Bird surveys by A Rocha Australia at Nielsen Park, Toowoomba, Queensland, in 2023 and a review of four years of surveys

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Executive Summary

Surveys of birds in Nielsen Park, a bushland reserve of about six hectares in urban Toowoomba, were conducted over four years by A Rocha Australia as a component of efforts to document biodiversity. The park is managed by Toowoomba Regional Council with volunteer-based support for vegetation management provided by Friends of the Escarpment Parks Toowoomba. Part of the motivation for the bird surveys was the need to establish a systematic baseline inventory of species present. Also, it was hoped that any clear relationship between management interventions and composition of the bird community would be revealed.

In the first two years (2020, 2021), surveys were conducted monthly in the morning at two plots each of 2 ha area; in the last two years (2022, 2023), surveys were conducted quarterly on one day, at both plots, and at four times of day including after last light. These four years were relatively wet, following severe drought. The 2 ha, 20 minute area search method of BirdLife Australia was applied and incidental records were also obtained including some from remote cameras. Typically, each of the 146 surveys was conducted by one or two A Rocha volunteers.

Overall, 57 bird species were recorded, 12 of them breeding in the park; none were listed threatened species although one was a listed migratory species. Sixteen of the species were small bushbirds or ground dwelling species such as Eastern Whipbird, but the bird fauna was dominated in abundance by urban-tolerant species, notably Noisy Miner. The ground dwelling Painted Button-quail was present in the wettest year, probably as a short-term inhabitant at risk from predation by uncontrolled domestic cats in the park.

The survey team concluded that isolation of the park from broad areas of bushland on the Toowoomba escarpment, following relatively recent, complete surrounding of the park by urban houses, may be the principal cause of some deficiencies in the park's bird fauna. The present urban location also favours Noisy Miners, currawongs, butcherbirds and other birds that are aggressive towards small bushbirds. Nevertheless, the park does support a substantial number and diversity of bird species, aided by active volunteer-based management of the park's vegetation.

Introduction

In early 2020, A Rocha Australia [1] started a survey of birds at Nielsen Park, Toowoomba, Queensland with the aim of systematically establishing a baseline of biodiversity, which potentially could inform habitat management in the park. Nielsen Park is one of about a dozen bushland reserves managed by Toowoomba Regional Council (TRC), on the eastern escarpment of the Great Dividing Range. Located at about 700 m altitude, the park covers about 6 ha and supports remnant open forest that is mapped as an endangered regional ecosystem [2] by the state government.

[1] A Rocha is a Christian nature conservation organisation https://australia.arocha.org/

[2] Open forest on deep red soil dominated by common blackbutt *Eucalyptus pilularis*, New England blackbutt *E. montivaga*, pink bloodwood *Corymbia intermedia* and mountain grey gum *E. biturbinata*; with a

Images of Nielsen Park showing tree and shrub layers.

moderately dense to closed native tree and shrub understorey of *Acacia* spp. (several species, some tall), sweet pittosporum *Pittosporum undulatum*, coffee bush *Breynia oblongifolia*, and poison peach *Trema tomentosa*; and a ground layer with many vines and grasses. This is mapped as Regional Ecosystem 12.5.6 https://apps.des.qld.gov.au/regional-ecosystems/details/?re=12.5.6

Previous reports in this series cover earlier years of the survey program whereas the present report covers the fourth and final year (2023) of these bird surveys. Readers may find additional information in the other reports [3]. Work by A Rocha in Nielsen Park has been on a voluntary basis, supporting vegetation management by Friends of the Escarpment Parks (FEP) [4].

Methods

A standardised approach to bird surveys was applied by A Rocha at Nielsen Park, as recommended by BirdLife Australia for data entry to its Birdata national database [5]. This would optimise use of the data, including for periodic analyses by BirdLife to advise governments on threatened species designations. Mindful of the size and shape of the property, two plots each of 2.0 hectares were demarcated and at each plot (Fig. 1) all birds confidently identified (seen, heard or flying over) in a 20 minute period were recorded.

Figure 1. Location of the two 2 ha plots for bird surveys by A Rocha in Nielsen Park.

Bird survey plots: yellow line indicates northern plot (site) boundary; blue line indicates southern plot. Each plot covers 2.0 hectares. Length of the park north-south is about 400 m.

In the first two years of the project, the two plots were surveyed on one day of each month, with incidental records anywhere in the park also documented. In the third and fourth years, visits to the park were made only quarterly, with four surveys (of both plots) completed each time: in the early morning, mid-morning, late afternoon and early during the night—adjusted according to time of year. This altered approach was an easier commitment for the volunteer observers; it also delivered 32 surveys in a year (4 seasons, 2 plots, 4 surveys), which was statistically more robust than the

[3] For example, the 2020 report: https://australia.arocha.org/wp-content/uploads/sites/25/2020/10/report-on-ARA-bird-surveys_Nielsen-Park_2020_final-w-logos.pdf

[4] FEP website: http://fep.org.au/

[5] https://birdata.birdlife.org.au/home

previous sample of 24 (12 months, 2 plots), and introduced nocturnal effort. A remote camera was occasionally used to determine the presence and identity of ground-dwelling birds.

Surveys involved up to four observers but usually one or two (average: 1.5). At least one experienced observer (of 3 in the team) was present in the majority of surveys, and two observers were highly familiar with the park and its birdlife, ensuring a high level of consistency and accuracy.

Results

Conditions in 2023 were somewhat drier than in 2022 or 2021 (years of above average rainfall in Toowoomba), but the 2023 rainfall became close to average due to a wet spell late in the year [6]. Consequently, the non-perennial vegetation—especially the ground cover—was relatively lush at first, desiccating somewhat through the year, but revitalised in November-December.

In 2023, a total of 39 bird surveys was completed by A Rocha at Nielsen Park; 34 were plot-based (32 plus 2 extras) and 5 were incidental records and the total duration of surveys was 12 hours. The cumulative total number of surveys (all types) over the four years of the project was 146. Months of survey in the fourth year, as in 2022, were January, April, July and October, thereby sampling in both the warmer and cooler halves of the year. Some 287 bird records were documented, close to the average for all four years (290).

Table 1 lists the 38 bird species recorded in 2023; this was two less than in the previous year but just above the average per year (37) through the four years of A Rocha surveys. Three species in 2023 were recorded only incidentally, not in the plot-based surveys. Six species were added to the cumulative list for A Rocha surveys of Nielsen Park in the fourth year: Eastern Yellow Robin (3 records; separate observers have additional records and the bird may have established itself in the park now); and single records of Rose Robin, Pheasant Coucal, Brown Falcon, Common Myna and Spotted Dove. The latter two species are non-native and not unusual around the city; the dove occurs in houses right on the park boundary but rarely enters the park's forest.

None of the 57 recorded species from all years of the project (Annex 1) was a listed threatened species under state or national legislation [7] and just one species, Rufous Fantail (26 November 2021) was a listed migratory species under the national Act. However, three species (Eastern Koel, Oriental Dollarbird, Rufous Fantail) are known in the Toowoomba region to be visitors confined to the warmer months. One other species (Rose Robin) visits only in the cooler months, two species (Spotted Pardalote and Yellow-faced Honeyeater) increase markedly in abundance in the cooler months due to an influx, and one species (Square-tailed Kite) visits Toowoomba mainly in the first half of the year.

Australian Brush-turkey and Noisy Miner were the only birds found breeding in 2023, which left the cumulative total at 12 species—including Eastern Whipbird—confirmed to be breeding in the park, with three others suspected but unconfirmed as breeding (Annex 1). The majority are hole-nesting species, reflecting the abundance of old-growth trees, many of them dead, in Nielsen Park. This is a higher number of breeding species than at nearby Duggan Park where only two species were found breeding over three years of surveys—but at only one 2 ha plot. For most bird species, 20 minute surveys do not enable the slow patient observation required to confirm breeding.

The ten most highly-ranked species in terms of number of records, from all surveys across all years (data from individual plots were not combined) are shown in Table 2. Unsurprisingly, these were all conspicuous species, with Noisy Miner topping the list.

The ten most highly-ranked species in terms of highest count are shown in Table 3; this is biased towards naturally gregarious or flock forming species. Although Scaly-breasted Lorikeet was counted in by far the highest number, Noisy Miner was again prominent (rank 2) and with higher counts than five parrot/cockatoo species. The top four species are common to both rankings and

[6] Rainfall totals along the 'Range' in 2023 were at least equal to the annual average measured by the Bureau of Meteorology at the old Toowoomba airport but the Range is typically a little wetter than the airport, which lies 4 km inland of the escarpment edge.

[7] Under the Commonwealth's *EPBC Act 1999* or Queensland's *Nature Conservation Act 1992*.

Table 1. Bird species recorded at Nielsen Park in Year 4 of the A Rocha project (2023)

Scientific names of species are in Annex 1.

Common Name	Number of records (all 39 surveys)	Highest count (all surveys)	Average count (in 2ha)	Breeding Activity
Australasian Figbird	2	5	3.5	
Australian Brush-turkey	6	4	1.7	Yes
Australian King-Parrot	12	4	2.1	
Australian Magpie	14	4	1.8	
Australian Wood Duck	3	3	2.0	
Black-faced Cuckoo-shrike	1	1	1.0	
Brown Falcon	1	1	1.0	
Cattle Egret	1	6	6.0	
Common Myna	1	2	2.0	
Crested Pigeon	2	1	1.0	
Eastern Whipbird	13	3	1.5	
Eastern Yellow Robin	3	1	1.0	
Galah	21	20	5.8	
Golden Whistler	2	1	1.0	
Grey Butcherbird	12	2	1.5	
Grey Fantail	1	2	2.0	
Laughing Kookaburra	15	4	1.7	
Little Corella	5	9	3.8	
Little Lorikeet	3	3	1.7	
Musk Lorikeet	6	14	9.0	
Noisy Miner	30	28	9.9	Yes
Oriental Dollarbird	3	1	1.0	
Pale-headed Rosella	16	4	2.3	
Pheasant Coucal	1	1		
Pied Butcherbird	1	1	1.0	
Pied Currawong	21	7	2.3	
Rainbow Lorikeet	25	19	8.1	
Rose Robin	1	1		
Satin Bowerbird	11	2	1.2	
Scaly-breasted Lorikeet	24	30	10.8	
Southern Boobook	1	1	1.0	
Spotted Dove	2	1	1.0	
Spotted Pardalote	2	2	1.5	
Sulphur-crested Cockatoo	4	3	1.5	
Tawny Frogmouth	6	3	1.2	
Torresian Crow	6	4	2.0	
Welcome Swallow	7	3	1.4	
White-browed Scrubwren	2	2		
34 standardised (2ha, 20min) surveys and 5 incidental surveys.				
red font indicates species was not recorded in a 2ha survey.				

Satin Bowerbird (male)

seven species are common to both tables. Another measure of abundance is the average count per survey of 2 ha plots and data in Table 1 for 2023 show that the top three species by this measure were Scaly-breasted Lorikeet, Noisy Miner and Musk Lorikeet.

Table 2. The ten most highly ranked species in terms of number of records, all surveys, four years.

Common Name	Number of records (n = 146 surveys)
Noisy Miner	108
Rainbow Lorikeet	99
Galah	89
Scaly-breasted Lorikeet	86
Pied Currawong	82
Pale-headed Rosella	56
Laughing Kookaburra	54
Australian Magpie	51
Grey Butcherbird	50
Australian King-Parrot	44

Table 3. The ten most highly ranked species in terms of highest count, all surveys, four years.

Common Name	Highest number counted
Scaly-breasted Lorikeet	45
Noisy Miner	28
Galah	20
Rainbow Lorikeet	20
Little Corella	16
Musk Lorikeet	14
Laughing Kookaburra	9
Pied Currawong	9
Pale-headed Rosella	8
Australasian Figbird	6

A total of 16 small bushbird species—birds smaller than a Noisy Miner, or a small ground-dweller, or a small aerial species—was registered for Nielsen Park in this project (Annex 1). By far the most frequently recorded were Eastern Whipbird (in 32 surveys) and White-browed Scrubwren (24), followed by Spotted Pardalote (10) and Golden Whistler (9). However, only a few individuals were counted of each species with Yellow-faced Honeyeater having the highest count (only 6 birds).

The scarcity of small bushbirds in Nielsen Park may be partly explained by the prevalence of aggressive and predatory bird species, either chasing adults or predating nests of small bushbirds. Table 4 shows a strong presence of five such species, Noisy Miner being especially prevalent with up to 28 individuals counted in one 2 ha plot. These species thrive in urban environments where there

Table 4. Presence of aggressive and predatory birds in Nielsen Park, 2020-23; species with at least 10 records.

species	number of records	highest count
Grey Butcherbird	50	2
Laughing Kookaburra	54	9
Noisy Miner	108	28
Pied Currawong	82	9
Torresian Crow	11	4

is a suitable amount of tree cover and Nielsen Park provides such a 'headquarters' in the surrounding urban area. In nearby Duggan Park, better connected than Nielsen Park into the escarpment bushland, 29 small bushbird species and a highest count for Noisy Miner of only 6 birds have been recorded, though from only thirty-one 2 ha surveys.

Probably the most significant record among the small birds recorded in Nielsen Park was Painted Button-quail, with up to two birds 'captured' on remote camera in the northern plot on 2, 6 and 8 July 2022. The species was initially suspected to be present due to sightings of its feeding scrapes ('platelets') at several places under dense tall shrub and vine cover. Occurrence in the park was quite remarkable given there was no continuous connection to other bushland.

Remote camera images of Painted Button-quail in Nielsen Park, July 2022

The two 2 ha plots differed in several respects: the northern plot was located a greater distance from escarpment bushland, had near-complete cover of dense tall shrubs except at some edges, and a few dead trees with hollows; the southern plot was less distant from other bushland, had incomplete shrub cover, and had more dead trees with hollows. Annex 2 compares the two plots and shows that, despite those habitat differences, the number of bird species was almost identical and the number of small bushbird species likewise; however, more species were detected breeding in the northern plot. In both plots, the five highest-ranked species in terms of number of records, highest count and average count in 2 ha plots, were almost identical, comprising Noisy Miner, Rainbow Lorikeet, Scaly-breasted Lorikeet, Galah, Pied Currawong and Musk Lorikeet.

To compare the number of bird species per 2 ha survey, allowance must be made for the change in methods. In the first two years, with monthly visits to the park but the pair of surveys conducted only once, in the morning (a total of 57 surveys), the average number per 2 ha survey was 10.3 species. In the last two years, with quarterly visits to the park but three pairs of surveys across the daylight hours (47 surveys), the average was 9.7—only a slight difference. At nearby Duggan Park, also surveyed by A Rocha (monthly) but with only one 2 ha plot and one survey per visit, the average number of species per 2 ha survey was 13—somewhat higher [8].

During the latter two years, despite insufficient surveys (14 to 16) to give robust comparison between results from the three different times of daylight survey, nevertheless there seemed to be a pattern of declining numbers though the day: an average of 12 species per 2 ha survey in the early morning; 9 in mid-morning and 8 in the late afternoon. Birds were recorded (2 to 5 species) in six of the nocturnal surveys, typically a few Southern Boobooks and/or Tawny Frogmouths and sometimes a roosting brush-turkey or other species. A pair of Barking Owls was recorded once (28 June 2020) in the park when a pair was often being reported around the far south-eastern part of Toowoomba.

There are many analyses that could be undertaken on the large body of A Rocha data for Nielsen Park and some were beyond the scope of this report, e.g. a comprehensive analysis of

[8] Jaensch, R. 2024. Surveys of birds by A Rocha Australia at Duggan Park, Toowoomba, Queensland, in 2023. Unpublished report by A Rocha Australia.

seasonal patterns in bird occurrence and abundance. Earlier reports in this series shed some light on seasonality. Nevertheless, it is clear from results to date that the following species were present only in the cooler months of the year: Eastern Yellow Robin, Grey Fantail, Lewin's Honeyeater, Musk Lorikeet, Pacific Baza, Painted Button-quail, and Rose Robin—although many of these were recorded only once or twice. Golden Whistler, Yellow-faced Honeyeater, and both pardalotes were present only in autumn and/or winter. Species that were present only in the warmer months of the year were Eastern Koel, Oriental Dollarbird, Rufous Fantail, and Little Lorikeet. These patterns are generally consistent with patterns at other sites around the Toowoomba escarpment.

In the early stages of the project, several bowers of Satin Bowerbird were active in Nielsen Park. This situation changed in later stages as bowers disappeared and presently only one is known to the FEP team that regularly performs weeding in the park. It is well known [9] that males destroy rivals' bowers but perhaps other factors have also contributed to this change, which coincided with very wet years. Perhaps there has been an increase in predatory cats in the park (a domestic tagged cat was photographed in the park at night by a remote camera); more study might clarify this.

Nest of Eastern Whipbird in Nielsen Park, after the breeding event, Spring 2001.

Discussion and conclusions

Methods applied in the project were essentially the same as those applied widely in Australia for survey of woodland birds and based on protocols established by BirdLife Australia in its Birdata recording application. Given the high number of surveys at Nielsen Park, that sample has been more than adequate for performing some basic analyses of the data. Arguably, the close similarity of some results between the two 2 ha plots, set in similar habitat, also support the conclusion that the survey methods were effective. Another positive outcome was the similarity of results from years 1 and 2, with years 3 and 4, where a different sampling regime was applied in each of those two periods; the second approach had the added benefit of introducing nocturnal surveys. Overall, therefore, we conclude that the methods used for this project were appropriate and successful in meeting the objective of establishing a comprehensive contemporary baseline of bird biodiversity in Nielsen Park. As the middle section of the park was not regularly surveyed and as surveys were limited to 20 minutes in each plot, it is possible that some bird species may have been missed by the observers.

Purely in terms of number of species recorded, it has been demonstrated that Nielsen Park supports a substantial richness of bird species. There is also diversity across many bird families or groups. However, it is also clear that many species, especially the small bushbirds, occur infrequently and/or in low numbers and that the bird fauna is dominated by Noisy Miners and other aggressive bird species. This is an outcome that has been recorded in a nearby property with similar habitat and

[9] See: Destruction of bowers… in https://hanzab.birdlife.org.au/species/satin-bowerbird/#social-organisation

extent, but with fewer shrubs, on eastern Stenner Street and qualitatively seems to be commonplace in the urban parks of Toowoomba and other cities of south-eastern Queensland.

It would be instructive for habitat management if a clear relationship between intervention (weed removal and regeneration of the native shrub layer) and change to bird fauna could be confidently demonstrated. Unfortunately, the high spatial and temporal mobility of birds and their interests in far distant habitats from time to time means that such a conclusion can rarely be drawn. A perfectly healthy area of forest may seem to be underused by birds, but that can be partly due to availability of food and habitat elsewhere—annually or episodically. One of us was aware that Eastern Whipbirds, a vocally conspicuous bird, had not been present in Nielsen Park for some years before a return in about January 2021; this may have been partly due to the advanced stage of restoration of the shrub layer from FEP intervention but the return of wet conditions after severe drought may have been just as important an influence.

Both the dominance of Noisy Miners and scarcity of small bushbirds—which are doubtless interrelated—in Nielsen Park seem likely to have been most strongly caused by the increased isolation of the park from similar but extensive bushland habitat. More than a decade earlier than the present project, houses were built right around the park, several properties wide. Despite well-developed gardens and persistence of native trees in some cases, Nielsen Park is now effectively an island of forest habitat, creating great challenges for movement of birds, especially the small bushbirds, across the landscape. Such birds in Nielsen Park risk local extinction although a few birds may repopulate now and then, especially in wetter periods. Historical records indicate a greater number of species of small bushbird occurring in Nielsen Park many decades earlier; a notable exception has been Painted Button-quail for which apparently there were no previous records.

With the benefits of many years of weeding and habitat management by FEP and TRC, and ongoing commitment to maintain this situation, Nielsen Park presently may be as good a habitat for bushbirds as is possible there. Restoration of connectivity to wider areas of escarpment bushland seems to be a highly desirable strategy for improving and sustaining the bushbird community in Nielsen Park—but that is most unlikely given present land ownership and the scale of reconnection now needed. It would surely be of great benefit to bird fauna and other wildlife in Nielsen Park if neighbouring households ensured that their domestic cats remained indoors at night.

Further bird surveys may reveal occasional new bird species and possibly some that become more than passing visitors. However, continuation of bird surveys by A Rocha in Nielsen Park probably will not be the best use of available resources, which are presently rather limited.

We commend Nielsen Park as a particularly well-managed, urban bushland park that is a pleasant place for walking and observing and teaching about nature. Hopefully, the ringing calls of whipbirds will continue to be heard in Nielsen Park for many years to come.

Tawny Frogmouth at daytime roost in Nielsen Park; and a juvenile Dollarbird being fed by an adult, in Nielsen Park, January 2022.

All photos in the report are by R. Jaensch.

Annex 1. Bird species recorded at Nielsen Park from all A Rocha surveys, 2020 to 2023.

Common Name	Scientific Name	Number of records (n = 146 surveys)	Highest number counted #	Number of breeding records
Australasian Figbird	Sphecotheres vieilloti	8	6	
Australian Brush-turkey	Alectura lathami	40	4	2
Australian King-Parrot	Alisterus scapularis	44	6	
Australian Magpie	Gymnorhina tibicen	51	5	1
Australian Wood Duck	Chenonetta jubata	12	5	u
Barking Owl	Ninox connivens	1	2	
Black-faced Cuckoo-shrike	Coracina novaehollandiae	5	2	
Blue-faced Honeyeater	Entomyzon cyanotis	3	5	
Brown Falcon	Falco berigora	1	1	
Brown Goshawk	Accipiter fasciatus	1	1	
Brown Thornbill *	Acanthiza pusilla	6	2	
Cattle Egret	Bubulcus ibis	3	6	
Common Myna	Acridotheres tristis	1	2	
Crested Pigeon	Ocyphaps lophotes	25	5	
Eastern Koel	Eudynamys orientalis	2	1	
Eastern Whipbird *	Psophodes olivaceus	32	4	1
Eastern Yellow Robin *	Eopsaltria australis	3	1	
Galah	Eolophus roseicapilla	89	20	1
Golden Whistler *	Pachycephala pectoralis	9	2	
Grey Butcherbird	Cracticus torquatus	50	2	1
Grey Fantail *	Rhipidura albiscapa	2	2	
Laughing Kookaburra	Dacelo novaeguineae	54	9	1
Lewin's Honeyeater *	Meliphaga lewinii	2	1	
Little Corella	Cacatua sanguinea	26	16	1
Little Friarbird	Philemon citreogularis	1	1	
Little Lorikeet *	Glossopsitta pusilla	5	3	
Magpie-lark	Grallina cyanoleuca	7	2	
Masked Lapwing	Vanellus miles	1	1	
Mistletoebird *	Dicaeum hirundinaceum	1	1	
Musk Lorikeet	Glossopsitta concinna	9	14	
Noisy Friarbird	Philemon corniculatus	3	1	
Noisy Miner	Manorina melanocephala	108	28	6
Olive-backed Oriole	Oriolus sagittatus	2	1	
Oriental Dollarbird	Eurystomus orientalis	7	3	1
Pacific Baza	Aviceda subcristata	2	1	
Painted Button-quail *	Turnix varius	3	2	
Pale-headed Rosella	Platycercus adscitus	56	8	
Pheasant Coucal	Centropus phasianinus	1	1	
Pied Butcherbird	Cracticus nigrogularis	5	2	
Pied Currawong	Strepera graculina	82	9	1
Rainbow Lorikeet	Trichoglossus moluccanus	99	20	1
Rose Robin *	Petroica rosea	1	1	
Rufous Fantail *	Rhipidura rufifrons	1	1	
Satin Bowerbird	Ptilonorhynchus violaceus	41	3	u
Scaly-breasted Lorikeet	Trichoglossus chlorolepidotus	86	45	u
Southern Boobook	Ninox boobook	9	4	1
Spotted Dove	Spilopelia chinensis	2	1	
Spotted Pardalote *	Pardalotus punctatus	10	3	
Square-tailed Kite	Lophoictinia isura	3	1	
Striated Pardalote *	Pardalotus striatus	6	2	
Sulphur-crested Cockatoo	Cacatua galerita	8	4	
Tawny Frogmouth	Podargus strigoides	22	3	
Torresian Crow	Corvus orru	11	4	
Welcome Swallow *	Hirundo neoxena	13	3	
White-browed Scrubwren *	Sericornis frontalis	24	3	
Yellow-faced Honeyeater *	Caligavis chrysops	3	6	
Yellow-tailed Black-Cockatoo	Zanda funerea	2	3	

* = small bushbird; n = total number of ARA surveys; # = from any 2ha plot, in one survey; u = unconfirmed.

Annex 2. Birds recorded in each of the two 2ha plots at Nielsen Park, all years 2020-2023.

common name	number of records	highest count	average count in 2ha	found breeding	number of records	highest count	average count in 2ha	found breeding
	NORTHERNMOST 2HA PLOT				SOUTHERNMOST 2HA PLOT			
Australasian Figbird	4	6	4.0		4	3	2.0	
Australian Brush-turkey	29	4	1.8	yes	11	4	1.3	yes
Australian King-Parrot	24	6	2.3		20	4	2.5	
Australian Magpie	29	5	1.7		22	5	1.8	yes
Australian Wood Duck	4	4	1.8		8	5	2.4	
Black-faced Cuckoo-shrike	2	1	1.0		3	2	1.7	
Blue-faced Honeyeater	1	5	5.0		2	2	2.0	
Brown Falcon					1	1	1.0	
Brown Goshawk					1	1		
Brown Thornbill *	4	2	1.5		2	1	1.0	
Cattle Egret	2	6	3.5		1	1	1.0	
Common Myna	1	2	2.0					
Crested Pigeon	22	5	1.5		2	1	1.0	
Eastern Koel	1	1	1.0		1	1	1.0	
Eastern Whipbird *	13	2	1.2		18	3	1.4	
Eastern Yellow Robin *	3	1	1.0					
Galah	40	8	2.7	yes	49	20	6.7	
Golden Whistler *	7	2	1.3		2	1	1.0	
Grey Butcherbird	27	2	1.5	yes	23	2	1.3	
Grey Fantail *					1	2	1.5	
Laughing Kookaburra	26	4	1.9	yes	28	9	2.0	
Lewin's Honeyeater *					2	1	1.0	
Little Corella	4	2	1.3		22	16	3.9	yes
Little Friarbird	1	1	1.0					
Little Lorikeet *	1	3	3.0		4	3	1.8	
Magpie-lark	4	2	1.3		3	2	1.3	
Masked Lapwing	1	1	1.0					
Mistletoebird *					1	1	1.0	
Musk Lorikeet	5	14	9.2		4	9	7.5	
Noisy Friarbird	2	1	1.0		1	1	1.0	
Noisy Miner	55	28	9.9	yes	53	16	7.8	yes
Olive-backed Oriole	1	1	1.0		1	1	1.0	
Oriental Dollarbird					7	3	1.4	yes
Pacific Baza	1	1						
Painted Button-quail *	3	2						
Pale-headed Rosella	24	5	2.1		32	8	3.0	
Pheasant Coucal	1	1						
Pied Butcherbird	2	2	1.5		3	2	1.7	
Pied Currawong	43	9	2.3	yes	39	8	2.2	
Rainbow Lorikeet	50	19	6.1	yes	49	20	6.4	
Rose Robin *	1	1						
Rufous Fantail *	1	1	1.0					
Satin Bowerbird	18	2	1.2		22	3	1.3	
Scaly-breasted Lorikeet	40	45	7.1		46	25	7.5	
Southern Boobook	6	4	2.2	yes	3	2	1.3	
Spotted Dove	1	1	1.0		1	1	1.0	
Spotted Pardalote *	1	2	2.0		9	3	1.4	
Square-tailed Kite					2	1		
Striated Pardalote *	3	1	1.0		3	2	1.3	
Sulphur-crested Cockatoo	2	2	1.5		6	4	2.2	
Tawny Frogmouth	18	3	2.0		3	2	1.3	
Torresian Crow	6	4	1.8		5	4	1.6	
Welcome Swallow *	4	2	1.3		9	3	1.3	
White-browed Scrubwren *	9	3	1.6		15	2	1.5	
Yellow-faced Honeyeater *	1	3	3.0		2	6	4.0	
Yellow-tailed Black-Cockatoo					2	3	2.5	

* indicates a small bushbird

red font indicates recorded only in an incidental survey