1986 | 3 | M Lenz, J Lawrence, N Reckord | (A) 1986/1987 | 13(3), 1988, 77 |
| 01.10.1992 | 3 | M Lenz | (R) 44 | 22(1), 1997, 27 |
| 04.09.1996 | 1 | P Milburn | | |
| 26.10.1996 | 3 | M Lenz, P Milburn | (R) 46 | 22(1), 1997, 27 |
| 21.01.2014 | 2 | P Milburn | | |
| *Lake George* | | | | |
| 28.10.1995 | 5 | M Lenz | (R) 46 | 23(2), 1998, 43 |
| 29.12.1995 | 1 | M Lenz | (A) 1995/1996 | 24(2), 1999, 71 |

Ruff (*Calidris pugnax*)

*Occurrence in Australia*
Lane (1987): …annually in small numbers…found in most parts of Australia;
and Davies (1996): Rare but regular visitor;
Geering *et al*. (2007): Usually found…in a variety of coastal and inland wetlands. Rare and unpredictable in Australia but recorded annually;
Hollands and Minton (2012): A very rare, but possibly regular summer migrant, mostly to coastal e. and s. e. Australia;
Cooper *et al.* (2016): The Ruff is a rare but regular visitor to NSW from spring to autumn. There has been at least one sighting in the State almost every year since 1970.

*Lake Bathurst*
Number of records: 4 (of same bird)
Present: November to February
Numbers: 1

| **Ruff** | | | | |
|---|---|---|---|---|
| **Date** | **No. birds** | **Observers** | **Rarities List (R)/Annual Bird Report (A)** | **CBN: volume. (issue), year, page** |
| 07.11.1995 | 1 male | M Lenz | (R) 46 | 23(2), 1998, 43 |
| 24.11.1995 | | P Milburn | | |
| 21.01.1996 | | M Lenz, P Milburn | | |
| 25.02.1996 | | M Lenz, J Leonard | | |

The single male stayed for four months at the same small pool of water.

Sharp-tailed Sandpiper (*Calidris acuminata*)

*Occurrence in Australia*
Lane (1987): Most…are found in the wetlands of Victoria, south-western New South Wales and eastern South Australia;
Higgins and Davies (1996): Mostly in SE... Many inland records of birds on passage;
Geering *et al*. (2007): Occurs in both coastal and inland areas but prefers non-tidal fresh or brackish wetlands;
Hollands and Minton (2012): Equally home in salt and freshwater wetlands, both coastal and inland;
Cooper *et al.* (2016): The species is widespread in NSW and is found in all regions.

*Lake Bathurst*
Number of records:196; the most common migratory wader (Fig. 6A)
Present: (July) August to April (June) (Fig. 6, Table 2)
Numbers: Max.: 4480 (December 1995); 3330 (October 2014)

The main influx occurs from August onwards. The species has been recorded year-round, with the highest numbers of records (Fig. 6B) and birds (Fig. 6C) between October and December.

A few records for the winter months of May to July exist (Table 2), although the late July date could already have been a first arrival. Higgins and Davies (1996) mention as latest records mid-May from the arid interior, but Cooper *et al* (2016) note a few records of overwintering birds for NSW.

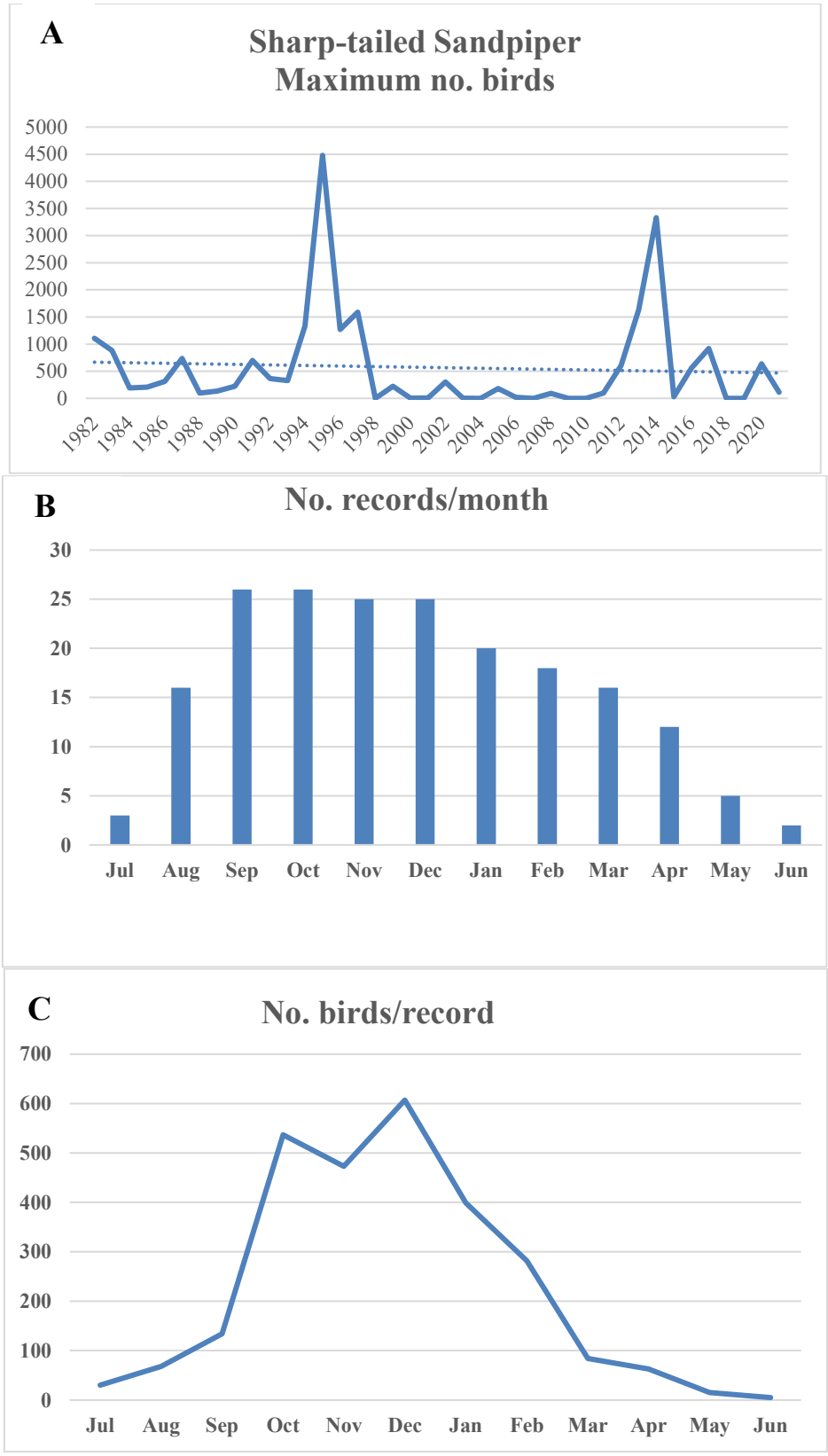


**Figure 7. Sharp-tailed Sandpiper: (A) Maximum number of birds per year (B): Seasonal distribution of the Number of record (C) Seasonal distribution of Number of birds per record.**

**Table 2. Winter records of Sharp-tailed Sandpipers**

| Date | No. birds | Observer | Date | No. birds | Observer |
|---|---|---|---|---|---|
| 22.05.1988 | 24 | P Milburn | 28.05.1983 | 40 | H Nix |
| 24.05.1994 | 10 | I Crawford, T Howard | 01.07.1994 | 5 | I Crawford, T. Howard, M Lenz |
| 25.05.2014 | 1 | M Lenz | 20.07.1986 | 3 | M Fyfe, J Cusbert |
| 26.05.2021 | 1 | M Lenz | 29.07.1996 | 2 | M Lenz |

Alcorn *et al.* (2024) could correlate the reporting rate of the Sharp-tailed Sandpiper (and many other waterbird species) in the Geelong area with the extent of rainfall in eastern inland Australia. Fewer birds were present when the inland received higher rainfall.

As Fig. 7 indicates, such a correlation may not necessarily apply to the observations from Lake Bathurst. The highest numbers of the species were recorded in December 1995 and October 2014. The year 1995 was quite wet through much of the eastern inland and the Canberra region. In 2014 conditions were average or drier than average over the same parts of eastern Australia. Perhaps when climatic conditions are similar over a wide geographical range, local factors, such as the condition of a wetland (water level, food supply), may more strongly determine wader numbers at a given site.

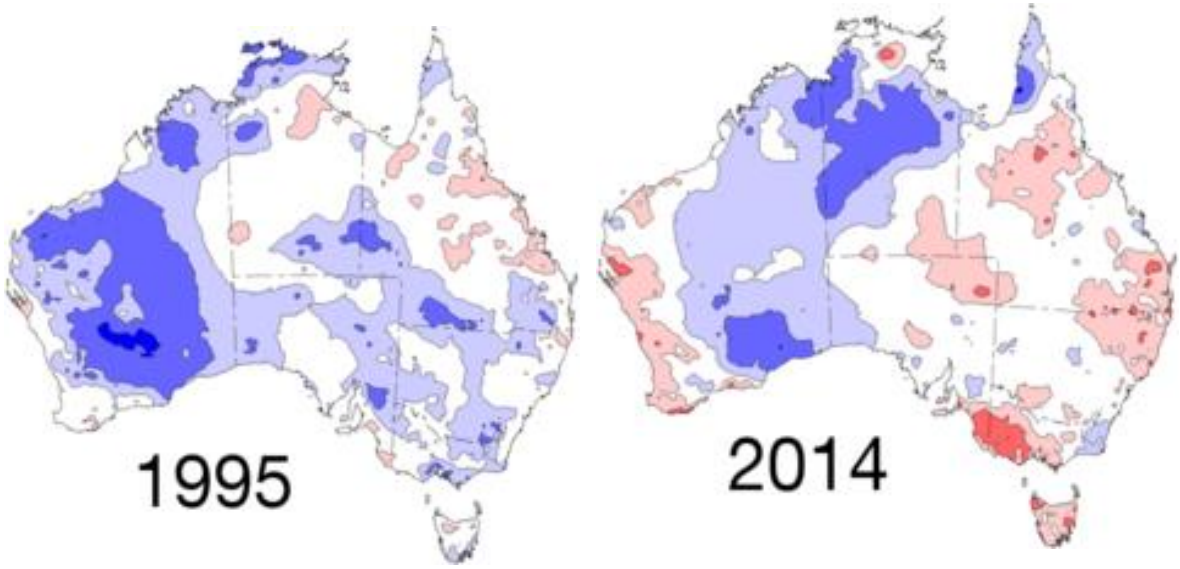


**Figure 7. Decile rainfall maps for 1995 and 2014, the two years with the highest number of Sharp-tailed Sandpipers at Lake Bathurst (BOM 2025).** Above average (blue), average (white) and below average (red) rainfall.

The movement of the species in Australia is described by Lane (1987): Small numbers arrive in NW Australia and in southern Australia in mid-August, the bulk of birds arriving in the NW in early September; temporary influxes between August to December at Darwin, Mount Isa and most inland wetlands in eastern Australia; numbers peak on the coast of Victoria and South Australia in January and early February. 'These observations suggest that they take their time migrating southwards, using inland wetlands as they cross the continent from north to south. They move about once they reach southern Australia, and their numbers are generally not stable anywhere in Australia.' The latter observation is in general also reflected in the counts at Lake

Bathurst, except in the two years with record numbers, when numbers stayed high for three consecutive months (>2000) in 1995, and for four consecutive months (>2000) in 2014.

Curlew Sandpiper (*Calidris ferruginea*)

*Occurrence in Australia*
Higgins and Davies (1996): NSW widespread E of Great Divide, especially in coastal regions; …widespread in Riverina and SW; scattered records elsewhere;
Geering *et al*. (2007): Found on intertidal mudflats in sheltered coastal areas,…less frequently on inland fresh-water wetlands;
Hollands and Minton (2012): Common summer migrant all around coast…often inland;
Cooper *et al.* (2016): …is a regular summer migrant to NSW…It is found in most regions of the State…

*Lake Bathurst*
Number of records: 228 (Fig. 8
Present: (July) August to April (June)
Numbers: Max.: 450 (September 1983)

The high numbers of 450 in 1983 were never repeated. Later maxima were in the order of 100 birds a couple of times. In most years, especially the drier years (Table 1), the species was absent (Fig. 8A). Overall, the species was notably more common during the inward migration than the outward passage (Fig. 8B). The Curlew Sandpiper has shown one of the strongest declines of shorebirds using the East Asia-Australasian Flyway (Clemens *et al*. 2016). This is also reflected in the counts from Lake Bathurst (Fig. 8A).

A few birds have also been recorded during the winter months (Fig. 9B), similarly to other, mainly coastal parts of NSW (Cooper *et al*. 2016).

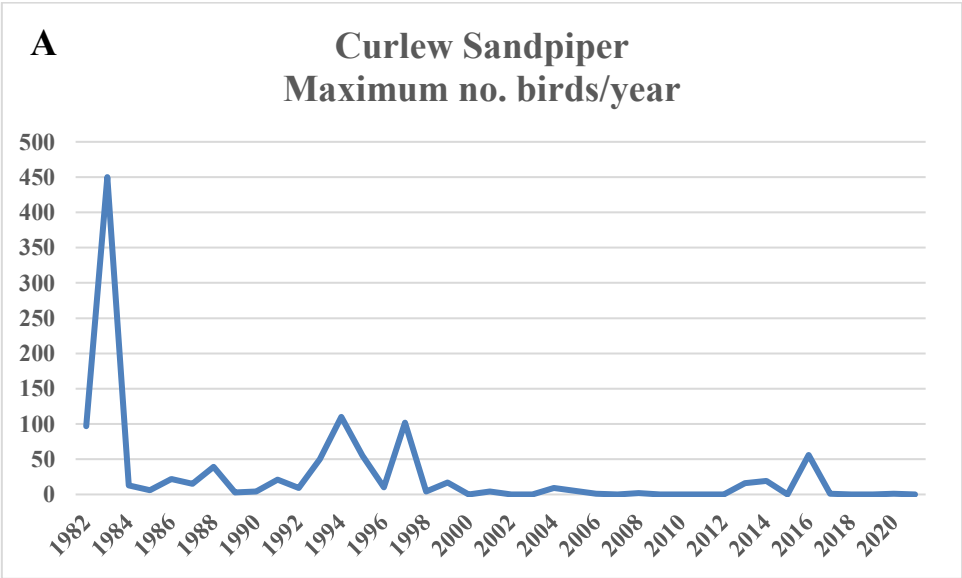


**Figure 8. Curlew Sandpiper: (A) Maximum number of birds per year.**

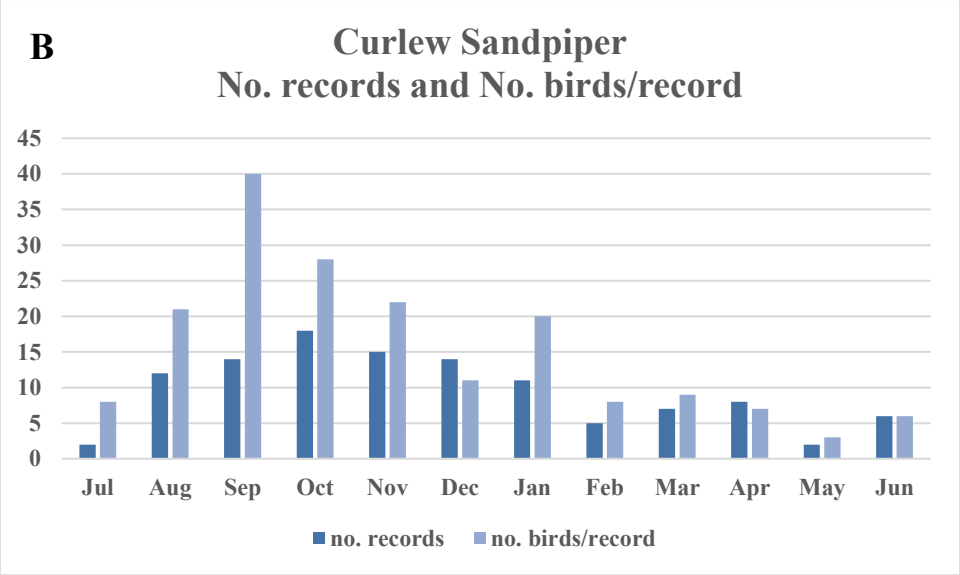


**Figure 8. Curlew Sandpiper: (B) Seasonal distribution of the Number of records and Number of birds per record.**

Long-toed Stint (*Calidris subminuta*)

*Occurrence in Australia*
Higgins and Davies (1996): Regular summer visitor, but uncommon in E;
Geering *et al*. (2007): In Australia most abundant in the west but also in the south-east. Found on...freshwater and brackish wetlands;
Hollands and Minton (2012): A scarce but regular summer migrant. Recorded in all states but Tasmania;
Cooper *et al.* (2016): The species is not observed each year in NSW…Most records have been from inland wetlands…NSW is on the margins of the species range…

*Lake Bathurst*
Number of records: 3
Present: November to February
Numbers: 1

| **Long-toed Stint** | | | | |
|---|---|---|---|---|
| **Date** | **No. birds** | **Observers** | **Rarities List (R)/Annual Bird Report (A)[B]** | **CBN: volume. (issue), year, page** |
| 24.11.1995 | 1 | P Milburn | | |
| 21.01.1996 | 1[A] | P Milburn, M Lenz, | | |
| 02.02.1997 | 1[A] | M Lenz | | |

[A] ad., non-breeding plumage;
[B] Due to miscommunication between observers, no details were provided to the COG Rarities Committee.

Red-necked Stint (*Calidris ruficollis*)

*Occurrence in Australia*
Higgins and Davies (1996): Most common Palaearctic wader. Widespread; recorded all coastal regions, with sporadic inland records from all States; many inland records in s. NSW;

Geering *et al*. (2007): Found mostly on estuarine mudflats but also on freshwater and brackish wetlands;
Hollands and Minton (2012): Summer migrant to whole of Australia;
Cooper *et al.* (2016): This species is a regular migrant to NSW where it is widespread and recorded from all regions.

*Lake Bathurst*
Number of records: 209; the second most common migratory wader (Fig. 9A).
Present: Recorded in all months, with highest numbers during return migration (March) (Fig. 9B)
Numbers: Max. 935 (January 1996); 572 (November 2000)

It is the *Calidris* species with the most winter records. Overall, there has been a notable decline in numbers from 2001 onwards, even when taken more drier conditions are taken into account. Serrated Tussock has covered the favoured resting and foraging area of the species.

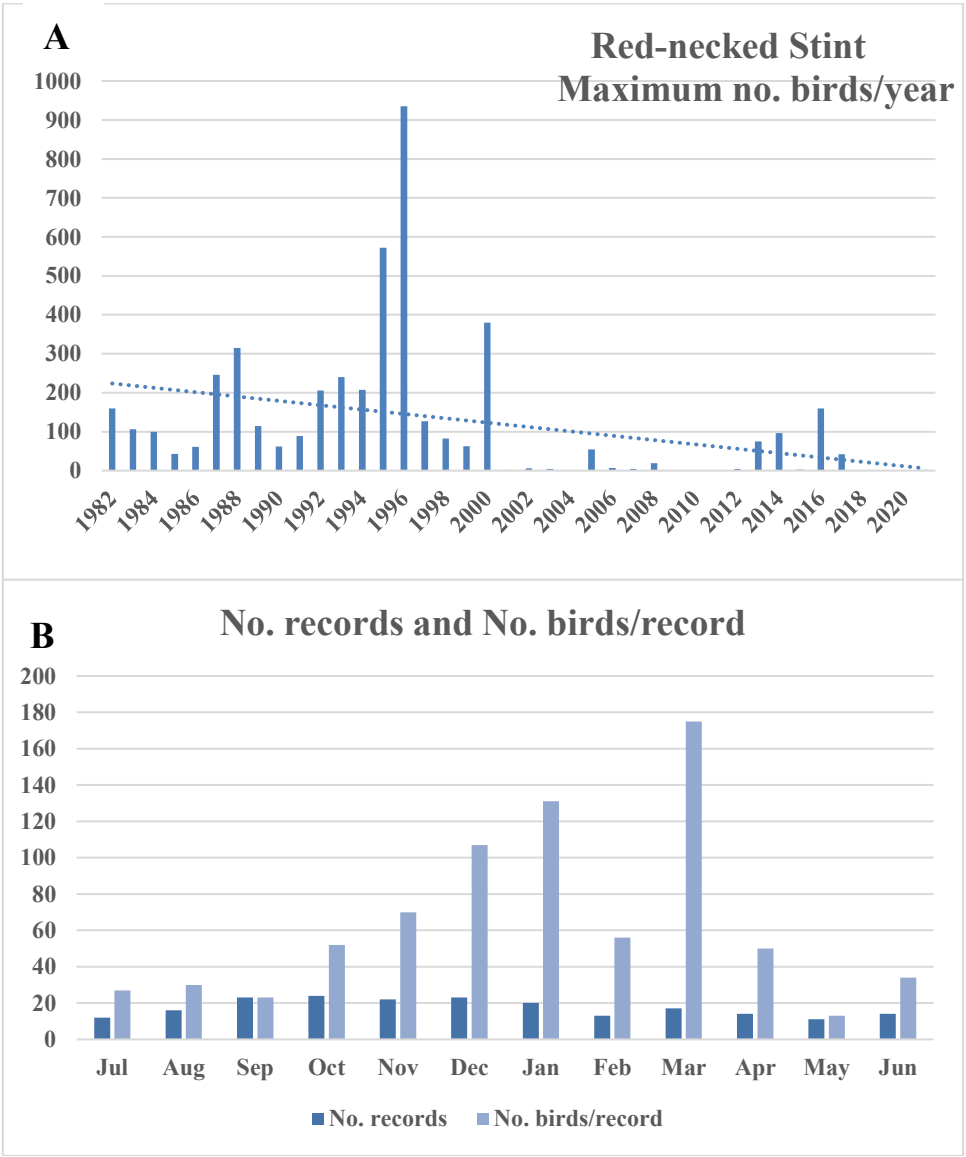


**Figure 9. Red-necked Stint: (A) Maximum number of birds per year; (B) Number of records and Number of birds per record.**

Buff-breasted Sandpiper (*Calidris subruficollis*)

*Occurrence in Australia*
Higgins and Davies (1996): Many reports, all singles;
Hollands and Minton (2012): Accidental. Small number of records, mainly from eastern states;

*Lake Bathurst*
Number of records: 8 (+1 Lake George)
Present: September to April
Numbers: 1

| **Buff-breasted Sandpiper** | | | | |
|---|---|---|---|---|
| **Date** | **No. birds** | **Observers** | **Rarities List (R)/Annual Bird Report (A)** | **CBN: volume. (issue), year, page** |
| 08.01. to 27.02.1993 | 1 ad | BARC case 139[A] | | See Patterson (1996) |
| 26.10.1993 | 1 | M Lenz | (R) 46 | 23(2), 1998, 43 |
| 02.03.1994 | 1 | M Lenz | | |
| 21.01.1996 | 1 | M Lenz, P Milburn | | |
| 25.02.1996 | 1 | M Lenz, J Leonard | | |
| 27.04.1996 | 1 | M Lenz | | |
| 26.10.1996 | 1 | M Lenz, P Milburn | | |
| 22.09.1997 | 1 ad | M Lenz | | |
| *Lake George* | | | | |
| 31.03.1996 | 1 | M Lenz | (R) 46 | 23(2), 1998, 43 |

[A] Note: The ROAU Rarities Committee gives the result of the appraisal of the submitted record (BARC case 139), but the actual submission, names of observers etc. are no longer available (Tony Palliser & Sally Sheldon, BirdLife Australia, *pers. commun*.) We only know that the observer(s) was (were) from outside the ACT.

This is a notable number of records between 1993 and 1997 for such a vagrant to Australia. The species tended to be found on several occasions in a particular section at the northern end of the lake. It is possible that the same individual returned to the lake over several years.

The observation from Lake George in 1996 falls within the period that the species was also present at Lake Bathurst. Did the same bird move between the two locations or were two individuals present in the region at the same time?

Pectoral Sandpiper (*Calidris melanotus*)

*Occurrence in Australia*
Higgins and Davies (1996): Regular visitor in small numbers. NSW Widespread but scattered records;
Geering *et al*. (2007) Usually solitary but occasionally in small flocks…on freshwater wetlands;
Hollands and Minton (2012): A rare but regular summer migrant, recorded in all states but mostly in s.e.;
Cooper *et al.* (2016): It is a regular migrant to NSW…The reporting rates are low, but it has been recorded on the coast as well as inland…

*Lake Bathurst*
Number of records: 39 (+ 4 Lake George) (Fig. 10)
Present: August to April
Numbers: 1-4, total no. 58

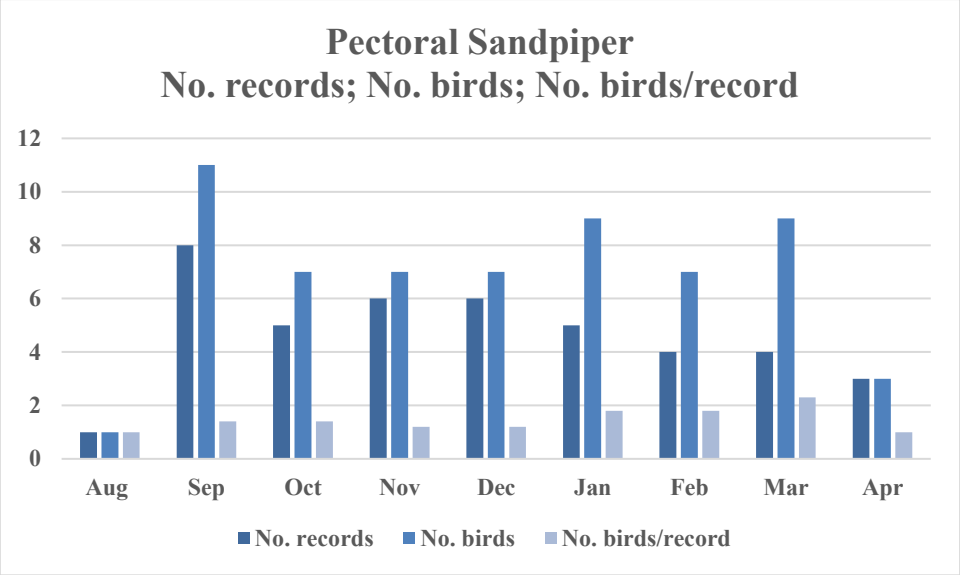


**Figure 10. Pectoral Sandpiper: Seasonal distribution of the Number of records, the Number of birds and the Number of birds per record.**

Note: The species is often mixed in with flocks of Sharp-tailed Sandpipers, although the birds may keep apart within the flock. But when the birds are disturbed and take off, the sharp "trrt" call of the Pectoral Sandpiper against the more twittering calls of the Sharp-tailed Sandpipers is diagnostic (Hayman *et al.* 1986).

Latham's Snipe (*Gallinago hardwickii*)

*Occurrence in Australia*
Higgins and Davies (1996): Non-breeding visitor to SE;
Geering *et al*. (2007): Migrates to eastern Australia;
Hollands and Minton (2012): Summer migrant to whole of eastern seaboard of Australia;
Cooper *et al.* (2016): …is a regular visitor to NSW in the warmer months visiting many freshwater wetlands across the State.

*Lake Bathurst*
Number of records: 10
Present: August to January
Numbers: 1-3

The saline lake is not a favoured site for the species as the few records indicate. However, it was frequently found with up to 7 birds in disused gravel pits at the SE corner of the lake (M Lenz), and one report exists of several birds being flushed from the shores of the Southern Morass (freshwater). The latter area is normally not directly accessible; hence birds present there would not be picked up during routine surveys from the road.

In this context an observation from a freshwater swamp at the southern end of Lake Goerge is of interest: I walked through the area on 6 Sep 1997, a morning with periods of drizzling rain,

when a total of 64 snipes dropped out of the clouds within a couple of minutes and landed in the swamp.

Common Greenshank (*Tringa nebularia*)

*Occurrence in Australia*
Higgins and Davies (1996): Most widespread scolopacid in Aust; …NSW recorded in most coastal regions, widespread W of Great Divide;
Geering *et al*. (2007): Occurs on intertidal mudflats, as well as on fresh and saltwater wetlands of the coast and inland;
Hollands and Minton (2012): Summer migrant around entire mainland coastline…often inland;
Cooper *et al.* (2016): In mainland NSW, the Common Greenshank occurs in all regions, though most reports are from near the coast. Inland reports tend to be of single birds or small groups…

*Lake Bathurst*
Number of records: 31 (Fig. 11)
Present: (July) August to January (April))
Numbers: 1-15; max. 15 (December 1994); 12 (December 1980)

Most records fall between September to January with the maximum in December (Fig. 11). A single bird was seen in autumn (April 2013) and a single bird was noted in winter (1 July) (see Cooper *et al.* 2016).

Seventy-eight percent of all observations (24 of 31) occurred between 1980 and 1996, and only 22% (7 records) during the following 25 years, possibly the result of overall population declines and frequently low water levels at the lake in later years of the survey.

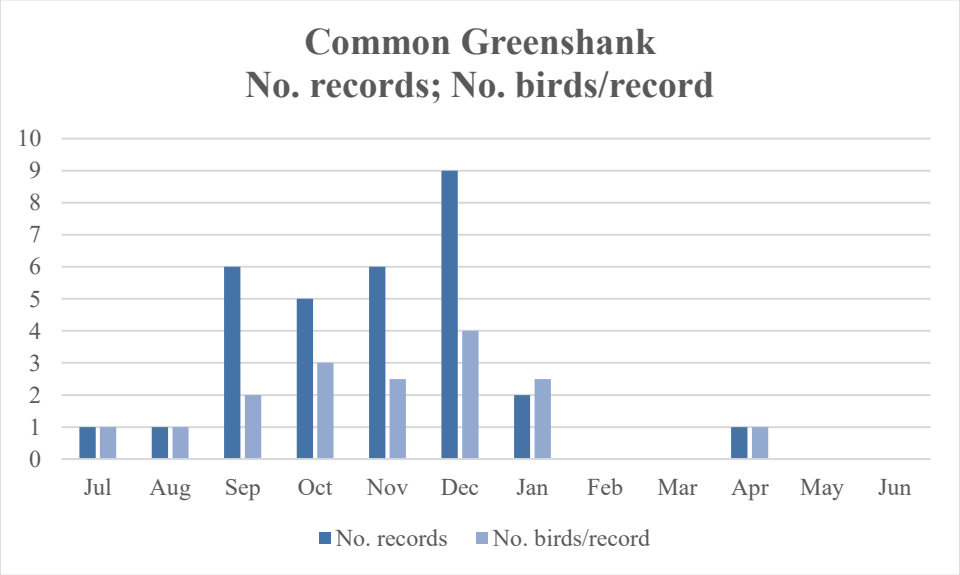


**Figure 11. Common Greenshank: Seasonal distribution of Number of records and Number of birds per record.**

Wood Sandpiper (*Tringa glareola*)

*Occurrence in Australia*
Higgins and Davies (1996): NSW E of Great Divide….elsewhere mostly from Riverina;
Geering *et al*. (2007): Much scarcer in southern than in northern Australia;
Hollands and Minton (2012): Summer migrant to coastal and inland Australia much scarcer in south;
Cooper *et al.* (2016): There are only a few sightings of the Wood Sandpiper reported each year for NSW.

*Lake Bathurst*
Number of records: 3 (+1 Lake George)
Present: August, November, January, April
Numbers: 1-5

| **Wood Sandpiper** | | | | |
|---|---|---|---|---|
| **Date** | **No. birds** | **Observers** | **Rarities List (R)/Annual Bird Report (A)** | **CBN: volume. (issue), year, page** |
| 04.11.1994 | 2 | M Lenz | (A) 1994/1995 | 23(Supl/), 1998, 63 |
| 27.08.2012 | 1 | M Lenz | (R) 81 | 37(3), 2012, 241 |
| 22.01.2014 | 5 | M Lenz | | |
| *Lake George* | | | | |
| 25.04.1991 | 1 | M Lenz | (A) 1990/1991 | 18(4), 1993, 81 |

Marsh Sandpiper (*Tringa stagnatilis*)

*Occurrence in Australia*
Higgins and Davies (1996): NSW, recorded in all regions…Inland, widespread on W slopes of Great Divide and w. plains;
Geering *et al*. (2007): Occurs in coastal and inland fresh or saltwater wetlands;
Hollands and Minton (2012): Summer migrant around whole of coastal Australia…Frequently inland;
Cooper *et al.* (2016): It is an uncommon visitor to NSW but has been reported from most regions….

*Lake Bathurst*
Number of records: 40 (Fig. 12)
Present: (July, August) September to March (Fig. 12)
Numbers: 1-41; Max.: 41 (February 1993); 33 (October 1995)

Most records fall between November and December (Fig. 12), although the highest number of birds was observed in February (Fig. 13). In NSW reports peak in January to February (Cooper *et al*. 2016). There is one Lake Bathurst winter record of 3 birds on 24 July 1988. Cooper *et al* (2016) mention that 'a few birds occasionally overwinter in the Hunter River estuary and at Fivebough Swamp…and may do so elsewhere in NSW, but such occurrences are unusual.'

Eighty-three percent of all observations (33 of 40) were in the period 1982 to 2000, and only 17% (7 records) in the following 21 years, possibly the result of overall population declines and the frequently low water levels at the lake. This scenario is similar to that observed for the Common Greenshank.

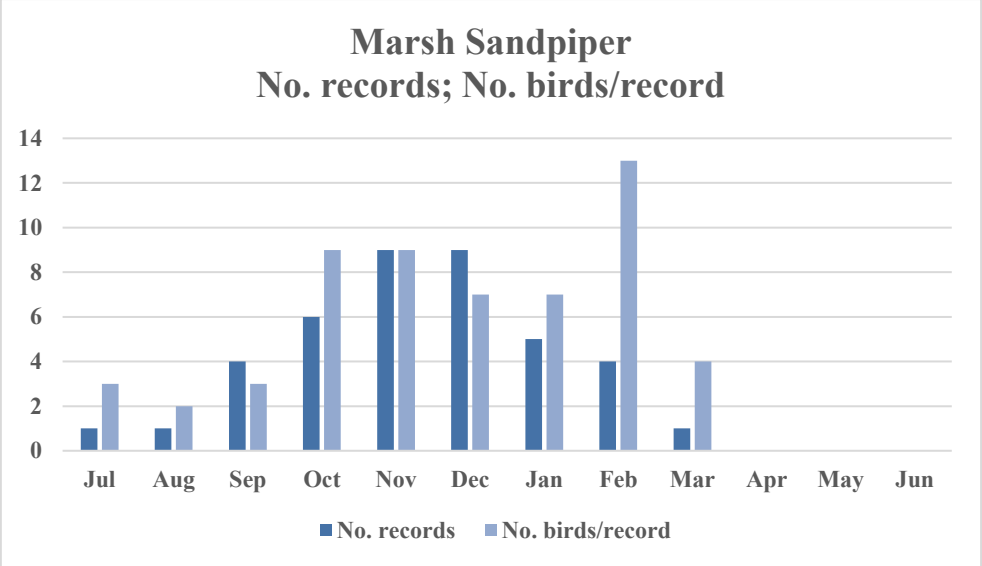


**Figure 12. Marsh Sandpiper: Seasonal distribution of the Number of records and the Number of birds per record.**

## 6. Conclusions and Discussion

This article reviews the status of 22 species of migratory waders at Lake Bathurst over a survey period of 41 years (1980 to 2022). They include 19 species from Northeast Asia, using the East Asia-Australasian Flyway to reach Australia, the Double-banded Plover from New Zealand, the Latham's Snipe from Japan and neighbouring areas of Siberia (Hollands and Minton 2012) and the vagrant Buff-breasted Sandpiper from the far north of North Amerika and NW Siberia (Message and Taylor 2005).

The more common and more regularly recorded species at Lake Bathurst were Sharp-tailed Sandpiper, Red-necked Stint, Curlew Sandpiper and Double-banded Plover. Most notable were declines for the Curlew Sandpiper (Fig. 7), the Red-necked Stint (Fig. 8) and the Double-banded Plover (Fig.4). For the latter, if considering estimates preceding this survey, the decline may be even more pronounced at this inland stopover site than our counts would indicate (see also Lindsey and Fraser (2022) for coastal sites in the Hunter region and Hansen *et al.* (2022) for latest population assessment).

Curlew Sandpiper and Red-necked Stint belong to a cohort of species using the Yellow Sea as a main stopover during their migration. These species have suffered major population declines over a number of decades (Clemens *et al.* 2016; Studds *et al.* 2017; Hansen *et al.* 2022). The population of the Double-banded Plover, breeding on the South Island of New Zealand and visiting Australia, was declared "near threatened" in 2020 (Simpson 2021; see also Hansen *et al*. 2022).

Pacific Golden Plover, Common Greenshank and Marsh Sandpiper were recorded most frequently during the first 20 years of the survey period and far less thereafter (see text for these species). A similar pattern emerges if the yearly distribution of the records of all rarities and the less common species, including the three aforementioned, is plotted (all species with 1 to 70 records) (Fig. 13). Overall, the years 1990 to 1996 and to a lesser extent 2005, 2013 to 2014 had a higher number of records of the rare to less common species (Fig. 13).

Long-term population changes and the impact of large-scale weather patterns (rainfall) within Australia, influencing the status of inland wetlands, and subsequently the extent to which migratory waders visit wetlands in eastern Australia (*e.g.* Alcorn *et al*. 2024), are important factors to take into account when interpreting the Lake Bathurst records. It is of note, however, that the two years with the highest numbers of Sharp-tailed Sandpipers (1995, 2014) were years with contrasting weather patterns (rainfall), but in each year similar over wide areas of inland and SE Australia (1995 was a wet year, 2014 a dry year; see Fig. 6).

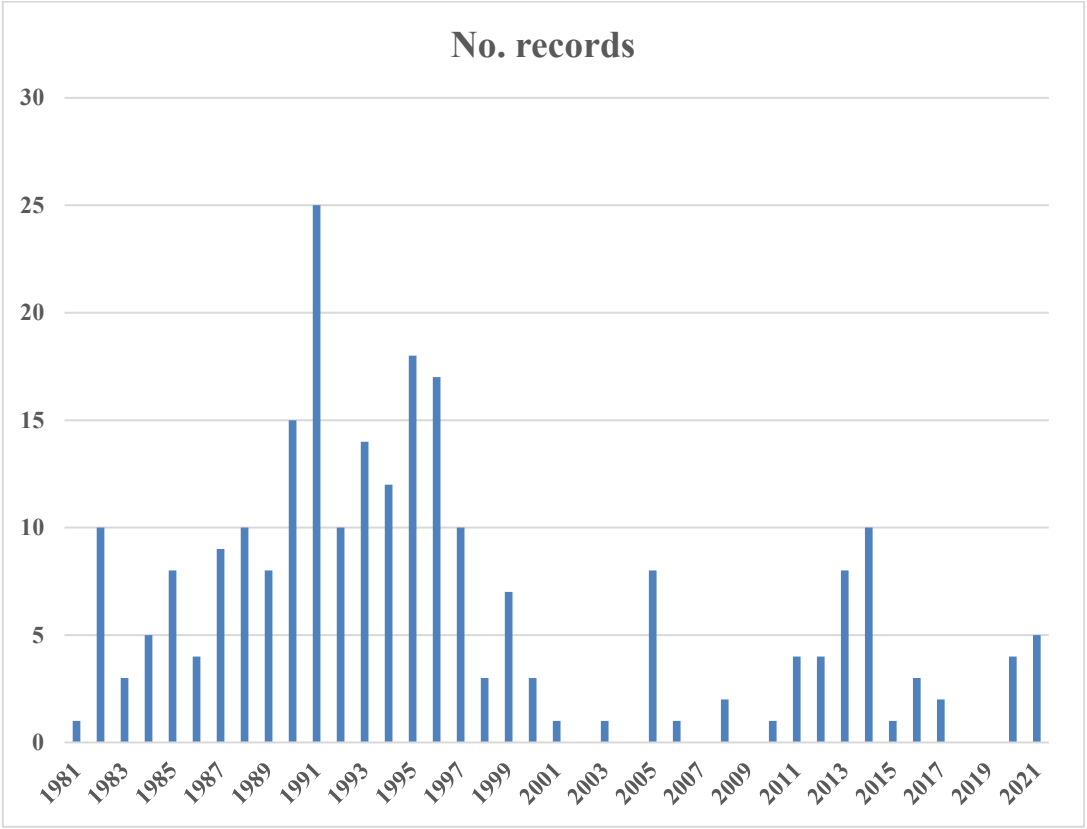


**Figure 13. Number of records of all migratory wader species with fewer than 70 records/41 years at Lake Bathurst.**

When we look at the period 1990 to 1996 with the highest number of records of the rarer species (Fig. 13), conditions differed greatly between years, from wet (1992, 1993, 1995) to dry (1990, 1991, 1994) over inland and southeastern Australia or a dry/wet gradient (1996) between the two regions (Fig. 14). This would indicate that these waders move over wide parts of Australia, to some extent independent of large-scale conditions (rainfall), and conditions at local sites can become more important. On a smaller scale we see the same pattern for the period 2005, 2013 to 2014 (Figs. 13 and 14). In those years inland Australia and the SE experienced low levels of rainfall.

Lake Bathurst has some specific conditions which had a major impact on wader numbers: widely fluctuating water levels and, in the second part of the survey period, overall dry conditions and the increasing spread of Serrated Tussock.

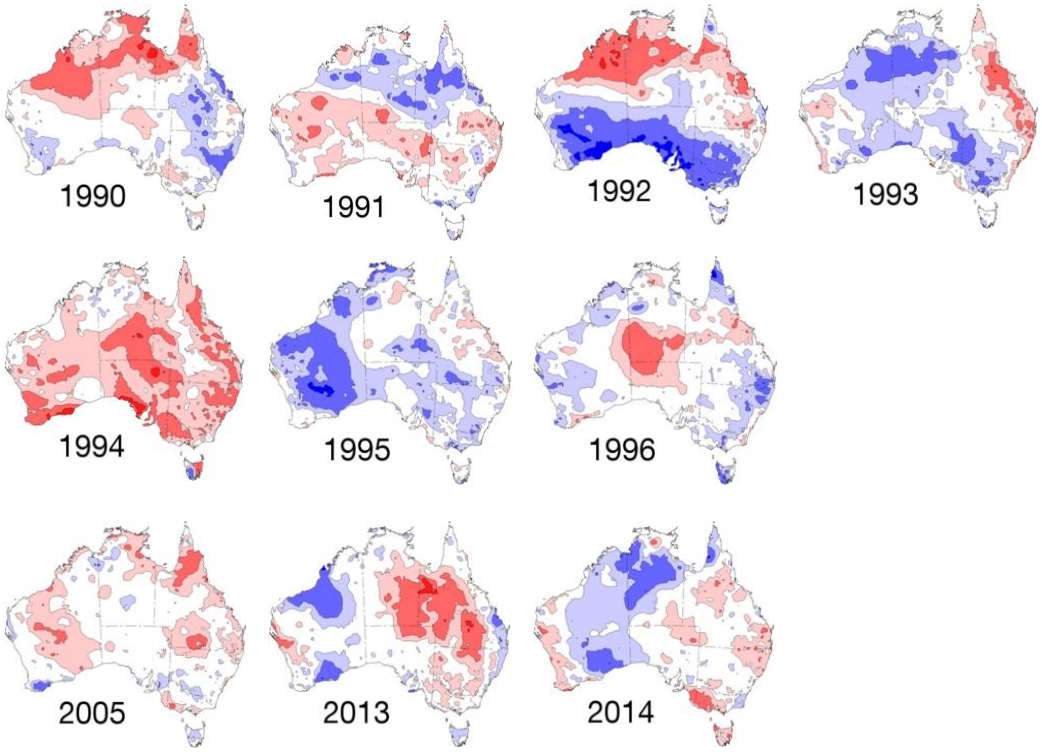


**Figure 14. Decile rainfall maps for the years 1990 to 1996 and 2005, 2013 to 2014, periods with higher numbers of records for the rarer migratory wader species (1 to 70 records/species; see Fig. 14.)** Rainfall above average (blue), average (white) and below average (red).

**Figure 15. Lake Bathurst filled to its maximum after 3 years of La Niña, 2020 to 2022 (left) (*Google Earth*) 2024; (right) October 2023 (*M Lenz*).**

Over the three La Niña years 2020 to 2022, Lake Bathurst filled to its maximum and has maintained its high-water level well into 2025 (Fig. 15). This meant that all lake bed formerly covered by Serrated Tussock and other weeds has now been under water for a prolonged period. Serrated Tussock does not survive under wet conditions, but when the water level falls, drying areas will again be colonised over time from nearby source areas of the grass. However, for a period the lake will have a different dynamic from that during the 41-year survey period. Canberra Birds (CB) is continuing to survey the bird population of the lake.

**Acknowledgements**

Many observers have contributed to these surveys. A full list of observers is given in Lenz (2014). In the context of the migratory waders, I would like to thank especially those observers who have participated in the surveys over many years: Mike Doyle, Isobel Crawford, Tony Howard, and most of all Peter Milburn for his many discoveries and careful monitoring. Kevin Windle and Geoffrey Dabb provided references and other assistance. Valuable comments on an earlier version of the manuscript were provided by Chris Davey and Kevin Windle.

Many thanks got to all the land holders and mangers for granting us access to the lake.

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***See also Appendix on following page:*** **List and status of migratory waders in the Australian Capital Territory (ACT)**

**Appendix: List and status of migratory waders in the Australian Capital Territory (ACT)**

Many observers monitor the wetlands in the ACT very regularly, hence there is a good understanding about the status of the 15 recorded species of migratory waders.

The information below is taken from the Canberra Birds website (https://canberrabirds.org.au/birds/?o=taxonomy Visited 10 May 2025).

| Species | Status | Species | Status |
|---|---|---|---|
| **Pacific Golden Plover** | Non-breeding vagrant | **Long-toed Stint** | Non-breeding vagrant |
| **Eastern Curlew** | | **Red-necked Stint** | |
| **Bar-tailed Godwit** | | **Latham's Snipe** | Common, non-breeding summer migrant |
| **Ruddy Turnstone** | | **Common Sandpiper** | Rare, non-breeding summer migrant |
| **Red Knot** | | **Common Greenshank** | Non-breeding vagrant |
| **Sharp-tailed Sandpiper** | Uncommon non-breeding summer migrant | **Marsh Sandpiper** | |
| **Curlew Sandpiper** | Non-breeding vagrant | **Wood Sandpiper** | |
| **Pectoral Sandpiper** | | | |

*Canberra Bird Notes* 50(1) (2025): 72-76

# THE BREEDING SUCCESS AND DIET OF LITTLE EAGLES IN THE ACT AND NEARBY NSW IN 2024

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***Abstract:*** *In 2024, known nest locations were checked and eight pairs of Little Eagles* (Hieraaetus morphnoides) *with active nests were located, four in the ACT and four in nearby NSW. The overall breeding success was 0.75 chicks fledged per nesting pair. Three nesting territories that were occupied in the ACT in 2023 were vacant and one in NSW. Two of the nest sites in NSW were new. No cause of breeding failure could be confirmed, although the two attempts that failed could have been due to storm damage as birds at both sites had been observed incubating eggs in September prior to a period of high winds. Mammals formed most of the prey remains (54%) of which all were rabbit except one Brown Rat* (Rattus norvegicus)*. Birds formed 38% of the prey and the most frequently taken species was Crimson Rosella (Platycercus elegans). Reptiles formed the rest of the prey (8%), one Eastern Blue Tongue* (Tiliqua scincoides scincoides)*, one Eastern Bearded Dragon* (Pogona barbata) *and one Cunningham's Skink* (Egernia cunninghami).

## Introduction

The long-term study of the Little Eagle's (*Hieraaetus morphnoides*) breeding ecology in the Australian Capital Territory (ACT) and nearby New South Wales (NSW) has established a standard approach to monitoring the population. Therefore, to maintain continuity, this report follows the same format as the previous reports to maintain easy comparison between years (Rae *et al*. 2018, 2019, 2020, 2021a, 2022, 2023, 2024). The overall aim is to assess the status of the Little Eagle in the area.

This is the eighth consecutive annual report on the breeding success and diet of the Little Eagle in the Australian Capital Territory (ACT) and nearby New South Wales (NSW). This study is by the Little Eagle Research Group, a part time/voluntary collaborative study group, whose aim is to assess the breeding ecology, diet and movements of the Little Eagle population in the area. The Little Eagle is listed as vulnerable in the Australian Capital Territory (ACT) and New South Wales (NSW) and an overall aim of the project is to provide information to guide conservation of the species.

This is primarily an annual update report, however, where applicable, any potential effects on the Little Eagle's breeding success and food eaten are briefly discussed. More full analyses of the birds' behavioural ecology will be presented as and when data allow robust analysis.

## Methods

To maintain continuity, fieldwork on the Little Eagle research followed the same methods as described in previous years' reports (Rae *et al*. 2018, 2019, 2020, 2021a, 2022, 2023, 2024). The main procedures were: checking for occupancy of all nests and territories known in previous years, observations for eagle activity from vantage points, following up any sightings of eagles for potential nesting behaviour, monitoring the progress of each breeding attempt, and collecting food remains and cast pellets from below nests and perches. Prey remains were identified from diagnostic body parts and pellets were stored for later analysis (Rae *et al.* 2021b).

The activity at each nest was not recorded every day, as observers maintained minimal disturbance, especially during the laying period when the birds might be sensitive to disturbance. Therefore, whether pairs laid eggs or the causes of any nesting attempt failures were not observed in all cases.

Weather records are those recorded at the Canberra Airport by the Bureau of Meteorology (BOM).

## Results and discussion

*Number of Little Eagle pairs and breeding success*

Five pairs of Little Eagles were observed displaying in August and September 2024 in the ACT. Four of the pairs were confirmed to have active nests and one pair potentially had a nest, but none was found and they did not have a fledgling with them when observed later in the year. All successful breeding pairs reared a single chick. The female of the pair that nested in a densely forested area in the Namadgi Nature Park in 2023 was observed incubating in September 2024. However, that nesting attempt failed and the cause was unknown.

Four pairs of Little Eagles with nests were monitored in nearby New South Wales and three of those reared chicks. No cause could be confirmed for the one failed breeding attempt. One breeding territory that had been occupied for the previous seven years was unoccupied in 2024. Two new breeding pairs were found elsewhere.

**Table 1. The numbers of pairs of Little Eagles with nests in each year of study, 2017-2024, and measures of breeding success: numbers of pairs that laid eggs, hatched eggs, and the numbers of chicks fledged.**

| | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|---|---|
| **Pair + nest** | 11 | 14 | 13 | 12 | 8 | 6 | 8 | 8 |
| **Eggs** | 8 | 11 | 10 | 10 | 8 | 6 | ? | 8 |
| **Hatch** | 4 | 8 | 7 | 10 | 7 | 6 | 4 | 6 |
| **No. Fledged** | 4 | 8 | 6 | 7 | 4 | 3 | 5 | 6 |
| **Chicks fledged per pair + nest** | 0.36 | 0.57 | 0.58 | 0.58 | 0.50 | 0.50 | 0.63 | 0.75 |

Overall, from the eight pairs of Little Eagles with nests that were monitored in the ACT and nearby NSW, six chicks fledged, giving 0.75 fledged young per nesting pair, the highest breeding success since 2017 (Table 1).

The pair of Little Eagles that had their nest damaged by wind in 2023, then re-laid and fledged a chick, had their nest damaged again in September 2024. The birds then built another nest about 1km away and successfully reared a chick.

At one nesting territory in 2023, the adult female was killed by a mammal, likely a cat (*Felis catus*), and a second adult female was seen with the male over the nest wood later in the year (Rae *et al.* 2024). At the time, it was considered that the male had found a replacement mate. In 2024, it seems that this was confirmed as a pair at that site successfully reared a chick in 2024.

*Diet*

The remains of 37 food items and 54 pellets were collected. The number of food items and pellets found in 2024 were low, as in 2023, on comparison with previous years 2017-2022 (Rae *et al.* 2024). The rainfall was low in the 2024 breeding season, but the vegetation was still tall and dense making prey remains and pellets difficult to find in thick ground vegetation that had grown over recent years of high rainfall.

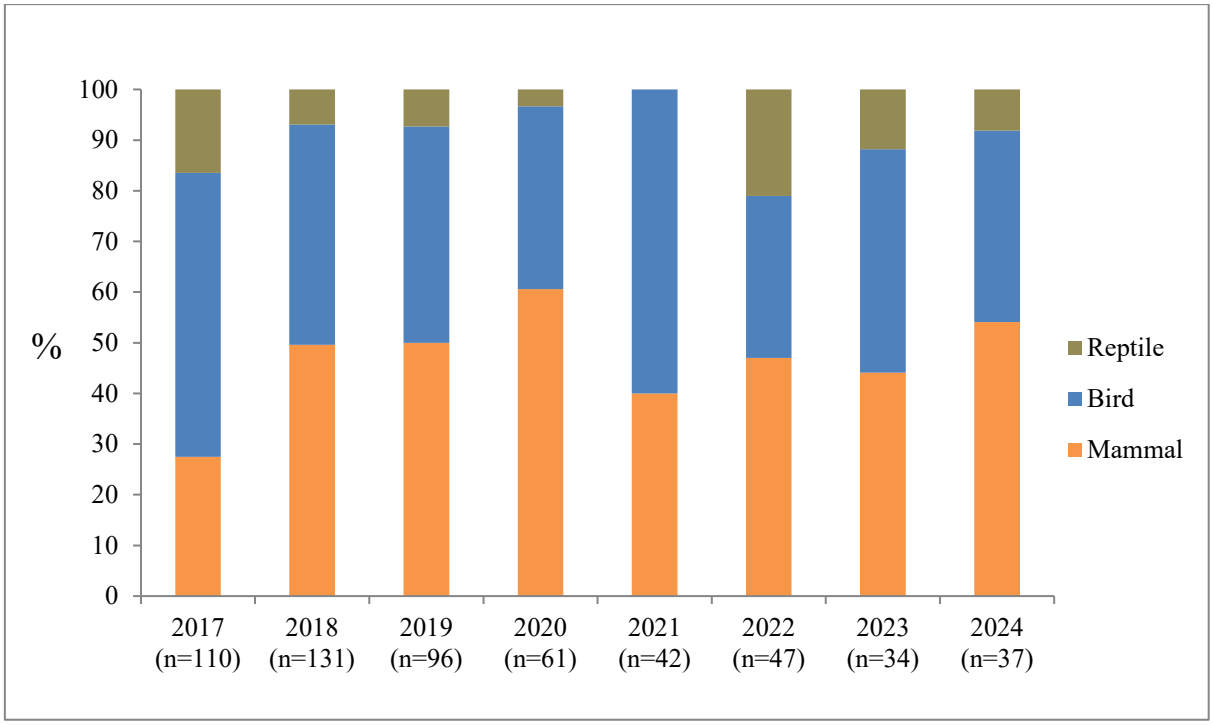


**Figure 1. Proportions of food types found in the prey remains of Little Eagles during the breeding seasons in the ACT and nearby NSW in 2017 - 2024.**

Mammals (20, 54.1%), mostly European Rabbits (*Oryctolagus cuniculus*) (19 items, 51.3%) and birds (14 items, 37.8%) were the most common prey items, and reptiles were the least taken prey (3 items, 8.1%) (Fig. 1). The only other mammal eaten was a Brown Rat *(Rattus norvegicus*). Crimson Rosella (*Platycercus elegans*) was the most frequently taken bird (5) and Red Wattlebird (*Anthochaera carunculata*) (2) was the only other species recorded more than once. The other species were Galah (*Eolophus roseicapilla*), Eastern Rosella (*Platycercus*

*eximius*), Rock Dove (*Columba livia*), Black-faced Cuckoo-shrike (*Coracina novaehollandiae*), juvenile Australian Magpie (*Gymnorhina tibicen*), Pied Currawong (*Strepera graculina*), and White-winged Chough (*Corcorax melanorhamphos*). There were remains of three reptiles, Cunningham's Skink (*Egernia cunninghami*), Eastern Blue Tongue (*Tiliqua scincoides scincoides*), and Eastern Bearded Dragon (*Pogona barbata*).

Overall, Little Eagle breeding success in 2024 was the highest recorded by this study since it began in 2017, slightly higher than that of 2023 which was the previous highest (Table 1). As in 2023, weather likely impaired the overall breeding success of the Little Eagle population in the wider ACT area, fitting the findings and discussion in the previous three annual reports (Rae *et al.* 2021, 2022, 2023).

One nesting attempt failed in 2024 due to wind damage, as did two in 2023 (Rae *et al.* 2024). There were seven days with gusts of gale force, greater than 63 km/h, in September 2024 (BOM 2024). It is possible that the two nesting attempts that failed, both in September, might also have failed due to wind.

**Acknowledgements**

We acknowledge the Ngunnawal and Wiradjuri People as the Traditional Custodians of the land on which this study is undertaken and pay our respects to Elders past, present and future. We are grateful to landowners and managers who allowed access to nest sites and hunting areas, and kept the group informed on Little Eagle activity. This study was part of a wider study by the Little Eagle Research Group. Diana Tracy assisted in the fieldwork and gave helpful comments on the draft.

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# THE DISTRIBUTION AND MOVEMENTS OF THE FRECKLED DUCK WITH PARTICULAR REFERENCE TO PLACES USED DURING NON-BREEDING PERIODS, AS SHOWN BY EBIRD DATA

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*Over the years of their evolution, Australia's waterfowl, and the aquatic plants and animals on which they live, have become adapted to ephemeral waters. The birds themselves are adept at moving from one stretch of drying surface water to another and they wander widely and continually, mainly at night, in search of new grounds.*

*Richard Schodde, then COG president, and Grahame Clark, presenting a case for creation of a waterbird refuge on the Molonglo floodplain east of Lake Burley Griffin, the Freckled Duck being mentioned as occurring in that area. Canberra Times 4 March 1978.*

***Abstract:*** *Compared to now, the range of the Freckled Duck (Stictonetta naevosa) in eastern Australia was once seen as much smaller, sometimes being presented in maps with an accompaniment of a few far-flung 'vagrants'. The species is now regarded as having an extensive variable range. Its long-distance movements, not necessarily annual, are associated with rainfall and breeding. The irregular presence of the species in the Canberra area is discussed, in particular its reliance on suitable shallow-water feeding areas. The rapid expansion of eBird recording provides a source of information about movements from, to and within non-breeding areas, and about the presence of variable numbers at different times in different places. A movement that seems imminent at time of writing is from non-breeding strongholds in Victoria to inland flooded areas of which a main part is 'the Channel Country'. Students of the Freckled Duck and duck counters will await the result over the next few years of a productive breeding period.*

## A word of explanation about areas considered

The main purpose of this note is to bring together from various sources published information about occurrence and movements. The Freckled Duck (*Stictonetta naevosa*) in the Canberra area receives most attention, but also considered are records of the species in the wider Geelong region, extending roughly from Colac to Werribee. One reason is that this has become, it seems quite recently, a significant non-breeding location for the species, more so than the Canberra area. High but variable numbers are now being recorded there. Another reason is that it is my own home area, from many years ago. I have childhood memories of imitating grown-ups and trying to spear flounder in the tidal Lake Connewarre with a flashlight and a kitchen fork tied to a broomstick. The nearby Ocean Grove, now an expanse of suburban housing and a human-created resort for non-breeding Freckled Ducks, was then little more than a scattering of holiday shacks in the tea-tree scrub. The intervening years have seen changes in relevant habitat for both humans and Freckled Ducks.

**The problem of showing distribution of Freckled Duck in maps**

Roaming waterfowl generally, this species in particular, create severe difficulties for the mapper. There is movement between widely-separated breeding and non-breeding areas, depending on rainfall as well as seasons. An area might suddenly attract many birds after none have been present for one or more years. Moreover, there will be different approaches to what different maps are intended to show. Some maps follow a format suitable for species with simpler distributions, and not suitable for roaming waterfowl.

Attachment A shows four examples of illustrating the distribution of the Freckled Duck. Recent publications show a range twice the extent of that in the HANZAB map. (Compare maps for the species in the *Australian Bird Guide* and Cornell Lab Birds of the World website.) The Atlas of Living Australia (ALA) draws on several datasets to show where the species has been recorded. These are the main datasets used with numbers of records (10 May 2025): eBird Australia 20,638; Victorian Biodiversity Atlas 2,937; Birdata 2,429; NSW Bionet Atlas 1,294; SA Fauna 652; iNaturalist Australia 598. Subject to some removal of duplication, the combined map shows all occurrence records in those and other available sources.

**Setting the scene: a selection of comments about Freckled Duck occurrence, breeding, and movements**

Alfred North (1914): 'The southern parts of the Australian continent is the stronghold of the Freckled Duck … During my residence in Victoria I saw it frequently exposed for sale in the poulterer's shops of Melbourne, and on rare occasions I have also observed it in the game dealer's shops of Sydney. Although it breeds in New South Wales it must be looked upon as a rare species.'

Blakers (1984) 'Breeding on a large scale may take place only when floods create extensive and inaccessible wetlands in the Channel Country of the L. Eyre Region …."

HANZAB (1990) (a version of this passage appearing also in Kear 2005): 'Evidence suggests that irruptions occur irregularly following extensive flooding on inland rivers and watercourses. Breeding takes place once these areas are flooded and provide nesting habitat … but, as systems dry out, Freckled Duck concentrate and eventually disperse. During these periods of inland drought, commonly reach coastal waters and concentrate at some favourable places ...'.

After referring to breeding concentrations in 'Lake Eyre Basin and Paroo R. system', HANZAB refers to concentrations 'largely of non-breeding birds' at other places including the Lachlan River, where there are 'occasional breeding records where birds can find lignum swamps or other nesting habitat. These breeding events probably amount to little in terms of substantial recruitment.'

P. Fullagar in Brouwer and Garnett (1990): 'The Freckled Duck's most important breeding areas are in the immense temporary swamps created by floodwaters in any of the river basins within the Lake Eyre and Bulloo-Bancannia Drainage Divisions.' (The identification of that main breeding area followed aerial surveys that located great flocks of waterbirds, including Freckled Ducks, on flooded inland areas.)

'The population size appears to fluctuate greatly between years. After wet seasons large numbers can irrupt from the breeding strongholds, giving an impression of abundance, but such events are interspersed with long periods of scarcity.'

Garnett and Crowley (2000): 'They may breed prolifically after exceptionally wet years, then disperse widely, largely towards the coast., but in most years, they appear to be nomadic between ephemeral inland wetlands …. In the driest years they congregate on permanent wetlands.'

Wetlands International on the population trend: 'No recent information but numbers likely declined markedly during major drought period 2000-2009 but recovered substantially during 2010-2012 wet period. Recent estimate [10,000-25,000] … retained. Despite some habitat loss, other breeding habitat persists and supports numbers that fluctuate with flood/drought cycles.'

An important part of the literature of the Freckled Duck comes from annual counting in Victoria for purpose of management of shooting. (Now Victorian Duck Season Priority Waterbird Count.) The 2018 report gives results for the counting of the Freckled Duck (as a non-game species) in the years until then (Menkhorst 2018). The results of the annual counting vary considerably, for example:

1998 - number of wetlands counted 309, number with FDs 1, number of FDs 4;
2011 - number of wetlands counted 201, number with FDs 2, number of FDs 8;
2012 - number of wetlands counted 136, number with FDs 7, number of FDs 133;
2014 - number of wetlands counted 133, number with FDs 18, number of FDs 2803.

Two points about the Freckled Duck calendar might be inserted here. The period devoted to breeding by adult female is about 16 weeks, made up of: courtship, nest-building, egg-laying 21 days (estimated from information in HANZAB), incubation 28 days (HANZAB), young to reach independence 63 days (HANZAB). The period that the adult is flightless during simultaneous wing-moult is about 27 days (HANZAB).

There are few published records of actual breeding occurrences in the wild. Generally, those who have reported actual breeding have been workers engaged in waterbird research in remote places. The account in Jaensch 2014 is one example. This author's only encounter with a Freckled Duck with ducklings came in about 2005 when he had permission to spend a few days in Nocoleche Nature Reserve on the Paroo. The access problem from association of breeding with extensive flooding is a practical reason for the scarcity of records of actual breeding.

It is apparent from eBird records that large numbers of recreational observers are now counting Freckled Ducks, as well as other birds, in moderately remote places in inland Australia, if not the most remote places. (Attachment B). The occasional kayaker aside, eBird records themselves suggest they come from vantage points outside the swamp, lake or other water body. If breeding Freckled Ducks are present, they are likely to be unseen by reason of distance or concealing vegetation.

**Canberra area records**

Long-term recording has been co-ordinated by Canberra Ornithologists Group ('COG' – now Canberra Birds). COG records go back to 1965 but from about 2007 eBird became the preferred method of recording, continuing to the present time. The number of eBird observations in the ACT, compared to the number of Freckled Ducks recorded, can seem disproportionate.

Canberra's Kelly Swamp and vicinity can claim some 14% of Freckled Duck recorded occurrences Australia-wide:
Atlas of Living Australia, viewed 11 May 2025, select 'Freckled Duck'. 30,585 occurrence records returned of 35,402 (3,347 duplicate records excluded). Select 'eBird Australia' data resource. 20,638 records returned of 21,212 (574 duplicates excluded).

Victoria 8,191 (Port Phillip Bay 40km radius circle 4,616)
ACT 3,366 (Jerrabomberra wetlands / FSP 2,994 - mainly Kelly Swamp)
NSW 2,897
Queensland 1,829
Western Australia 1,523
South Australia 1,333
Tasmania 841
Northern Territory 638

Jerrabomberra Wetlands, and to a lesser extent the Port Phillip Bay area, show exceptionally high counts attributable to very active eBirding. In the first RAOU atlas the 1˚ cell containing Canberra had a remarkable Freckled Duck reporting rate of 11%-40%, possibly an indication of the popularity, even then, of the relatively small local wetlands as a recording site.

In 1978 an organized Waterbird Survey was introduced by COG which has regularly surveyed Lake Bathurst (NSW) and, intermittently, parts of Lake George (NSW) seen from a few accessible points near the shore. The ACT has no natural waterbodies that attract Freckled Ducks. Lake Burley Griffin and other large ACT impoundments, of which there are several, are not suitable feeding areas, or evidently resting areas, for this species. Two constructed waterbodies on the Molonglo floodplain attract small numbers of Freckled Ducks in most years. These are 'Kelly Swamp', part of the Jerrabomberra Wetlands Nature Reserve, and the nearby Fyshwick Sewage Treatment Ponds.

After an absence of Freckled Ducks from the Canberra area in 2022, a small population appeared at Kelly Swamp in April 2023 and reached a reported 10 in number in November. (Concealing vegetation causes marked variation in the numbers reported from this site.) After a blank period from January 2024 (ducks absent breeding?), up to 14 have been present since October. Two birds that arrived in spring had bright red bills, another dull pink, the colour having now faded (by March - assuming we are seeing the same birds). One drake was seen in complete wing moult (6 March). (Attachment C)

These are modest numbers, with some sites to the south of the ACT giving autumn counts this year of at least 20 Freckled Ducks, some sites many more. However, Kelly Swamp must hold the national record for records. In April the similar-sized Lake Lorne, Geelong area, had 6 records, up to 16 FDs. In April, Kelly Swamp had a remarkable 101 records. (This falls short of the 155 FD records in September 2019. There is a story about that month. Kelly Swamp was host to a Northern Shoveler which attracted tickers from near and far, the Freckled Ducks being an incidental tick. In September 2019, Lake Lorne lacked a Northern Shoveler and had only three Freckled Duck records, although 145 individuals were reported on one day.)

There are no reports from within the ACT, at any time, of >99 Freckled Ducks at one place. With the exception of one year (2017 – Attachment D), all >99 reports for the Canberra area were from Lake Bathurst or Lake George. These were in 10 different years between 1979 and 2014. It is necessary to say something about the history of observing at Lake George. First, it has not been regularly and comprehensively surveyed for its bird life. When full it is of a

dauntingly large extent (10km x 25km), and difficult to access except along the Lake Road strip on the south-west. Secondly, there have been recent years when the lake was 'dry' for practical purposes.

**The Freckled Duck's method of feeding**

Nearly all published accounts and summaries describe feeding methods that depend on food availability in shallow conditions, from waterlogged soft mud to about 0.5m depth if upending is used. Possible exceptions are 'filtering of surface water' (evidently in manner of a shoveler (Frith)) and 'feeding on floating waterweed' (one example quoted by Frith). The species is described as a specialist filter-feeder. The usual method of feeding is bottom or near-bottom filtering, while walking, wading, swimming or upending. A list of food items is in HANZAB.

The species is described as a nocturnal or crepuscular feeder. Unusually, in Canberra on several days in 2024/2025, at Kelly Swamp, several individuals could be seen feeding very actively at various times during the day, especially mid-afternoon. The method was nearly always filter-feeding while swimming, with head submerged, in a water depth of less than 25cm (Attachments E and F).

It follows from their feeding habits that travelling non-breeding Freckled Ducks, whether in small or large groups, need to find wetlands where they have access to food resources at a depth of up to about 0.5m. The amount of available food might influence the often-brief duration (eBird) of visits to particular locations. High numbers at a site can vary during the visit of a group (eBird data; observations at Canberra locations where individuals are seen flying in and out).

This author can find little information to answer this question. Do day-resting aggregations, at one place for more than a day or two, feed at night at or near the resting site or commute to and from feeding areas during the hours of darkness? Probably the answer varies according to the site. Some water bodies might be used only as resting sites rather than for feeding – convenient for bathing or drinking or resting, or for security, from foxes for example. On the other hand, on occasions Lake George has supported high numbers over some months (Lenz 2013).
In the Canberra area, types of water bodies suitable for Freckled Duck feeding might be taken as represented by Lake George (shallow parts), Lake Bathurst, and Kelly Swamp. As mentioned, records of Freckled Duck presence are incomplete for Lake George. During summer and autumn 2025, each of the three was at a medium water depth and unsurprising numbers of Freckled Ducks were recorded at all three: shallow areas of Lake George S - max. 34; Lake Bathurst - max. 85; Kelly Swamp - max. 14. In some periods of below-average rainfall any of the three waterbodies might be dry, sometimes all three, and no ducks will be present.

**In summary, for the Freckled Duck in the Canberra area**

Regularly present under suitable conditions: Lake George, Lake Bathurst, Jerrabomberra Wetlands Nature Reserve (especially Kelly Swamp), nearby Fyshwick Sewage Ponds

Repeat visitor (at least 2 visits in last 10 years): Mulligan's Flat large dam, Valley Avenue ponds (Gungahlin), Yerrabi Pond, West Belconnen Pond

No visits, or visits very rare: Lake Burley Griffin, Lake Ginninderra, Lake Tuggeranong, Googong Dam, Cotter Reservoir, Bendora Reservoir

Species recorded at Queanbeyan wastewater ponds (ACT) in 2008, 2014. Site infrequently visited by observers.

**Using eBird data to learn about Freckled Duck occurrence and movements**

A shortcoming of eBird as a means of monitoring the Freckled Duck population is that, as the Canberra experience shows, eBird records are mainly from near residential centres or from easily accessible places. There are fewer records, sometimes none, from remote off-road places. However, within areas with adequate eBird coverage, the records can help to indicate (a) the periodic occurrences of large gatherings and (b) the pattern of periodic movement out of and back to non-breeding areas.

*Large gatherings*

The table below is a summary of concentrations of groups in the eastern half of Australia. Except for Canberra district it is limited to eBird records to 10 April 2025, therefore mainly representing the period from 2010. Most 'favourable places' are in Victoria, parts of the Bellarine Peninsula being of particular importance. These are small wetlands omitted from the 'Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar Site'. It is possible that the Bellarine places are of recent adoption (or readoption) by Freckled Ducks as they are first mentioned in Geelong Bird Report 2001. In the period covered by Pescott (up to 1983) no Freckled Ducks are mentioned for the Bellarine Peninsula, except for one historical record in Belcher. In May and June in 2005, over 800 FD were recorded at the small (11ha) Lake Lorne at Drysdale.

An explanation of the change might lie in the pattern of shooting regulation over wetlands that have suitable conditions for this species. Over the years some areas have been closed to shooting, others left open. Duck-shooting is now prohibited in most Australian jurisdictions, including ACT and NSW, but is allowed with restrictions in Victoria and South Australia. A scan through newspapers in NLA's Trove from the 1800s to the present shows that in Victoria duck-shooting was at first partly a commercial undertaking, partly a sport, and later, declining over time, a popular leisure activity for many town and country people. To manage this, sanctuaries and closed seasons for 'native game' were introduced.

1915 the closed season for 'Wild Ducks and Teal of all kinds' was from 1 July to 1 February. In 1940, the kinds of duck that could be shot were said to be 'easily distinguishable and the most common'. They were 'black duck, grey and chestnut teal, wood duck, hard-headed or white-eyed duck, and freckled or "monkey" duck. The last is rare in average seasons'. In about 1947, 'the strip of shore near the Werribee Board of Works farm' was closed to shooting 'and the whole farm was a sanctuary' (now Western Treatment Plant – 'WTP').

In 1953, two shooters were drowned when their small boat capsized on Lake Lorne, Drysdale. This is relevant to the later prominence achieved by that small water body in the Freckled Duck story. In 1956, the Freckled Duck was omitted from the list of ducks allowed to be shot.

**Table 1: Large gatherings of Freckled Ducks.**

| Month | A Canberra district from 1979 | B Other NSW | C Bellarine Peninsula Vic | D WTP Vic | E Murray valley Vic | F Western Vic |
|---|---|---|---|---|---|---|
| **Jan** | 4 (4) | | 8 (5) | | 2 (2)* | |
| **Feb** | 4 (4) | | 7 (6)* | | 1 (1)* | 1(1) |
| **Mar** | 1 (1) | 1 (1) | 4 (3) | | 4 (4)* | 1 (1) |
| **April** | 2 (2)* | | 6 (6) | 1 (1) | | 2 (2) |
| **May** | 4 (4)* | | 8 (7)* | 2 (2) | 1 (1) | 1 (1) |
| **June** | 5 (5)* | | 10 (8)* | 1 (1) | 3 (2)* | 2 (2) |
| **July** | 2 (2) | 1 (1) | 6 (6)* | | | 2 (2)* |
| **Aug** | 1 (1) | 2 (2)* | 2 (2) | | | 2 (2)* |
| **Sept** | 2 (2)* | | 5 (4) | | 2 (2) | 2 (2) |
| **Oct** | 2 (2)* | | 3 (3) | | 1 (1) | 2 (2) |
| **Nov** | 3 (3) | | 1 (1) | | 1 (1)* | 1 (1) |
| **Dec** | 4 (3)* | | 3 (3) | | 1 (1) | 3 (3)* |

| Month | G Sale Vic | H Millicent SA | I Other South Aust | J Lake Binde-golly Qld | K Other Qld | Total per month |
|---|---|---|---|---|---|---|
| **Jan** | | | | | | 14 |
| **Feb** | | | | | | 13 |
| **Mar** | | | 1 (1)* | | | 12 |
| **April** | 1 (1) | 1 (1)* | | | | 13 |
| **May** | 1 (1) | 2 (2)* | | 1 (1) | | 20 |
| **June** | 1 (1) | 3 (3)* | | | | 25 |
| **July** | 2 (2)* | 3 (3)* | | | | 16 |
| **Aug** | 3 (3)* | | 1 (1)* | | 2 (1)* | 13 |
| **Sept** | | 2 (2)* | | 2 (2)* | | 15 |
| **Oct** | | | | | | 8 |
| **Nov** | | | | | | 6 |
| **Dec** | 1 (1) | | 1 (1) | 1 (1) | | 14 |

Table 1 indicates occurrence of groups of 100 or more, with number of years in ( ). * indicates that a report of 500 or more is included in the monthly number.

A - locations: Lake George, Lake Bathurst and the 'farm dam' on Lake Road near Bungendore, NSW

C - locations: Drysdale, Ocean Grove, and disused 'Bellarine Basin' water storage between those points.

D - the Western Treatment Plant is separated from the Bellarine Peninsula by an arm of Port Phillip Bay about 10 km across.

E - locations are in Victoria within 55km of Murray River

F - includes water bodies (e.g Lake Colac) west of Geelong and south of area E

G – in Gippsland, in eastern Victoria

Some published counts or estimates of gatherings >600:

| | | |
|---|---|---|
| 1983, Jan | 700 | 'Lake Hungerford', Q (mentioned Blakers 1984) |
| 1987, Dec | 5500 | Lake Wyara, Q (Kingsford 1994, aerial survey) |
| 1988, Mar | 9700 | Lake Numalla, Q (Kingsford 1994, aerial survey) |
| 1993, May | 728 | Lake George, NSW |
| 2005, May | 830 | Drysdale, Vic |
| 2005, June | 800 | Drysdale, Vic |
| 2012, Sept | 890 | Lake George, NSW |
| 2012, Dec | 1330 | Lake George, NSW |
| 2013, Jan | 720 | Lake George, NSW |
| 2013, Aug | 1000 | Lake Numalla, Q |
| 2013, Aug | 656 | Sale, Vic |
| 2013, Sept | 1500 | Lake Bindegolly, Q |
| 2017, May | 870 | Lake Cooper, Vic |
| 2017, Aug | 650 | Robe, SA |
| 2018, Feb | 1500 | Lake Bael Bael, Vic |
| 2019, May | 1478 | Murrk Ngubitj Yarram Yaluk, Bellarine Peninsula, Vic |
| 2019, May | 626 | Millicent, SA |
| 2023, July | 650+ | Lake Colac, Vic |

Generally, the known locations of large gatherings suggest southward movement from breeding areas, crossing the Great Dividing Range in Victoria, with less movement westwards in NSW. It follows that references in the literature to coastwards movement apply mainly to movement towards the Victorian or South Australian coasts.

*Movement out of and back to non-breeding areas*

Alcorn *et al.* (2024) compared the following data for the period 2010-2023: (a) the mean 0.1˚ cell reporting rate in eBird within the Geelong region for 72 waterbird species, and (b) the amount of annual rainfall in inland eastern Australia, using data from Longreach, Cunnamulla and Griffith. 24 waterbird species including the Freckled Duck showed a significant response to rainfall in inland eastern Australia. In two high rainfall years in inland Australia, 2010 and 2022, the Freckled Duck was virtually absent from the Geelong region. However, in 2016, another high rainfall year, the Freckled Duck was frequently reported from there.

As regards timing, the suggested movement seems a very quick response to inland flooding. However, Kingsford 2010 says that aquatic invertebrates are the organisms that most quickly respond to inundation. 'It is not surprising that the first waterbird group to respond to flooding is usually the invertebrate feeders' – the Grey Teal and Pink-eared Duck being mentioned. (The Freckled Duck is not mentioned in that paper, although the 1994 paper reporting large inland numbers is cited.)

A comparison can be made between the Canberra and Geelong regions under this approach, limiting it for present purposes to a single species, the Freckled Duck. The Canberra area is without a comparable published reporting rate for waterbirds, which in any event would be difficult to create in a useful way. There is a disproportionate recording of a small number of birds at popular observing sites. Nonetheless, there is a striking similarity to Geelong in the records for years 2010 and 2022 when the Freckled Duck was similarly unreported in the Canberra area, presumably having left for its flooded breeding areas.

A difference between the Canberra and Geelong areas is that, as noted above, shallow wetlands in the former are more likely to be affected by high or low rainfall. Although the pattern will be variable, they are more likely to be dry or filled when those of more northern 'inland eastern Australia' are in the same condition. If both breeding areas and the Canberra area are in drought, wetland-seeking Freckled Ducks will need to move on to 'coastal areas' and in particular, as eBird records suggest, to those of southern Victoria. See years 2018 and 2019.

With respect to 2016, the results in both areas might be affected by the reporting being based for convenience on the calendar year. In the Canberra area the Freckled Duck was reported in reasonable numbers up to April 2016, but then in very low numbers over the next 12 months.

*May 2025*

The cut-off date for this note, in early June 2025, came during a period of exceptional flooding in Freckled Duck breeding areas. During an earlier presumed breeding period Freckled Ducks were in very low numbers in south-east Australia. They were absent from the Canberra area from August 2021 to March 2023, a period covering two breeding seasons. In the same period, counts in the Port Phillip Bay area (including Bellarine Peninsula and WTP) were of less than ten birds. This suggests an exodus of breeding birds in June and July.

To investigate the present stage of outward movement, all eBird records for 16-31 May 2025 were considered (on 1 June 2025). The following locations had counts of more than ten. Port Phillip Bay area: Ocean Grove (42), Lake Lorne (21), Braeside Park reserve (28), Lake Borrie WTP (13); other Victorian sites: Sale (101), Lake Learmonth (70). The only non-Victorian site with >10 recorded was Kelly Swamp (ACT) (11).

It is suggested here that ten is an exceptional number of non-breeders to remain at one site during a major breeding period. That theory will be tested over the next few weeks.

**Acknowledgments**

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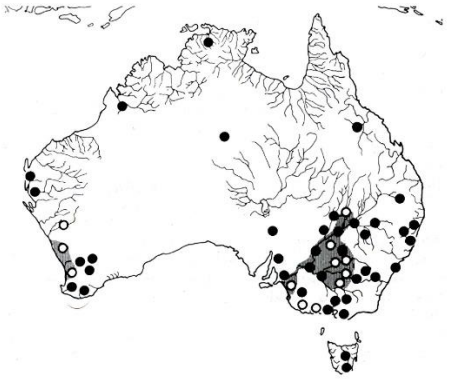
*Accepted 5 June 2025*

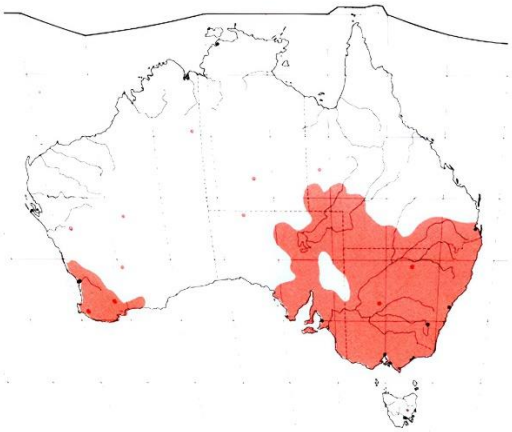
***See also Appendices A to H on pages 89 to 96***

# Attachment A - Examples of Freckled Duck distribution maps.

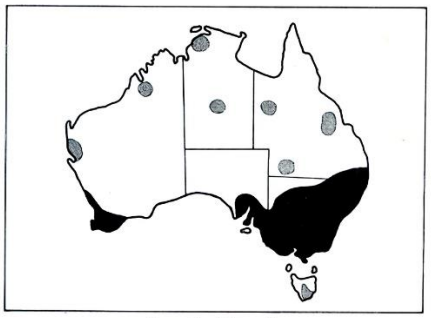


DISTRIBUTION OF THE FRECKLED DUCK

The map in Frith 1967 (same in 1982 edition) reflects the view expressed in Frith's text that in the east Freckled Ducks were 'only found regularly in a few parts of the Murray-Darling Basin'. Most of the birds recorded in most parts of Australia were to be regarded as vagrants. Open circles indicated breeding records. Breeding where it was known to occur followed 'really extensive flooding'.

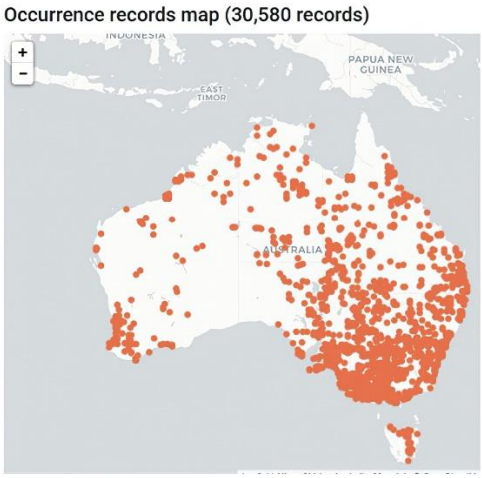


HANZAB 1990 map for Freckled Duck. This appears to be based on the 1984 RAOU Atlas. The shading on the maps is explained at HANZAB p.19. As breeding was 'not known', the area of distribution is coloured 'half-tone red' (contrast other duck maps, e.g. Musk Duck). 'Vagrant' records are 'half-tone red dots'. The range is now shown extending north-west into the arid zone. A few red breeding dots from the Atlas survive (two in the east) but are hard to see. Note absence of records from northern Australia.

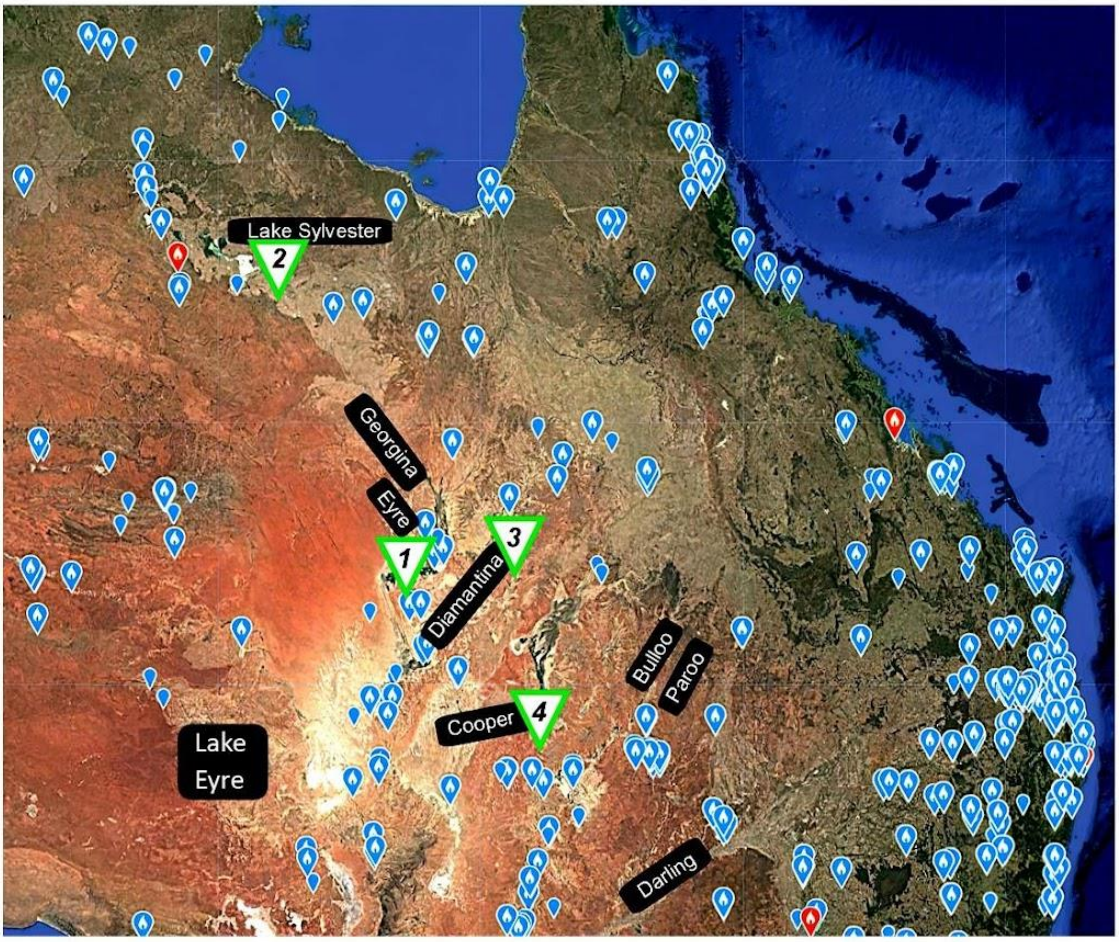


Freckled Duck

Eric Lindgren's map in Slater (1970). Compare with map at left. The ground-breaking distribution maps in the new field guide were put forward tentatively. The text on Ducks was contributed by Harry Frith.




A map from the online Atlas of Living Australia (3 May 2025). Each dot represents at least one sighting or specimen of a Freckled Duck at the location shown. However, a dot might represent a large number of sightings made over a long period. The map makes use of records from several datasets which can be viewed separately. These, include eBird (about two thirds of all records), Birdata, and State-based compilations. By zooming in, the viewer can find details of each record. The eBird records usually give numbers recorded.



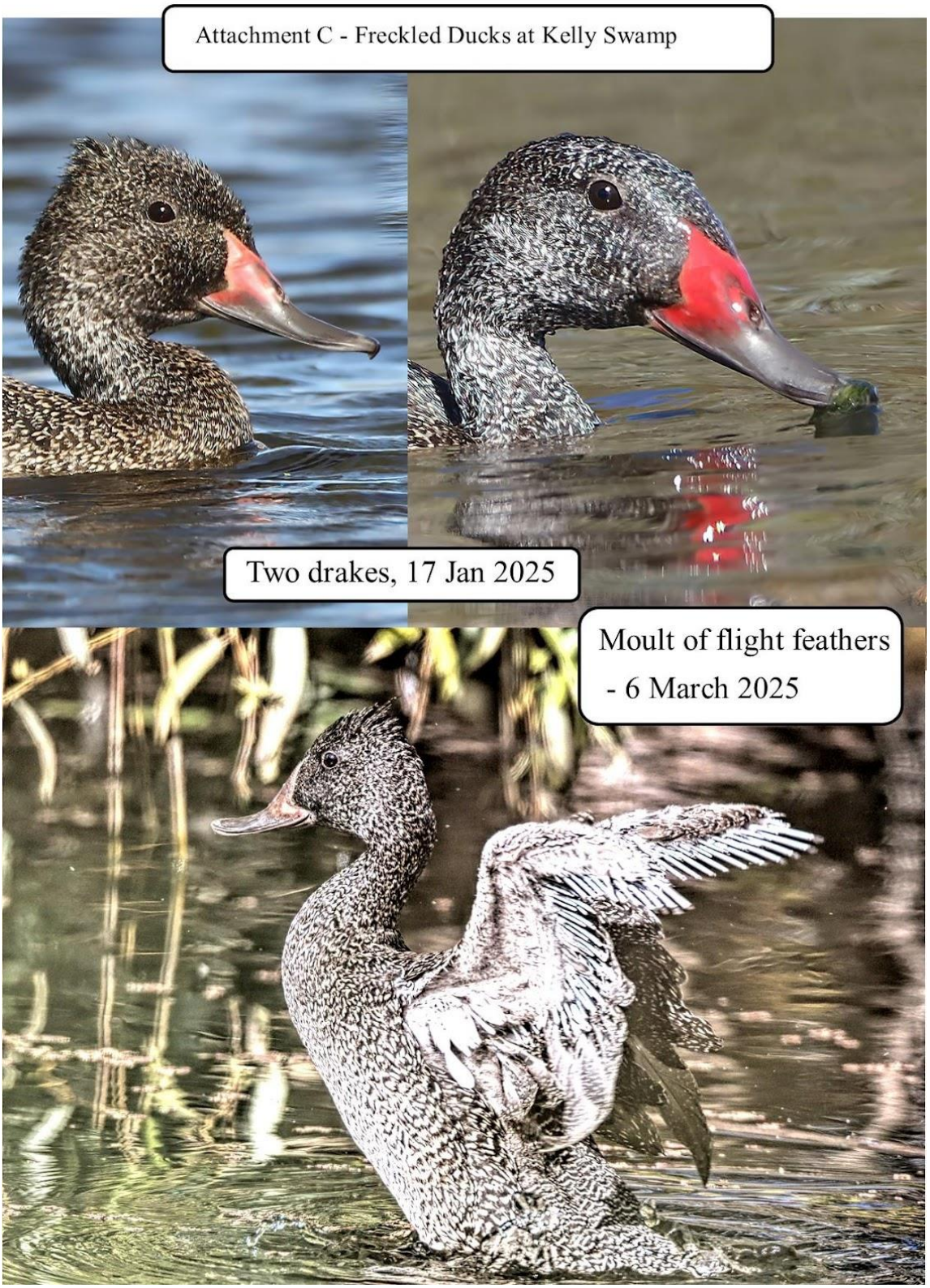

Attachment B - Freckled Duck eBird records across northern breeding and non-breeding areas.

The background map was taken from eBird on 29 April 2025. It relates to all years, all months. The balloons indicate places containing at least one record of one or more Freckled Ducks. Names of some rivers have been added. The area shown includes most of what is now seen as the main eastern breeding area for Freckled Ducks.

The number of records might be contrasted with the low number of records for the area in the HANZAB map or in the 5-year 1974 and 2003 atlases. Because the map captures all years it will include unusual presences in some years following movement from drying areas. To explore this further, the eBird program can be used to look at occurrence in particular years in particular areas. The availability of this information depends on presence of eBirders at sites where there are Freckled Ducks. Therefore it is likely that gaps in sightings will sometimes reflect absence of observers rather than absence of ducks.

A sequence of events that might now unfold is (a) the present exceptional flooding will attract breeding ducks to areas that might have few if any observers, (b) one or two or more good breeding years will follow, producing exceptional numbers of Freckled Ducks, and (c) in due course large numbers of ducks will move to favourable non-breeding areas (including perhaps the Canberra area) where they can then be recorded by a growing number of eBirders.

The triangles have been added to mark examples of the few reports of actual breeding occurrences: (1) lower Georgina (Jaensch 2014); (2) Barkly wetlands (Jaensch 2003); (3) and (4) mentioned in Jaensch 2014. Locations shown on the respective rivers, the Diamantina and the Cooper, are not precise.


Attachment C - Freckled Ducks at Kelly Swamp
Two drakes, 17 Jan 2025
Moult of flight feathers
- 6 March 2025

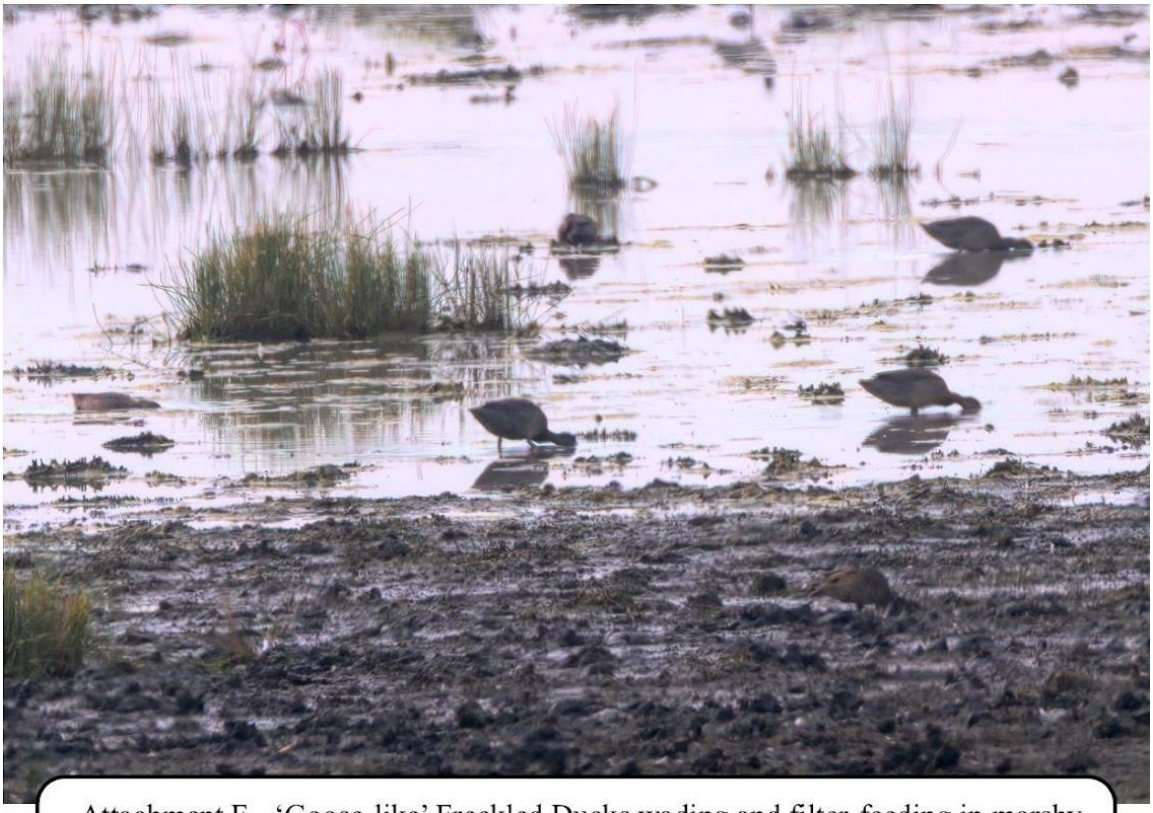
Attachment D - a gathering in the Canberra area

Right: Freckled Ducks feeding by upending in the 'farm dam' shown below.

The gathering of ducks at the 'farm dam' on Lake Road, Bungendore, in July 2017.

197 Freckled Ducks were counted here, with about an equal number of Pink-ears and a few Grey Teal. This depression, about 2km south of Lake George, is dry grazing land at the present time (April 2025). Foxes are abundant. In 2017 Michael Lenz saw a fox remove a duck from the end of the row shown here, without alarming the remainder.

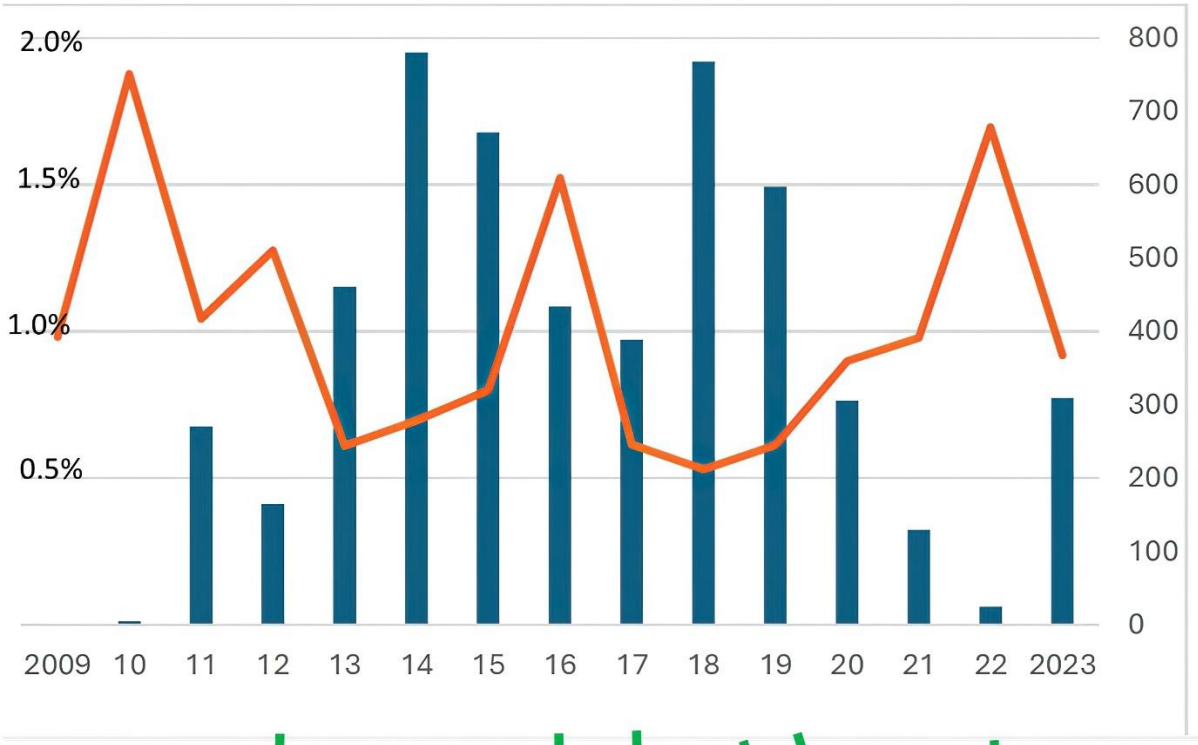

Attachment E - Typical Freckled Duck feeding at Kelly Swamp on almost any day during summer/autumn 2025, usually afternoon. Ducks are filter-feeding in water of a few cm depth. 1b and 2b show bill probing soft mud. Bill remains under water for a few seconds at a time, briefly raised for breathing.



Attachment F - 'Goose-like' Freckled Ducks wading and filter-feeding in marshy shallows of Lake George south, 2 March 2025.
In below photo some morning fog is still present.

# Attachment G - Canberra and Geelong areas, a comparison.

Graph from Alcorn (2024) for the Freckled Duck, one of a number of waterbirds covered in the original paper. This shows rainfall at selected sites in inland Australia and reporting rate for the species in the Geelong district. Below the graph are comments about Freckled Duck occurrence in the Canberra area in the same years.




No reports

L George 1330 Dec
L Bathurst 218 Dec
FSP 40 Nov

L George 700 Oct
L Bath. 230 Nov

L Bath. 273 Jan

No large concentrations In NSW but -
JWNR 23-31 Jan-Apr
Mulls 19-43 Jan-Apr

Lake Rd 134-197 Jun-Sep

Lake George dry, result of drought 2017-2019

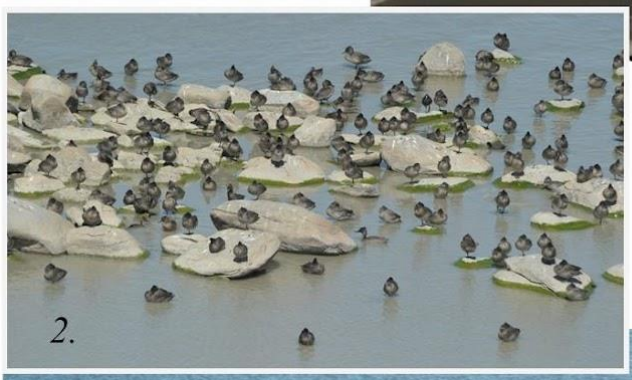
No reports Nov 21 - April 23

Lake Bathurst often dry in this period except for years where records given

Attachment H -

'the Canberra area'

1. A receding Lake George, east side in June 2015 (Michael Lenz)


2. and 3. Large gatherings of FD, Lake George east side December 2012 (Michael Lenz)
4. a view at Lake Bathurst on survey day, May 2025 (Liam Manderson)


# *NOTES*

*Canberra Bird Notes* 50(1) (2025): 97-98

## THE BREEDING SEASON OF LITTLE PENGUINS AT EDEN

NICHOLAS CARLILE, LISA O'NEILL, WENDY NOBLE AND CHRIS LLOYD[1]

[1]*For correspondence: pezoporus@bigpond.com*

The new Little Penguin (*Eudyptula minor*) colony in Wheel Cove in the heart of Eden continued to develop. This was despite numerous technical problems with our sound system, which blasts penguin noises out into Twofold Bay. The site of the original 2023/4 breeding event (Y114) saw little activity beyond a few visits. This is understandable as the natural rock site was washed out by high tides and wave action on a number of occasions during the year.

The attending bird was a microchipped male. It and a female made the strategic decision to move upmarket from their entry-level property to another natural site (Y144) adjacent to our sound system speaker. Here two chicks were successfully raised and both were chipped along with the female. Clearly the site suited the pair as they laid a second clutch, which should have fledged in March but unfortunately the chicks seem to have become lunch for a goanna according to our camera traps. The irony being that preventing goanna predation was one of the explicit roles of our artificial burrows. Perhaps the adults will see their value now?

From our cameras we know that a second nest was occupied, deep under vegetation and rock scree, within the central area of the gully. At least two chicks were raised here. On examination of the area in January 2025, it was suspected that perhaps two nests were in this tangle of vegetation, and additional camera placements will be needed next season to confirm this.

Another single bird from an area near the old flywheel (from whence the Cove gets its name) area was chipped in November 2024. However, there was no breeding in this or another area west of the gully, which showed penguin 'whitewash' (guano) during the same visit by Lisa O'Neill.

On a return visit in January Lisa found some guano splatter on the adjacent unfenced beach. Investigation found a penguin ensconced under vegetation in the middle of a moult. This bird was left unchipped as birds are under a fair amount of natural stress during this process without being handled for chipping. This means sites adjacent to the test site are now being used by the birds.

The most significant event occurred outside the trial site around the headland closer to the port area. A member of the public observed and photographed a Little Penguin in September 2024 using a track leading down to a small beach. We only became aware of this event in early January 2025. On investigation, Wendy Noble found a significant amount of guano amongst the rocks that look out into Twofold Bay. When she revisited the site at night at low tide, she witnessed three birds leaving the water and moving quickly into the rock wall.

Lisa and Nicholas Carlisle visited in January 2025 and found three nest sites within the rock piles. One nest was still active, with two chicks about two weeks from fledging. The other two

sites had been used for breeding in the current season and both had raised one or more chicks (from presence of downy feathers). All nest sites are deep within the rock piles and direct viewing of any nest cavity is difficult. Observations that evening at high tide found a single bird arriving just after sunset to feed the two chicks.

Development meant urgent consultation with the community about how to protect the emerging colony from domestic and feral predators and manage the inevitable human interest the colony will generate. Screening vegetation has already been planted and the cooperation from the various management agencies has been very supportive. This is a nice problem to have and one that communities at other sites, like those in Tasmania and South Australia, have useful experience of.

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*Canberra Bird Notes* 50(1) (2025): 99-101

# A CONCENTRATION OF BLACK KITES IN THE ACT AREA IN MARCH 2025

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On the morning of 16 Mar 2025, birdwatchers around Canberra began to notice unusually high numbers of Black Kites. The first report was from the Aranda area, where at least 20 birds were seen over the National Arboretum by members of a Canberra Birds (COG) outing at 1030hr. I was also in the area but only saw what I thought was one and the same one repeatedly as I was in woodland with limited view and I didn't expect that there might be more. Then I watched one hunting over Coulter Drive when I returned to my car. This was to be an exceptional day for the number of Black Kites seen in the Australian Capital Territory (ACT) area.

There were 22 records altogether on eBird, and other records were submitted to Jack Holland (recorder for COG), who wrote a report on the spectacle for the Canberra Birds newsletter *Gang-gang* (Holland 2025). A spate of records was submitted: they include sightings of 30 birds at Rivett at 1200hr, 75 over the refuse tip at Mugga Lane at 1417hr, and 100+ at nearby

[1] This article was previously published in the BirdLife Australia Raptor Group newsletter *Boobook:* 42(1) 37-38.

Isaacs Ridge at 1847hr. As the birds were moving around the area the last count of 100+ was accepted as the minimum number of kites in the ACT area at once on the 16 March. It is apt that the highest congregation of kites was over the tip. Black Kites are well known to frequent this anthropogenic habitat throughout their range worldwide.

There were only four records on the 17th, three of single birds in the southern part of the peri-urban area and five birds hunting over the Barton Highway just north of the ACT/ New South Wales (NSW) boundary. On the 18th, there was only a single record of a bird soaring over the National Zoo and Aquarium. The records came from all around the ACT, the farthest west was from Rivett, 12km from the Canberra city centre; the most southerly record was from Naas Road (27km); they were recorded at Captains Flat Road in the south-east (30km) and the Lake Bathurst area was the most northerly, north-east record (30km).

These were very high numbers of Black Kites for the ACT area, where it is considered a rare non-breeding (occasional) visitor from the inland (Fennell 2020). Most records are of single birds, and the previous highest group number was 11 on 13 April 2019. So what was the reason for such an influx of these birds?

It probably all began with severe tropical cyclone Alfred, which came onshore in south-east Queensland on 8 March and moved inland on the 9-10th (Bureau of Meteorology (BOM) 2025a, b). This caused intense rain and severe thunderstorms to move southwards. Meanwhile there was a strong, rain-bearing trough moving north-east from Victoria on 9-12 March (BOM 2025a). This resulted in two troughs lying north and south of the ACT on 10 March and these brought heavy rain to the north-east and south-west of the ACT area while the ACT received no rain (BOM 2025c & d).

Black Kites are common in inland Queensland and NSW, where they typically hunt over open country, and they can congregate in flocks there. Any Black Kites in those areas and near the rain-heavy troughs would have had difficulty soaring and hunting. They might have been moving ahead of either of these troughs to find drier and clearer conditions. If so, they could have become constrained in south-central NSW between the two weather systems. Easterly winds dominated northern, central and southern NSW in March, then a strong cold front moved across South Australia, Victoria, Tasmania and southern NSW on 15 and 16 March (BOM 2025a,b). The wind in the ACT area turned briefly into the west, which could have blown or caused any kites in south-central NSW to move towards the ACT. On the 17th, the wind returned easterly for the rest of the month (BOM 2025d).

After the front had passed, a period of settled weather developed as a high-pressure system moved in from the west (BOM 2025a). Any kites trapped by the winds and rain in the ACT area would have had more favourable winds to move inland, where they could have dispersed over areas where they are more usually recorded. So, this brief weather pattern could have been the reason for this brief abundance of Black Kites in the ACT.

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*Accepted 19 May 2025*

# *COLUMNIST'S CORNER*

*Canberra Bird Notes* 50(1) (2025): 102-104

***Real ducks don't wear Teal: an investigation of a popular colour***

Let's look through some books to find out more about 'teal', a word on everyone's lips these days. This columnist hopes it will not be irritating for the reader to find herein sometimes 'teal' and sometimes 'Teal'. The choice depends on context and whether quotations are being used.

'Teal' is a small word, and, according to the copy of the *Oxford English Dictionary* (OED) in the National Library, it refers to a small duck. The word emerged, apparently, from written variants such as 'tele', used as early as 1314.

OED says that a teal is 'a small fresh-water fowl … Anas crecca', and adds 'or other species of the genus' and 'also locally applied to other genera of the Anatidae'. To avoid opening another heavy book, we go to the online Cornell Lab Birds of the World. We find that *Anas crecca* is the 'Green-winged Teal'. It has a distribution across the northern hemisphere, and is 'the second most abundant duck taken by hunters in North America'.

The British call this species 'Common Teal' or just 'Teal', but long ago in North America it acquired the name 'Green-winged Teal' to distinguish it from a 'Blue-winged Teal' that occurs there.

Now we look at another meaning of teal, which appears as '1.c' in the OED: 'A shade of dark greenish blue resembling the patches of this colour on the head and wings of this bird'. The given early record of this meaning was in the *Daily Mail* (UK) of 14 February 1923 in an advertisement listing the colours in which Jersey frocks were available to purchasers.

Teal as a fashionable colour inevitably arrived in Australia, but not until about 1939 to go by the references found with the help of the National Library's Trove. The *Argus* (Melb.) Feb 1939, 'Teal-green and "peony", which is a shade between Burgundy and mulberry are both very charming for women over the age of 30 years.' The *Courier-Mail* (Brisbane) March 1939, 'Shades of blue, from the always popular navy to the new teal shade, were the dominant colour note at the St Patrick's meeting held by the Queensland Turf Club …'. The *Propeller* (Hurstville) March 1939, 'Vintage shade, with all the warmth of old wine, together with teal blue, are the two outstanding colours for autumn and winter.' The *Daily News* (Perth) June 1939, '… there has been no colour tyranny like that of the drab and difficult teal blue. The streets are full of it … Every second bride has it for her going-away frock.'

Brides and race-goers might not have cared about it, but the teal they wore, if like the present so-labelled teal, was not the colour worn by the duck. If this is disputed, a Green-winged Teal (male) could be produced for viewing by the arbitrator. Or we could call as a witness John Gould to read from his *Birds of Europe* (1837): 'Common Teal … from behind the eyes to the back of the neck passes a broad band of fine glossy green …'. As to the wing patch, 'speculum glossy green, deepening at the sides into velvet black'. Going through the bird books we can find several other descriptions along similar lines.

We can also go to the Cornell Lab website with all the eBird photos, mostly of males. This species is not only frequently shot by hunters; it is also frequently photographed. On this day, in May 2025, there are 209,362 photos of it held by Cornell. Colours of some photographed specimens are variable according to light because the duck's feathers have a colour-confusing

iridescence. (Gould's 'glossiness', presumably, one modern authority calling the eye patch 'metallic green'.) To describe colour accurately you need a stationary duck on a table with regulated light.

The species is now on the Australian list as a rare vagrant. Although it was only known then from Cocos Islands (Indian Ocean), the *Australian Bird Guide* included it for completeness of coverage of Australian birds. The ABG describes, and shows, a 'green speculum' and 'dark green' head patch. Moreover, a later submission to the Birdlife Australia Rarities Committee, about a rare sighting of *Anas crecca* in Western Australia in 2019, based the identification, in part, on a 'dark green eye patch'. There you are. Not a 'teal eye patch' or a 'dark greenish blue eye patch' but a 'dark green eye patch'. That's what they saw, with their telescopes, on that exciting birding morning near Roebourne.

So, *Anas crecca* is not an accurate reference point for what we call the colour teal today. Rather, 'teal' is just a word adopted for a manufactured colour, which, in any case, comes in several variations. We can imagine what might have happened. Someone in the UK in the creative department at Acme Fabrics, in about 1923, said: 'Hey, I've got a great name for our new green colour. It looks a little bit like the colour on the duck on that calendar of bird prints. Let's call it "Teal" and say it's the colour of a duck. People like ducks.'

However, that is not quite the end of the story.

The 2022 federal elections in Australia saw the emergence of 'teal independents', some of whom campaigned with a tealish colour. 'The colour teal has been interpreted by some journalists as a blend of the blue of the Liberal Party and the green of green politics' (Wikipedia).

In the electoral arena, to advance the cause of teal independents, supporters wore, displayed and handed out various items in different shades of greenish-blue and bluish-green. This seems to have led to 'teal' in the popular sense coming to mean almost any colour between blue and green. However, 'Teal' in the prescriptive colour charts is still put forward as a specific, rather subdued and murky colour. To be technical, it has a reduced level of saturation, making it suitable for people over the age of 30 years, as the dear old Melbourne *Argus* declared 86 years ago, before teal independents came along.

Now we need to look at two other books.

That encyclopedia of Australian birds, the 7-volume HANZAB was published 1990-2006. It has recently been made available online, so many people are now making use of it. For each species, HANZAB has a section describing plumages in detail. In relation to these, the editors draw attention to a difficulty: 'The greatest problem is that different people perceive colours differently.' How true.

Most references to colour are accompanied by a number in brackets. As explained in HANZAB vol 1 p. 30, these are references to Frank Smithe's *Naturalist's Color Guide* (1975, 1981), a publication of the American Museum of Natural History. Where the colour is only approximately the swatch colour, number (63) for example, the HANZAB writer gives (c63). Some of the colour names used in the *Guide* are inventions and seem rather odd, so HANZAB writers used their own simpler colour names for the numbered colours. 'Teal' does not appear in the *Guide*.

In 1981, with a set of 96 new colours, including Turquoise Green and Turquoise Blue, the *Guide* introduced a colour labelled 'Cyan'. This was said to 'combine green with blue on a nearly fifty-fifty basis', and to be one of the secondary colours of light, along with Yellow and

Magenta. That is true, apparently, under the 'RGB Colour Model', where Blue and Green are primary colours. (That system is for colour engineering for television screens and computer monitors. As it was not taught to children until long after this columnist had left school, he is not qualified to discuss it further.) Anyway, the Cyan in the *Guide* is a bright high-saturation colour without the murkiness of the colour-chart Teal. As the *Guide* says, Cyan 164 is 'not used to any great extent by 'naturalists'. However, you will see a lot of it in icons on your phone or computer monitor and in sporting team colours.

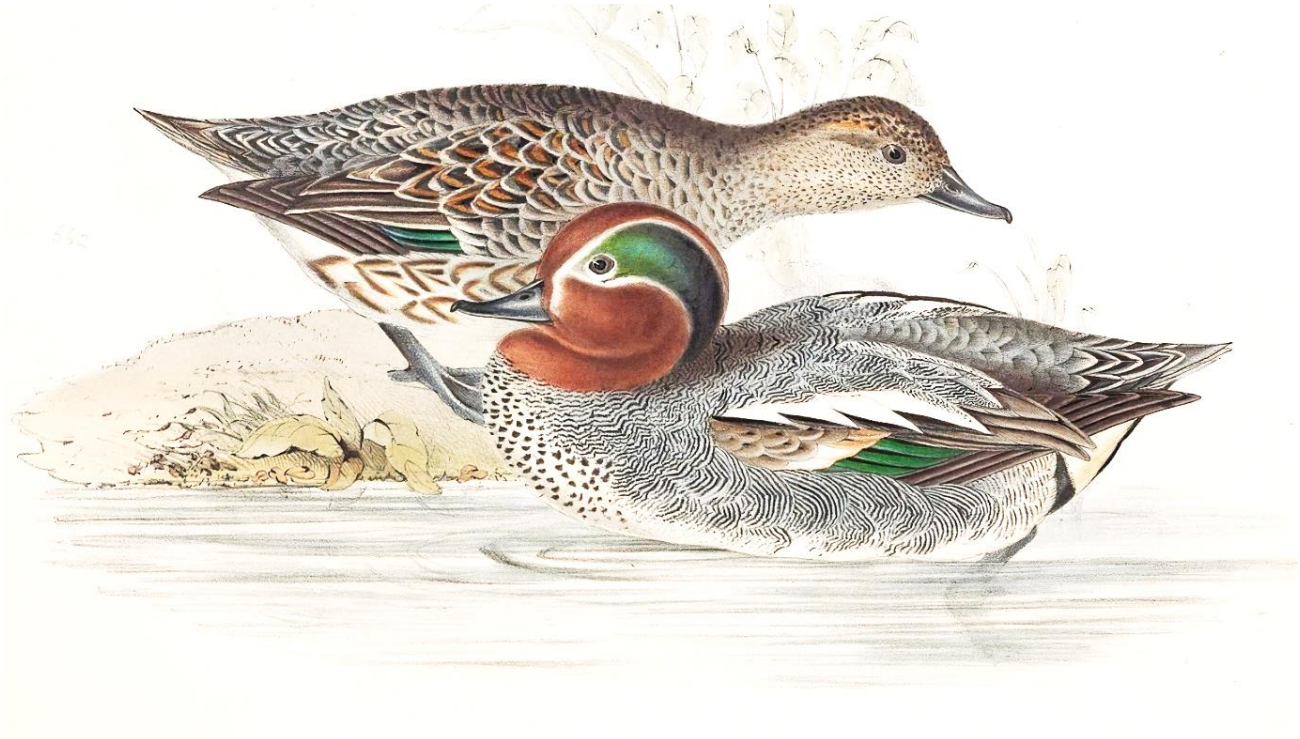
To take matters one step further, this columnist used the convenient search facility in the new online HANZAB to look for any reference in plumage descriptions to 'Cyan 164'. This returned the entries for quite a few Australian bird species, with most of them seeming unlikely candidates for Cyan in their plumage. It also left a lot of text to sift through if the investigation was to be taken further. However, the initial exercise did bring to light the following.

In the long and detailed description of the complicated plumage of the female Satin Bowerbird it is stated that feathers of the upperparts have 'broad bluish-green (c63) or greenish-blue (c164) fringes'. In the underwing of the male Blue-faced Parrot-Finch, the outer marginal primary coverts have 'greenish-blue (c164) tips'. In their rare encounters with Cyan, it will be 'greenish-blue' to Australian ornithologists.

Here are two websites with useful examples of relevant colours -
https://creativebooster.net/blogs/colors/shades-of-cyan-color
https://creativebooster.net/blogs/colors/shades-of-teal-color

The illustration below is from John Gould's *Birds of Europe* 1837. According to the inscription, the Common Teal was 'Drawn from Life & on Stone by J & E Gould'. Gould would have supervised the hand colouring of the lithographs. In the following year the Goulds travelled to Australia to see and draw the different teals there.

***Stentoreus***



*Canberra Bird Notes* 50(1) (2025): 105-106

***Birding in Cyberspace, Canberra Style***

It will be self-evident to readers, I am sure, that more and more of the world's knowledge—hmm, should I say the wealthy western world's knowledge—is becoming available to us in cyberspace. And with the advent of generative AI, much of this is available in ready-packaged forms. While this can be a real boon, it delivers to us predigested material of sometimes questionable provenance. That said, I acknowledge that the current generation of readily available generative AI applications, such as the many large language models available through Chat GPT, Gemini, Perplexity and Claude, now usually provide their sources, enabling users to check the veracity of the AI responses.

An alternative to using the AI generated summaries is clearly to follow the long and venerable tradition of scholars, and others, of referring to primary sources. Certainly, in my early academic training, I was always urged to avoid secondary sources and, through doing so, to accept full responsibility for accurately presenting, or interpreting, published information.

What does that have to do with birding? Plenty, including the changed governance arrangements for the **Biodiversity Heritage Library (BHL)** https://www.biodiversitylibrary.org/. Fifteen years ago, this column discussed the newly formed linkages between the BHL, Museum Victoria, and the relatively new Atlas of Living Australia (ALA) (*CBN* 35 (2), June 2010, pp. 145-6). The column highlighted the breadth and depth of resources available at the BHL. Fast forward to today, and we find that the long-standing and highly productive hosting arrangement between BHL and the Smithsonian Libraries and Archives in Washington, D.C. is coming to an end. The Library will continue to operate as now, with its contents and processes unchanged, but under new auspices yet to be made clear.

What is the Biodiversity Heritage Library? It is:

> ... the world's largest open access digital library for biodiversity literature and archives. BHL is revolutionizing global research by providing free, worldwide access to knowledge about life on Earth ... The BHL portal provides free access to hundreds of thousands of volumes, comprising over 60 million pages, from the 15th-21st centuries ... In addition to public domain content, BHL works with rights holders to obtain permission to make in-copyright materials openly available under Creative Commons licenses. Through Flickr, BHL provides access to over 300,000 free nature images from its collection, enabling greater discovery and expanding its audience to the worlds of art and design. BHL also supports a variety of volunteer projects that encourage the public to help enhance collection data (https://about.biodiversitylibrary.org/).

Recently, while exploring the history of the naming of Australian Fairy-wrens, I came across an intriguing reference to an article, published in the *Australian Zoologist* way back in 1924, that sounded highly relevant to my interests. A quick search at BHL returned a scan of the journal's issue in question with the article there, available to us all, in free full text. A wonderful resource for both professional biologists and interested laypeople such as your columnist. A valuable, globally focussed, biodiversity heritage-specific companion to the Australian focussed Trove https://trove.nla.gov.au/.

The reference to the BHL biodiversity images in Flickr, above, reminds us that, in March this year, the Macaulay Library team at Cornell University released online its selection of **Best**

**Bird Videos** from 2024: https://www.allaboutbirds.org/news/best-bird-videos-macaulay-2025/. 'We've reviewed the best bird photos from last year and chosen our favorite bird sounds as well—now it's time to take a look at some of the best video footage. We scoured the 41,000+ recordings uploaded to the Macaulay Library in 2024. We searched all seven continents, and in the end we chose 21 favorites—view a compilation of them ...'

What were their selection criteria? They looked for 'stunning beauty, intriguing behavior, and skillful cinematography'. Among the 21 favourites were two from Australia: Robert Humphries' Superb Fairy-wren: the editors said that 'what we loved' was 'The muted gray (*sic*) [Drop 'sic'?] and blue beauty of this female/immature fairywren', and Stephanie Owen's Crimson Rosella: 'The precision of a parrot nibbling at a tiny fern frond with its big bill.' The selection of these species reminds us that some of south-eastern Australia's most common birds are among the world's most delightful!

Two species among the 21 global favourites are found in Australia but were videoed abroad: Ruddy Turnstone and Wilson's Storm-Petrel. Also of interest is a lovely video of a family of Torrent Ducks, taken in Ecuador. There seem to be things about this species and its habitat that make these ducks particularly photogenic!

It has been fascinating to observe, in recent decades, not only the growth of citizen science activities, but also the increase in the valuing of data derived from these sources. We no longer have 'real' ornithological data, on the one hand, and less valued citizen science data, on the other. Modern scientists have made great strides in developing research strategies and methods for incorporating both sources of data into their studies. They acknowledge that all datasets have both strengths and limitations, and that these need to be considered at all stages of the research process.

A nice contemporary example of this is a paper published last year with the intriguing title **'The decline, fall, and rise of a large urban colonising bird'**. No, not the Australian White Ibis; it deals with the Australian Brush-turkey. The paper is available in open access format: Hall, MJ *et al.*, *Wildlife Research*, vol. 51, WR23156, https://doi.org/10.1071/WR23156. The data sources used in the article highlight both the utility of citizen science data, and the skills of the researchers in gaining insights through the integration of diverse data sources. They wrote:

> A total of 116,433 brush-turkey occurrence records were collected from 34 different sources. Following data filtering, this was reduced to 98,019 for the period 1839–2019 (Table 1). Of these, 69,671 records were located within significant urban areas. The three largest contributing sources of brush-turkey records were eBird (53.2%), Atlas of NSW Wildlife (24.6%), and Big City Birds (8.3%).

A number of other citizen science data sources contributed to the study, in addition to eBird and Big City Birds (formerly Brush Turkeys). The paper includes a well-balanced discussion of the limitations of atlas and citizen science data. The impacts on data quality and availability consequent upon the relatively recent proliferation of hand-held digital devices and apps to facilitate citizen science data collection are also discussed.

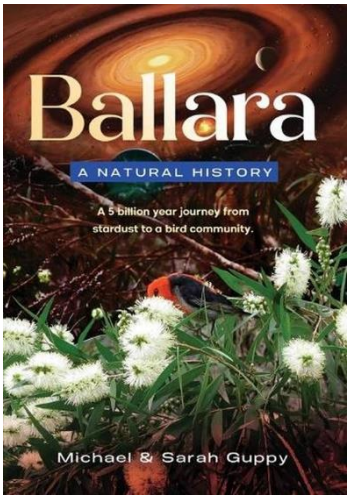
*T. alba*

# *BOOK REVIEWS*

*Canberra Bird Notes* 50(1) (2025): 107-109

***Ballara. A Natural History.*** *A 5 billion year journey from stardust to a bird community*. **By Michael and Sarah Guppy**. Ballara Press 2024. ISBN 978-1-7637888-6-2, Paperback, 132pp., RRP A$35.00[1].
(All proceeds from the sale of this book will be donated to support the Long-Term Ecology Group at the Australian National University.)

Reviewed by *MICHAEL LENZ, Lyneham ACT 2602 (michael.lenz.birds@gmail.com)*




'Ballara' is the name given to a 10 ha block of coastal Spotted Gum forest near Moruya on the South Coast of New South Wales, a region familiar to many members of Canberra Birds. Likewise, the authors of this book, Michael and Sarah Guppy, are well known to members since both have presented the results of their studies at Ballara at Canberra Birds general meetings.

What makes this block of forest so special? Here over a period of many years three highly dedicated and disciplined researchers have studied the breeding bird community to a level probably unparallelled anywhere in the world: first Stephen Marchant, and later the two authors.

Stephen Marchant was an eminent Australian Ornithologist: as editor of *Emu* for 12 years he raised the international standing of the journal, was the driving force behind the *Handbook of Australian, New Zealand and Antarctic Birds [HANZAB]* and introduced the Nest Record Scheme in Australia.

Sarah Guppy is the daughter of Stephen and Mary Marchant. She married Michael Guppy, and after Michael's retirement, they settled at Ballara.

Ballara was purchased in 1973 by Stephen as a site where he could retire and carry out bird studies for a number of years. He 'believed that the study of breeding was a central aspect of the life history of birds.' Over the past 40 years 53 bird species have bred there.

The first chapter deals with many aspects of Stephen's life (a career geologist), and the developments that eventually saw him settle at Ballara and conduct his research.

But before readers learn what these exceptional breeding studies involved and what the outcomes were, we are taken on a journey through many aspects of the natural and human history of this region and the block: geology (from stardust to the soil at the site), geography, vegetation and birds (Chapter 2). The key features of the site have not changed over the last 10000 years.

A most interesting discussion (Chapter 3) addresses questions of the impact local Aborigines had on the area (changing use of resources with the seasons, fire regime etc). They led a nomadic subsistence lifestyle in the area for at least 5000 years. All indications are that they also had a detailed knowledge of the local bird fauna.

[1] Note: Different outlets charge different prices for this book for no apparent reason. Canberra Birds members who want to purchase this book can contact the reviewer by email for advice.

The first white settler arrived at the 'Murroa' [Moruya] River in 1829. Chapter 4 details the land acquisitions, subdivisions and diverse farming activity around Ballara up to the time when Stephen Marchant bought Lot 24 (Ballara). Land clearing for agriculture, tree-felling for timber and digging for gold had a major impact on the local landscape, but fortunately Ballara was spared these activities.

The highlight of the book is Chapters 5 and 6, informing the reader about the bird studies at the block. Stephen decided on a long-term study of the breeding avifauna (Chapter 5), initially focussing on international methods to determine the size and composition of the breeding bird community, but soon realized that the only way to achieve this goal was to locate every nest of every species on the site.

With considerable physical effort he established a grid of paths through the forest 50m apart. This gave him a matrix of co-ordinates which allowed him to pinpoint the location of every nest and bird sighting. Many nests fail and the birds recommence nesting. It is then difficult to establish whether the pair that builds a new nest is the same pair that had the previous failure. Only by colour-banding all birds at nests could such a question be resolved. This resulted in a significant intensification of the study, but keeping track of nests became easier. The study commenced in earnest in August 1975 and ran for 10 years.

The grid was walked every day over the breeding season (August to January) for several hours throughout the day, and all observations had to be recorded and the day's data transcribed. The work resulted in several papers on the nesting biology of several species, other aspects of the natural history of the site and a full write-up of the study in a special publication of the Eurobodalla Natural History Society in 1992.

Fast forward: in early 2004 Michael and Sarah settled at Ballara. In order to access different parts of the property they started gradually clearing and re-establishing Stephen's grid of paths. But in order to carry out a follow-up study, a banding licence had to be acquired (Michael), a long process that was made possible through training on site by licensed banders from Canberra, notably Anthony Overs of COG (pictured but not fully named in the book). The most accurate documentation of all the records (nests, banded birds etc.) was Sarah's forte. August 2007 is the official start of the study. Additional smaller tracks were cut to reduce the distance between tracks from 50 to 25 m, and both Michael and Sarah walked the grid, finding up to 220 nests per season. The project finished in January 2015.

Up to 50% of nests failed, and although eggs and/or young had been removed, most nests looked intact. How could a predator achieve this? Remote cameras were used and enabled the identification of 14 predators: reptiles, birds and mammals. Even a goanna can take nest contents and leave the nest looking pristine. The investigations of nest losses, especially those due to a cuckoo species are most interesting.

Did the composition of the breeding bird community change between the two studies? The answer is basically not.

The question whether the number of breeding pairs changed proved more difficult to address, since numbers could change significantly from one year to the next (up to 50%), and there were differences in the timing of the breeding season.

In the end a climatic phenomenon, ENSO (the El Niño Southern Oscillation), and its measure, the widely changing Southern Oscillation Index (SOI), with significant impact on various biological phenomena, correlated very well with the changes in the population and the timing of the breeding season at Ballara. This is a remarkable outcome of the two separate studies and provides the link between them.

Each chapter includes references for further reading. An Appendix lists all the 42 publications that have resulted from these studies at Ballara.

The book gives the reader a 'look behind the scenes' of scientific research. The 'Methods' section of a paper tells you what research was done and how, but says nothing about the hard physical work, the discipline required to start early in the morning every day for 6 months to walk the tracks and find nests, the note-taking and daily transcription of data, or the impact of the paralysing tick on one's health, the thoughts, frustrations and (hopefully) relief when trying to make sense of the data, or, on a lighter note, the endless cups of tea and coffee required to keep the team of banders going!

*Ballara* is highly recommended for anyone with an interest in the biology of our birds, and with an interest and love of the South Coast region.

*Canberra Bird Notes* 50(1) (2025): 109-110

***Finding Australian Birds: A Field Guide to Birding Locations*. By Tim Dolby and Rohan Clarke. Second Edition.** CSIRO Publishing, February 2025. ISBN 9781486315208. Paperback, 584pp AU$59.99

Reviewed by *KIM FARLEY, Phillips ACT 2606 (kimlouisfarley@gmail.com)*

In these days of myriad authoritative (and sometimes not so authoritative) online sources of information about where to find birds, one can speculate on the value of another printed bird location guide. Notwithstanding that, there are many birders who continue to favour hard-copy materials to support their birding, and there are also many who do not see printed guides as having any value nowadays. There are also tragics and obsessives (this reviewer included) who will devour resources for the field birder and traveller as well as more scholarly works, irrespective of format, printed or online.

But everyone can find value in Dolby and Clarke's *Finding Australian Birds*, as it is much more than a list of places to find birds. It is in effect a 'one stop shop', offering much of what the online resources offer plus the added value of interesting, practical and useful information not offered by the online resources. Taking it with me on a recent road trip I found it to be very useful, listing the well-known sites in the areas I visited and also pointing me to less familiar but very worthwhile birding sites.

The book is divided into a section for each State and Territory, and then further divided into broad regions. Each broad region lists key birdwatching sites with really interesting information about the sites, target species, access information and even information about accommodation facilities and points of interest for non-birder companions! Some of the information will date quickly, but all being well, the sites themselves will continue to be a focus of birder attention for many years to come. A useful feature of this book is the cross-referencing between different sections, for example between the annotated bird list and the locations.

But do not use this book if you want a field guide to birds – while it is illustrated, it is not a field guide to bird identification. For that, use one of our excellent Australian field guides.

This book will suit both newer birders and the more experienced, and particularly those who may not have travelled extensively and would enjoy help with bird trip planning. It will also make a useful and attractive gift or purchase for visiting international birders.

One criticism, or perhaps merely a comment: the authors include Acknowledgements, a brief list of Further Reading and a list of Useful (online) Resources, but they have not really described or listed where they sourced the extensive information in the Guide. Some of it will

be from their own personal knowledge, some will be from those named in the Acknowledgements, and some from earlier similar guides, but much of it may have come from the online resources they list, including eBird and Birdata. The Guide would benefit from a complete bibliography and clear system of references.

Overall, I would recommend this title to newer birders, birding travellers, those who prefer their information in printed format and those, such as myself, who can never resist reading more about birds and where they live, whatever the format.

*Canberra Bird Notes* 50(1) (2025): 110-111

***Creature Corridors.* By Billie Rooney. Illus. Anke Noack.** CSIRO Publishing, Clayton South, 2025. ISBN 9781486318100; Hardback, 32 pp.; RRP AU $26.99.

and

***Cassowary Dad.* By Beverley McWilliams. Illus. Julian Teh.** CSIRO Publishing, Clayton South, 2025. ISBN 9781486317578; Hardback, 32 pp.; RRP AU $26.99.

Reviewed by *JANETTE LENZ, Lyneham, ACT (lenz.janette.gardens@gmail.com)*

These two delightful picture books (each 25 x 25 cm) would be just right for birdwatchers or naturalists to buy for their children or grandchildren aged 5-9, and are recommended.

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Construction and land-clearing often result in shrinking wildlife habitats, but safe corridors can be made to help animals and birds find places for shelter, to find food, and to breed.

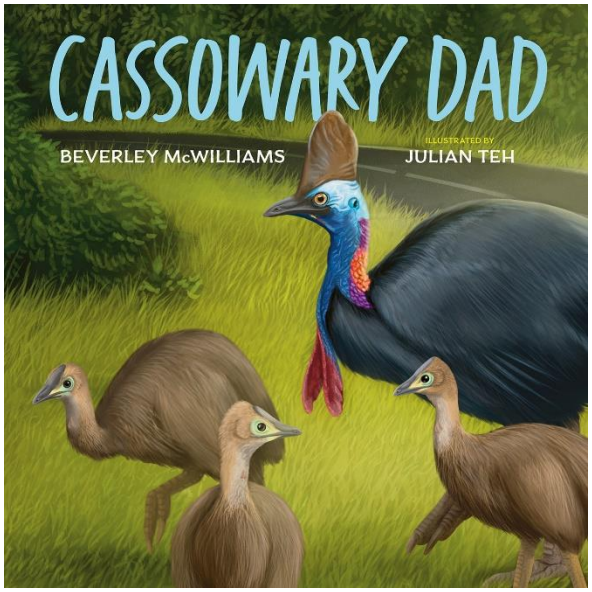
***Creature Corridors*** provides an engaging way for parents to talk to budding young naturalists about the need to provide pathways for animals in a world of increasing human development. Kangaroos, koalas, parrots, platypus, cassowaries, crabs and lizards are featured to show how wildlife pathways across roads, rivers, and forests can be made and are used.

While building under-road tunnels i.e. culverts or rope or metal bridges over roads requires official approval and construction, just allowing patches of gardens to remain wild, or planting shrubs and trees is a way to share our world with animals and birds.

**Billie Rooney** is an environmental educator who is inspired by children's curiosity about the world around them. This is her first children's book.
**Anke Noack** is an award-winning illustrator and the vibrant, colourful artwork in the book is very engaging.

A more detailed explanation as text for the older reader is towards the end of the book. It includes separate explanations of the problems faced by the creatures referenced. There is a glossary in the last pages. Teacher Notes aligned to the Australian Curriculum are free to download from the CSIRO publishing website: publish.csiro.au/book/8147/#forteachers.

It is also published for electronic devices ePDF | February 2025 ISBN: 9781486318117 Publisher: CSIRO Publishing Available from eRetailers




This story-time book for children explores the world of the Southern Cassowary.

After incubation and monitoring the hatching of the eggs, the male Cassowary raises the chicks alone, protecting them and teaching them about the rainforest.

Drama is introduced by a possible attack from a Lace Monitor, the need to guard the young as a cyclone tears through, and to search for food in the damaged forest. (Cyclones which destroy retreating forest habitat are a main threat to the survival of these endangered birds.)

Predominantly a frugivore, the Cassowary's role as a keystone species in regenerating the forest through the distribution of seeds in their scats is included.

Only in the pages of text for teachers or older readers is the threat to Cassowaries from human interference mentioned – not just by encroaching road networks but also the feeding of some birds has led to them to become tamer, which can lead them to act aggressively as they wander into urban areas.

The story for children about this iconic and enigmatic bird is well written and the accurate full-page illustrations are evocative.

**Beverley McWilliams** writes non-fiction and historical fiction for children. She has a passion for Australian animals.
**Julian Teh** – well known in COG circles – is a Canberra-based scientific illustrator. He references his life-long passion for birds and his own birding experiences in his paintings.

There is a glossary on the last page. Teacher Notes aligned to the Australian Curriculum are free to download from the CSIRO publishing website: publish.csiro.au/book/8116/#forteachers.

It is also published for electronic devices ePDF | February 2025 ISBN: 9781486317585 Publisher: CSIRO Publishing Available from eRetailers

# *RARITIES PANEL NEWS*

## ENDORSED LIST 106, June 2025

Honeyeaters figure prominently in this list. The most unusual is the Striped Honeyeater which was apparently discovered by Tracy Rail in a park in the suburb of Higgins in early April and was subsequently recorded by many. This appears to be the second record of the species in the ACT. The previous record came on 28 October 1995 from Charnwood, by Joan Price. The Striped Honeyeater is a distinctive largish honeyeater with a short straight bill and with heavy black and white streaking over the head and neck.

The Little Wattlebird has been, until recent years, one of the more frequently recorded of the "uncommon" honeyeaters. Many records came from the Australian National Botanic Gardens where this bird was also seen. It appears to have been first reported on Facebook and was subsequently seen and recorded by many from 12 June onwards.

The Panel was unable to endorse two Brown Honeyeater records last century but thanks to the ubiquity of photographic capabilities in recent times, this record of a Brown Honeyeater was indisputable. It was first reported by Marina Fascianelli. The Brown Honeyeater is one of Australia's most common honeyeaters in all areas except the South-east and one of the least distinctive, with only a small yellow triangular patch behind the ear to mark it out.

The Brown Cuckoo-Dove is a common coastal species apparently not previously recorded in the ACT.

## ENDORSED LIST 106, JUNE 2025

**Brown Cuckoo-Dove (***Macropygia phasianella***)**
1, 3 Jun 2024, Ben Ward, Carstenz St Griffith

**Brown Honeyeater (***Lichmera indistincta***)**
1, 20 Jun 2025, Chris Chapman, South Tralee (see photo by *Chris Chapman*; below, left)

**Striped Honeyeater (***Plectorhyncha lanceolata***)**
1, 6 Apr 2025, Kim Farley, Higgins (see photo by *John Hurrell* below, right))

**Little Wattlebird** (*Anthochaera chrysoptera*)
1, 12 Jun 2025, Elliott Overs, ANBG

***Contents continued from outside back cover***

**CANBERRA BIRD NOTES 50(1) JULY 2025**



***Contents continued on inside back cover***