# Broughton Island: common birds and seasonal visitors

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A long-term bird monitoring project on Broughton Island New South Wales has shown that 26 species are common, being either resident or regularly visiting – eleven species of bush birds, five birds of prey, two shorebirds and eight waterbirds. An additional 27 species had multiple records.

Four species were recorded significantly more often in the autumn and winter surveys than in the spring and summer ones – Brown Goshawk *Tachyspiza fasciata*, Willie Wagtail *Rhipidura leucophrys*, Grey Fantail *Rhipidura albiscapa* and Australasian Gannet *Morus serrator*. There was also an autumn/winter seasonal pattern for the Australian Golden Whistler *Pachycephala pectoralis*, which has not previously been documented to have seasonal movements in the Hunter Region.

## INTRODUCTION

Broughton Island (32° 37'S, 152° 19'E, **Figures 1** and **2**) is situated approximately 15 km north-east of the entrance to Port Stephens in New South Wales and forms an important component of the Myall Lakes National Park. Covering an area of 132 hectares, it stands as the largest coastal island in NSW, dominated by open grasslands, sedgelands, and woodland habitats that reach up to 91 metres above sea level at the island's eastern extremity (Carlile *et al.* 2012).

In 2009, the NSW National Parks and Wildlife Service (NPWS) removed feral animals (European Rabbits *Oryctolagus cuniculus* and Black Rats *Rattus rattus*) from the island. Broughton Island was officially declared free of feral animals in 2011 (Priddel *et al.* 2011; Fawcett *et al.* 2016). This intervention was anticipated to trigger significant changes in the island's birdlife – from a combination of the absence of nest predators and a re-vegetation of the island. That was indeed the case for the main breeding seabird on Broughton Island, the Wedge-tailed Shearwater *Ardenna pacifica*, which has experienced a substantial increase in population (Carlile *et al.* 2022).

NPWS had plans in place for monitoring Broughton Island seabirds and enlisted the collaboration of the Hunter Bird Observers Club (HBOC) to monitor additional bird species. Since 2012, I have organised regular surveys by HBOC teams, with an emphasis on monitoring diurnal birds – passerines, shorebirds, waterbirds, and birds of prey (raptors) –

while also gathering occasional data on breeding and roosting seabirds. In addition, a banding program for terrestrial birds commenced in 2017, which has added further insights into the island's avian communities (Little & Stuart 2022).

A five-year baseline program launched in 2012 identified the then-resident bird species and documented early trends (Stuart *et al.* 2017). Ongoing surveys and interim reviews have since provided insights into the evolving status of passerines and birds of prey (Stuart 2021; Fraser 2021b). This paper updates those earlier reports and summarises the findings from thirteen years of systematic bird monitoring on Broughton Island.

#### **METHODS**

# Surveys

Typical visits to Broughton Island for bird monitoring spanned three days, with observers working as teams of 1-2 people traversing most of the island and surveying sites several times during each visit. Occasionally, poor weather conditions caused the visit to be limited to two days, but this shortened time frame still allowed all the island to be surveyed thoroughly. Additional details about the survey methods have been provided in earlier reports (Stuart *et al.* 2017; Stuart 2021).

For consistency of effort, the island was surveyed as five sites each of nominal 500 m radius, using BirdLife Australia's 500 m-radius survey protocol (<a href="https://birdata.birdlife.org.au/home">https://birdata.birdlife.org.au/home</a>) in which the survey duration is not fixed. Typically, the duration of these surveys on Broughton Island was 1-2 hours per site. Three of the sites are land-based; they partition the island

into three approximately equal sectors (north-west, north-east, south-west). The other two 500 m radius sites cover the coastline and inshore waters of Providence Beach, on the northern side of the island, and Esmeralda Cove on the south-eastern side (see **Figure 1**). Within the three land-based sites there are six 2 ha sites, surveyed for 20 minutes each time using BirdLife Australia's 2-ha survey protocol (<a href="https://birdata.birdlife.org.au/home">https://birdata.birdlife.org.au/home</a>). The six sites were selected as collectively representing the main habitat types of Broughton Island. For the present study, the data from the 20-minute surveys were included into the presence/absence analysis for each visit to the island.

Occasionally HBOC team members also participated in one-day visits to Broughton Island for varying purposes e.g. to inspect the Gould's Petrel *Pterodroma leucoptera* nest boxes at Pinkatop Head (Stuart *et al.* 2023). Although some of the above sites were surveyed during each of those one-day visits, the survey effort did not cover the whole island. Therefore, the data from the one-day visits were excluded from this analysis.

Analysis of the status of Broughton Island's terrestrial species has been assisted by including key findings from a bird banding project which commenced in mid-2017. A

general description of the methods used in the banding project has been presented previously (Little & Stuart 2022).

# Data management and data analysis

The records from all surveys were entered into BirdLife Australia's Birdata portal (<a href="www.birdata.birdlife.org.au">www.birdata.birdlife.org.au</a>) in real time. In June 2025 I downloaded all the results and converted them into presence/absence format for each 2-day or 3-day visit. I calculated the "trip visit" Reporting Rate for each species, that being the number of records for a species divided by the number of 2-day and 3-day visits, expressed as a percentage.

I used the Pearson's Chi-Square (Goodness-of-Fit) test (Fowler & Cohen 1994) to assess the statistical significance of any differences in the number of records for a species on a seasonal basis. Calculated Chi-Square ( $\chi^2$ ) values above 3.84 indicate a significant difference in the two data sets, to at least 95% confidence level, while  $\chi^2$  values above 6.63 indicate that the difference is highly significant, to at least 99% confidence level (Fowler & Cohen 1994). I took into account that the Chi-Square test requires a minimum number of records for the result to be valid.



**Figure 1**. Broughton Island and some other islands of the Broughton Group (map based on Google Earth sourced 30/6/2025)



**Figure 2**. Broughton Island and some other islands viewed to the southeast, from an approaching helicopter (Photo: author).

# **RESULTS**

Between September 2012 and June 2025, there were 39 two-day or three-day visits to Broughton Island for bird surveys – 18 of the visits were in either autumn or winter and 21 visits were in spring or summer. In total, 93 species were recorded during the surveys. **Table 1** shows the overall Reporting Rate for the 53 species that had three or more records from the 39 visits, and also their Reporting Rates for the autumn/winter (March to August) and spring/summer (September to February) periods.

# **DISCUSSION**

The bird banding activities have seen many retraps of birds that initially were caught and banded on the island (Little & Stuart 2022; G. Little pers. comm.). Thus, it is clear that many individuals of certain species are regularly present on the island. However, because the visits to Broughton Island have been relatively infrequent (typically, once per season), it cannot with any certainty be concluded that any of those individuals are permanently resident. The discussion below takes that uncertainty into account.

Forty species have only one or two confirmed records on Broughton Island during the systematic surveys. A further eight species were recorded during visits to the island for other activities in the same period (M. Schulz pers. comm.). At this stage, they all should be considered to be vagrants to the island, with one probable exception (Beach Stone-curlew *Esacus magnirostris*, discussed further below). Some of these species might eventually

colonise the island, as has already happened for several other species.

### Common birds

Twenty-six species – eleven bush birds, five raptors, two shorebirds and eight waterbirds – have had overall Reporting Rates above 60%. In most cases, the autumn/winter and spring/summer Reporting Rates were similar; the exceptions are discussed further below. There were breeding records for 15 of the 26 species.

Three of the 26 species are classified as Vulnerable in NSW – Sooty Oystercatcher *Haematopus fuliginosus*, Osprey *Pandion haliaetus* and Whitebellied Sea Eagle *Icthyophaga leucogaster*. There are breeding records from the island for the first two of those species (Fraser 2021a; 2021b). Twenty-five to thirty Sooty Oystercatchers were regularly recorded, making Broughton Island a prime location for this species in the Hunter Region (Wooding 2019). Fraser (2021a) reported five breeding pairs but a sixth pair has since bred at Esmeralda Cove. It is unknown whether all six pairs breed annually.

Silvereyes *Zosterops lateralis* are now one of the commonest birds on Broughton Island, having not been recorded on the island prior to 2011. There are autumn and winter influxes of two migratory subspecies, *westernensis* and *lateralis*, joining the local subspecies *cornwalli* (Little *et al.* 2020).

Golden-headed Cisticolas *Cisticola exilis* and Tawny Grassbirds *Cincloramphus timoriensis* were recorded on almost every visit although they have been less detectable in the autumn and winter visits and sometimes not recorded during those surveys.

**Table 1**. Overall, autumn-winter and spring-summer trip visit Reporting Rates (RR) and local breeding status for species with three or more records in Broughton Island visits 2012-2025. Species are in descending order of overall RR.

Silvereye Zasterops lateralis	Species	Overall RR (%; from 39 visits)	Autumn- winter RR (%; from 18 visits)	Spring- summer RR (%; from 21 visits)	Breeding records
Australian Raven Cornos coronoides	Silvereve Zosterons lateralis	100.0			Y
Brown Quail Symotics ypsilophorus					
Silver Gull Chroicocephalus novaehollandiae					
Silver Gull Chroicocephalus novaehollandiae					
Sooty Oystercatcher Haematopus fuliginosus					
Swamp Harrier Circus approximans	1				
Tawny Grassbird Circloramphus timoriensis   97.4   94.4   100.0   Y	1 0 0				•
Velcome Swallow Hirundo neoxena   97.4   94.4   100.0   Y   Yellow-faced Honeyeater Caligavis chrysops   97.4   94.4   100.0   Y   Yellow-faced Honeyeater Caligavis chrysops   97.4   94.4   100.0   Y   Pacific Reef Heron Egreta sacra   94.9   94.4   95.2   Y   Pacific Reef Heron Egreta sacra   94.9   94.4   95.2   White-bellied Sea Eagle Icthyophaga leucogaster   94.9   100.0   90.5   Australian Pied Cormorant Phalacrocorax varius   92.3   88.9   95.2   Osprey Pandion haliaetus   92.3   94.4   90.5   Y   Great Cormorant Phalacrocorax varius   92.3   94.4   90.5   Y   Great Cormorant Phalacrocorax varius   92.3   94.4   90.5   Y   Great Cormorant Phalacrocorax carbo   84.6   77.8   90.5   Y   Great Cormorant Phalacrocorax varius   84.6   94.4   76.2   Y   Australasian Pipit Anthus australis   79.5   83.3   76.2   Whistling Kite Haliasur sphenurus   79.5   88.9   71.4   Liule Wattlebird Anthochaera chrysoptera   74.4   88.9   61.9   Whistling Kite Haliasur sphenurus   79.5   88.9   71.4   Liule Wattlebird Anthochaera chrysoptera   74.4   88.9   61.9   Peregrine Falcon Falco peregrinus   66.7   66.7   Y   White-faced Heron Egretian novaehollandiae   64.1   88.9   42.9   Willie Wagtail Rhippdara leucophrys   61.5   94.4   33.3   Brown Goshawk Tachspira gasciata   63.8   88.9   23.8   Australasian Gannet Morus serrator   48.7   88.9   14.3   Black-shouldered Kite Elamus axillaris   46.2   44.4   47.6   Utilie Pied Cormorant Microacrabo melanoleucos   43.6   44.4   42.9   Pheasant Coucal Centropus phasianinus   43.6   22.2   61.9   Red-browed Finch Neochmia temporalis   88.5   33.3   42.9   Y   Gould's Petrel Pterodroma leucoptera   35.9   16.7   52.4   Y   Grey Fantail Rhipidural albiscapa   33.3   66.7   4.8   Australasian Darter Anthinga novaehollandiae   17.9   27.8   9.5   Natural Rhipidura albiscapa   33.3   9.5   Natural Rhipidura albiscapa   33.3   66.7   4.8   Australasian Darter Petroporatis   20.5   33.9   4.8   Australasian Darter Petroporatis   20.5   33.9   4.8   Australasian Darter Petroporatis   20.	1 11				Y
Yellow-faced Honeyeater Caligavis chrysops	•				
Bar-shouldered Dove Geopelia humeralis					
Pacific Reef Heron Egretta sacra					
White-bellied Sea Eagle Icthyophaga leucogaster         94.9         100.0         90.5           Australian Pied Cormorant Phalacrocorax varius         92.3         88.9         95.2           Osprey Pandion haliaents         92.3         94.4         90.5         Y           Greater Crested Tern Thalasseus bergii         87.2         88.9         85.7         Y           Great Cormorant Phalacrocorax carbo         84.6         77.8         90.5         Y           Mustical Cormorant Phalacrocorax carbo         84.6         77.8         90.5         Y           Australasian Great Diver Amproximation         84.6         94.4         76.2         Y           Australasian Figit Anthus australis         79.5         83.3         70.1         P           Lewins Rail Lewinia pectoralis         69.2         83.3         57.1         P         Peregrine Faleon Faleo peregrimus         66.7         66.7         47         P         Hewits Paleon Faleo peregrimus         <					1
Australian Pied Cormorant Phalacrocorax varius   92.3   88.9   95.2					
Osprey Pandion haliaetus         92.3         94.4         90.5         Y           Greater Crested Tern Thalasseus bergii         87.2         88.9         85.7         Y           Great Cornorant Phalacrocorax carbo         84.6         77.8         89.5         Y           Red-capped Plover Anarhynchus ruficapillus         84.6         94.4         76.2         Y           Australasian Pipit Anthus australis         79.5         83.3         76.2         Y           Whistling Kite Haliastur sphemurus         79.5         88.9         71.4         I           Little Wattlebird Anthochaera chrysoptera         74.4         88.9         61.9         Buff-banded Rail Gallirallus philippensis         71.8         77.8         66.7         Y           Lewin's Rail Lewinia pectoralis         69.2         83.3         57.1         Peregrine Falcon Falco peregrinus         66.7         66.7         66.7         Y           White-faced Heron Egretta novaehollandiae         64.1         88.9         42.9         Willie Wagtail Rhipidura leucophrys         61.5         94.4         33.3         Brown Goshawk Tachyspiza fasciata         53.8         88.9         14.3         Australasian Gannet Morus serrator         48.7         88.9         14.3         Black-shouldered Kite Elamus axillaris					
Greater Crested Tern Thalasseus bergii         87.2         88.9         85.7         Y           Great Cormorant Phalacrocorax carbo         84.6         77.8         90.5           Red-capped Plover Anarhynchus ruficapillus         84.6         97.8         90.5           Australasian Pipit Anthus australis         79.5         83.3         76.2           Whistling Kite Haliastur sphenurus         79.5         88.9         71.4           Little Wattlebird Anthochaera chrysoptera         74.4         88.9         61.9           Buff-banded Rail Gallirallus philippensis         71.8         77.8         66.7         Y           Lewirs Rail Lewinia pectoralis         69.2         83.3         57.1         57.1         9.2         18.3         57.1         9.2         18.3         57.1         9.2         18.3         57.1         9.2         18.3         57.1         9.2         18.3         57.1         9.2         18.3         57.1         9.2         18.8         9.4         2.9         9.2         18.3         57.1         9.2         18.8         9.4         2.9         9.4         18.8         9.4         2.9         9.2         18.8         8.8         9.2         3.8         8.8         9.2         3.8<					V
Great Cormorant Phalacrocorax carbo         84.6         77.8         90.5           Red-capped Plover Anarhynchus ruficapillus         84.6         94.4         76.2         Y           Australasian Pipit Anthus australis         79.5         83.3         76.2           Whistling Kite Haliastur sphemurus         79.5         88.9         71.4           Little Wattlebird Anthochaera chrysoptera         74.4         88.9         61.9           Buff-banded Rail Gallirallus philippensis         71.8         77.8         66.7         Y           Lewin's Rail Lewinta pectoralis         69.2         83.3         57.1         57.1         57.1         66.7         66.7         7.1         66.7         7.1         7.2         8.8.9         42.9					
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Whistling Kite Haliastur sphemurus					Y
Little Wattlebird Anthochaera chrysoptera   74.4   88.9   61.9					
Buff-banded Rail Gallirallus philippensis   71.8   77.8   66.7   Y					
Lewin's Rail Lewinia pectoralis					
Peregrine Falcon Falco peregrinus   66.7   66.7   Y					Y
White-faced Heron Egretta novaehollandiae         64.1         88.9         42.9           Willie Wagtail Rhipidura leucophrys         61.5         94.4         33.3           Brown Goshawk Tachyspiza fasciata         53.8         88.9         23.8           Australasian Gannet Morus serrator         48.7         88.9         14.3           Black-shouldered Kite Elanus axillaris         46.2         44.4         47.6           Little Pied Cormorant Microcarbo melanoleucos         43.6         44.4         42.9           Pheasant Coucal Centropus phasianinus         43.6         22.2         61.9           Red-browed Finch Neochmia temporalis         38.5         33.3         42.9         Y           Ged-browed Finch Neochmia temporalis         38.5         33.3         42.9         Y           Gould's Petrel Pterodroma leucoptera         35.9         16.7         52.4         Y           Grey Fantail Rhipidura albiscapa         33.3         66.7         4.8           Little Penguin Eudyptula minor         30.8         22.2         38.1         Y           Brown Falcon Falco berigora         20.5         33.3         9.5           Double-banded Plover Anarhynchus bicinctus         20.5         38.9         4.8           Brahmi					
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Black-shouldered Kite Elanus axillaris	Brown Goshawk Tachyspiza fasciata		88.9		
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However, the Golden-headed Cisticola population is in decline, seemingly because of habitat changes (Stuart 2021).

Two cryptic species, Buff-banded Rail Gallirallus philippensis and Lewin's Rail Lewinia pectoralis, were detected mainly when they were calling, although there were several sightings, and there were some breeding records for Buff-banded Rail (S. Callaghan pers. comm.; M. Schulz pers. comm.). Buff-banded Rails were not detected in the surveys until October 2016, nor during the handful of pre-2012 visits by birdwatchers. For both rail species, the Reporting Rates from Broughton Island were considerably higher than for the Hunter Region and for NSW (Williams 2020; Cooper et al. 2014). The Reporting Rate for Lewin's Rail in NSW is 0.21% overall, and 1.80% for Buff-banded Rail (Cooper et al. 2014). Clearly, the habitat on Broughton Island suits these two species.

Fraser (2021b) reported the Whistling Kite *Haliastur sphenurus* to be the second-most common raptor on Broughton Island. That situation has changed in recent times, such that birds are not always present and the overall reporting rate has dipped below 80%. This is in line with the trend reported for Whistling Kite in Port Stephens, (Stuart 2024). Autumn-winter records have become more typical for both Port Stephens and Broughton Island.

Usually only 1-2 White-faced Herons were recorded (when present), but sometimes there were larger flocks: 11 birds in April 2016; 13 in March 2024; and 39 in February 2023.

# Uncommon visitors/residents

Ten species had Reporting Rates of 30-60%. Three of those are seabirds which are known to breed or roost on Broughton Island - Wedge-tailed Shearwater Ardenna pacifica, Gould's Petrel Pterodroma leucoptera and Little Penguin Eudyptula minor (Carlile et al. 2012). Their relatively low Reporting Rates are likely to have been affected by the diurnal focus for the survey effort. Wedge-tailed Shearwater and Gould's Petrel had some autumn records because chicks were usually still present in March and April visits. A fourth seabird, Australasian Gannet Morus serrator, was regularly seen foraging over the inshore waters of Providence Beach in autumn and winter. The difference in autumn/winter and spring/summer records (16; 1) for Australasian Gannet was statistically highly significant ( $\chi^2$  value 9.59). It is

known to be a winter migrant to the Hunter Region (Williams 2020).

Although the overall Reporting Rate for Redbrowed Finch *Neochmia temporalis* was below 40%, this species was never detected on Broughton Island until May 2021. Since then, it has been recorded on 15 of the 16 visits, often in total numbers of 20-30 birds and with a probable breeding record (an old nest). It might have become resident; however, there have been no retraps or resightings of any of six birds which have been banded on the island since 2021. The absence of repeat records suggests that Red-browed Finches move freely between Broughton Island and the mainland.

The Pheasant Coucal *Centropus phasianinus* had more spring/summer records but the difference to the autumn/winter records (13; 4) was not statistically significant ( $\chi^2$  value 2.65). Pheasant Coucals breed in spring/summer and are more vocal in their breeding season (Higgins 1999). Although their numbers have decreased (Stuart 2021), 1-2 birds continued to be recorded.

#### Occasional visitors

Seventeen species each had 3-8 (corresponding to Reporting Rates below 30%). The list includes two threatened species (Pied Oystercatcher Haematopus longirostris, with a breeding record, and White-throated Needletail Hirundapus caudacutus) and two migratory shorebirds (the autumn/winter-visiting Doublebanded Plover Anarhynchus bicinctus, and the spring/summer-visiting Ruddy Turnstone Arenaria interpres). There is no evidence to suggest that any of the 17 species is resident on the island. Indeed, several of the species are known to be springsummer migrants to the Hunter Region (Williams 2020), and their seasonal patterns on Broughton Island matched the known regional behaviour.

#### Autumn/winter visitors

Four species had statistically significantly more records in autumn/winter than in spring/summer – Willie Wagtail *Rhipidura leucophrys* (17; 7;  $\chi^2$  value 4.93), Brown Goshawk *Tachyspiza fasciatus* (16; 5;  $\chi^2$  value 6.46), and Grey Fantail *Rhipidura albiscapa* (12; 1;  $\chi^2$  value 9.36), and the Australasian Gannet, as discussed above. The only spring/summer record for Grey Fantail was of an individual in September 2013 – perhaps a late-departing bird.

The records for Australian Golden Whistler Pachycephala pectoralis and White-faced Heron Egretta novaehollandiae also exhibited seasonal patterns. There were seven autumn/winter records for Australian Golden Whistler, with single birds present on the island annually over 2016-2020, and also in 2023 and 2025, and just one spring record (in October 2019). There were not enough records for statistical analysis to be valid, but the pattern seems clear. This seasonal pattern was unexpected, as seasonal movements within the Hunter Region have not previously been documented (Williams 2020). However, Higgins & Peter (2002) noted that some seasonal movements occur within its range in Australia, especially in winter. The White-faced Heron had 16 autumn/winter records and nine spring/summer ones – the Reporting Rate was about halved. However, the difference was not  $(\chi^2)$ value statistically significant Commensurate with the pattern of visits, the three times that larger flocks of White-faced Herons appeared were in late summer and early autumn.

The pattern might have changed for Willie Wagtails and Brown Goshawks. Willie Wagtails were recorded in six of the seven spring/summer visits from October 2022 onwards, whereas there had been only one prior spring/summer record (in October 2017). Brown Goshawks were recorded in all three of the spring/summer visits from October 2024 onwards, whereas there had been only two prior spring/summer records (in September 2013 and October 2019).

### Beach Stone-curlew

Although there was only one sighting of Beach Stone-curlews *Esacus magnirostris* (a pair together at Esmeralda Cove, in August 2020), on two other occasions there were fresh footprints on Providence Beach. These are important records for a species which is critically endangered in NSW. As Beach Stone-curlews are crepuscular/nocturnal feeders (Marchant & Higgins 1993), they are likely to be overlooked in the diurnal survey effort. Two pairs of them breed at locations within Port Stephens, within 15-20 km of Broughton Island (Fraser & Stuart 2018; Murray 2019). It seems feasible that they sometimes would venture to the island, or that their dispersing progeny might visit. Mo (2016) has described how this species is expanding its range southwards.

# Changes since the removal of feral animals

It is beyond the scope of this report to discuss in detail the changes that have occurred on Broughton

Island since rabbits and rats were removed, as that requires an analysis of the results from individual site surveys followed by comparisons for various time periods. That work is underway and will be reported in due course (Stuart in preparation). However, some of the changes seem obvious.

I have previously described the decline of the Golden-headed Cisticola population due to the vegetative changes (Stuart 2021). It has now become uncommon to find them in the central parts of the island although they continue to be present in the windswept grassland areas in the southern and eastern parts of the island. Conversely, Carlile *et al.* (2022) reported that the population of Wedge-tailed Shearwater increased after feral animals were removed.

Several species have become regular on Broughton Island since feral animals were removed – Silvereye *Zosterops lateralis* (first recorded 2011), Yellow-faced Honeyeater *Caligavis chrysops* (first recorded April 2009, regular since 2012), Brown Goshawk (first recorded 2013), Little Wattlebird *Anthochaera chrysoptera* (first recorded 2014), and Red-browed Finch (first recorded 2021).

Unlike the other bush bird arrivals, Little Wattlebirds have not been present in large numbers – the maximum count of them was four birds and during 2024/25 there were only occasional records of a single bird. Similarly, Brown Goshawk sightings have involved single birds, although three individuals have now been banded on the island, including a female and a male on the same day (Little & Stuart 2022).

The Yellow-faced Honeyeater record of two birds in April 2009 was during the known migration period for that species. The species appears not to have been resident or regularly present on the island prior to 2012, as it was not recorded in visits to the island in December 2009, November 2010 or November 2011.

Grey Fantails were not recorded until 2013 although autumn and winter visits to Broughton Island were infrequent prior to 2012. There were no records of Lewin's Rail before the surveys started, and none of Buff-banded Rail until 2016. These cryptic species might have been overlooked in earlier visits. However, since both species nest on the ground or at low elevations, e.g. in grassy tussocks (Marchant & Higgins 1993), it seems plausible that they have benefited from the removal of Black Rats.

The first confirmed breeding record for Ospreys on Broughton Island was in 2016 (Fraser 2021b), hence this might be another benefit from the removal of rats. Fraser (2021a) also speculated that Sooty Oystercatcher breeding success was improved because of the absence of rats.

# **CONCLUSIONS**

Although Broughton Island is better known as a seabird island, because of its large breeding population of Wedge-tailed Shearwaters and other seabirds, it also supports many terrestrial and waterbird or shorebird species. Twenty-six species were recorded in systematic surveys over 2012-2025 and a further 27 species had less frequent records. Most of the common species were recorded all year round. Four species had distinctly autumn/winter patterns for their visits to the island or to its inshore waters.

# **ACKNOWLEDGEMENTS**

Many HBOC members have assisted with bird surveys on Broughton Island, but the sustained efforts from Tom Clarke over 13 years deserve special mention. He also reviewed the first draft of this article. I am grateful for the strong and enthusiastic support that I and HBOC have received from Susanne Callaghan, the NPWS Ranger for Broughton Island. I also thank Martin Schulz for sharing his observations and Greg Little for providing information from the bird banding work.

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