

Year 3 of bird surveys by A Rocha Australia at Nielsen Park, Middle Ridge, Toowoomba

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Introduction

This report covers the **third** year of a project of A Rocha Australia (ARA), conducted collaboratively with Friends of the Escarpment Parks (FEP) ¹ at Nielsen Park, Toowoomba, southern Queensland. Nielsen Park is owned by Toowoomba Regional Council and lies on a plateau in the south-eastern part of the Toowoomba urban area, the park being at altitude of just over 700m. It protects a remnant stand of eucalypt open-forest that is around 6 hectares in extent and that is mapped as an endangered regional ecosystem.

Short reports have been produced by ARA on the first year of the project, February 2020 to January 2021 and on the second year, covering the next 12 months. Much of the introductory information from those reports is not repeated in this, the third report, covering February 2022 to January 2023.

Management assistance, mainly weeding, has been contributed at Nielsen Park by FEP and until 2022 also by ARA volunteers. Systematic bird surveys in Nielsen Park were started by several members of ARA in early 2020, to build a baseline knowledge of bird fauna in a standardised, replicable fashion and to inform property management. These bird surveys, at two plots each of 2.0 hectares and conducted over 20 minutes at each plot, continued in Year 3.

However, rather than monthly surveys as had been undertaken in the first two years, in Year 3 the surveys were conducted only on one day in the middle of each of the four seasons—but with both plots being surveyed four times: soon after sunrise, mid-morning, late afternoon and soon after sunset. Thus, instead of attempting monthly (12) sets of two (total = 24) surveys, the method in Year 3 involved four sets of eight (= 32) surveys. This larger 'sample' included the first systematic assessment of nocturnal birds in the park. Furthermore, a remote camera was occasionally used to determine the presence and identity of ground-dwelling birds and results from this effort and several incidental sightings are considered in some sections of this report.

Results from the third year (Feb. 2022 to Jan. 2023)² and comparisons with Years 1 & 2

1. The principal surveys in Year 3 were in the middle of April, July, October and January, involving one to three observers in any one survey. The total number of **bird records** entered to the Birddata national database in Year 3 was 288 (cf. 261 in Year 1 & 326 in Year 2), from 32 standardised **surveys** (Year 1 = 26, Year 2 = 30).
2. The total number of **species** recorded from all surveys was 36 (cf. 35 in Year 1, 40 in Year 2).
 - Nationally Threatened Species = nil. Migratory³ Species = nil.
 - Non-indigenous (introduced) species = nil.
 - The cumulative list for the project is 51 bird species, after 116 surveys (of all types).

¹ FEP website: <http://fep.org.au/>

² For this report, data have been combined for the two plots in Nielsen Park unless indicated otherwise.

³ Under the Commonwealth's EPBC Act 1999; each a Matter of National Environmental Significance (MNES).



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

3. **Species added** to the project list in Year 3 included Painted Button-quail (3 records, in July 2022), Pacific Baza (2) & Grey Fantail (1). See Annex 2 for the cumulative list of species.
4. Species found **breeding** in the Park in the year from February 2022 to January 2023 included Southern Boobook (adults with a juvenile) and Pied Currawong (sitting on a nest).
5. Species recorded in **each 2ha plot**: 42 in the northern plot; 44 in the southern plot.
6. The most **frequently recorded** species in Year 3: Noisy Miner (25 surveys), Rainbow Lorikeet (23), Scaly-breasted Lorikeet (23), Galah (20) and Pied Currawong (16) (out of 32 surveys, 2ha-20min type, 24 of them in daylight hours: see Annex 1).
7. The **most abundant** species in Year 3, based on the crude cumulative tally of individuals across all surveys: Noisy Miner (243 individuals), Scaly-breasted Lorikeet (162), Rainbow Lorikeet (126), Galah (81) and Australian King Parrot (35). (See Annex 1). In terms of **average number counted**, when the species was detected and the number of surveys in which it was detected was at least 8, the top species were the same five and in the same order (Annex 1).
8. The crude cumulative abundance of common **aggressive/predatory** species in all three years (2ha data only) is summarized in the next table. Results were broadly similar across all three years apart from a substantial drop in numbers for the two largest-sized species in Year 3.

species	cumulative number of individuals counted		
	Year 1	Year 2	Year 3
Grey Butcherbird	18	23	18
Laughing Kookaburra	30	39	20
Noisy Miner	217	250	243
Pied Currawong	63	44	28

9. Number of records of **small bush birds** of lower strata in forest at Nielsen Park is shown in the next table. In Year 3, the number of such species was less than in Year 2 but more than in Year 1; and one species was added whereas three bush bird species were not detected.

species	number of records		
	Year 1	Year 2	Year 3
Brown Thornbill	3	3	
Eastern Whipbird	1	12	9
Golden Whistler		2	4
Grey Fantail			1
Lewin's Honeyeater		2	
Rufous Fantail		1	
White-browed Scrubwren	5	8	7

10. Some six bird species were recorded in the eight **nocturnal surveys**, as shown below. The brush turkeys were roosting high in a bunya pine; the kookaburra and miner also were found roosting; and the lapwing was flying overhead. Boobooks and frogmouths are relatively common in urban Toowoomba and thus their presence as nocturnal-feeding species was not surprising; the boobook also had a juvenile in the park.

species	number of records	max. count
Australian Brush-turkey	3	4
Laughing Kookaburra	2	1
Masked Lapwing	1	1
Noisy Miner	1	1
Southern Boobook	7	4
Tawny Frogmouth	3	2

11. Analysis of data **by season** (2ha data only, based on number of records), for Year 3. These preliminary indications of seasonality may eventually be verified by additional data:

- 17 species seem to be resident in the park, 11 of them showing no clear seasonal bias, including Brush Turkey, Little Corella, Satin Bowerbird and probably both Southern Boobook and Tawny Frogmouth.
- Six of these apparent residents showed a seasonal bias in Year 3, being recorded in more surveys in spring, summer and/or autumn, although seasonal reduction of calling might account for this pattern in some, notably Eastern Whipbird. White-browed Scrubwren was recorded more often in autumn-winter than other seasons.
- 11 species were recorded only in a particular season or seasons, 8 in autumn-winter and 7 in spring-summer. Examples included: Australian Wood Duck in spring (for nesting in tree holes?); Golden Whistler and Spotted Pardalote in autumn and winter (many of these visit the region from colder regions in those seasons); Dollarbird in summer (nesting in tree holes?); and Square-tailed Kite (occasional non-breeding visitor) and Little Lorikeet (in flowering bloodwood trees) in summer.
- Five species seemed to be one-off visitors in Year 3 and included Grey Fantail and Yellow-tailed Black-Cockatoo in autumn, and Noisy Friarbird in spring.
- Reports of previous-year surveys show some similar or identical seasonal patterns to those from Year 3 but a cumulative comparison has not yet been attempted.



Female Satin Bowerbird, as photographed by remote camera

12. Bird **usage of sites** (northern or southern ends of the park) in Year 3 has not been analysed thoroughly but preferences noted in the report of Year 2 surveys seem to hold largely still true. A decline in Satin Bowerbird usage of the park in terms of number of active bowers, has continued, without obvious explanation; a possible contributing factor is that, with the wetter conditions than in Year 1 and beforehand, favoured sites for some bowers have become overgrown with ground cover and by expanding native shrubs.

Discussion and conclusions

1. The number of bird species recorded at Nielsen Park in this project increased by five (11%) as a result of the Year 3 surveys. Such a result was anticipated (see previous reports) and is likely to continue for at least several more years given the high mobility and wandering of birds, and the short time-span of the project thus far.
2. This increase included one more species of small bush bird of the lower stratum. Whereas several small bush bird species from Year 2 were not recorded, it is recognized that some may have been transitory or vagrants, thus very easily missed in the quarterly survey regime. Of possible concern is the apparent loss of Brown Thornbill in Year 3, although some past records of this species were from the middle area between the two plots, which was not surveyed in Year 3. The number and diversity of small bush birds at Nielsen Park (point 9, above) remains relatively low compared to nearby areas of similar habitat (e.g. Duggan Park, eastern Nelson Street); probably this is due both to the isolation of Nielsen Park (surrounded by houses) and to the high abundance of aggressive Noisy Miners throughout Nielsen Park, but not so much to habitat quality given the park's rich and dense shrub layer.
3. Although the exact impact is not totally clear, the above-average rainfall in Toowoomba in 2021 followed by very much above-average rainfall in 2022 surely has had some impact on bird usage of Nielsen Park—recalling that severe drought was in force up to the start of 2020, when the project started. Among other considerations, ground cover has become more diverse, extensive, tall and dense; some birds may have left the local area to exploit temporarily better (revitalised) habitat; and food sources in the park undoubtedly will have changed. The latter may help explain the discovery, apparently for the very first time, of Painted Button-quail (2 birds on 3 occasions) in a small area in the northern part of the park; perhaps also due to highly successful breeding in the Toowoomba region, leading to local expansion of range (this species also became more prevalent in Duggan Park). The button-quail were not detected at Duggan Park in spring 2022 or summer 2022-3 surveys and no more feeding scrapes were noted by ARA/FEP.
4. A domestic cat, with a collar, was recorded on remote camera in July 2022 in the same site as where the Painted Button-quail had been feeding. With houses surrounding the park, survival of birds such as button-quail must be in doubt although the whipbirds seem to have held on.
5. With the program of four surveys at different times of day, Year 3 saw the introduction of systematic nocturnal surveys. These yielded just a small number of species—which is hardly unusual anywhere—and many records of Southern Boobook including evidence of breeding, justifying inclusion of nocturnal surveys in the program.
6. The altered frequency and intensity of surveys in Year 3 may have had some impact on the results simply because the spread across months was reduced from 12 to four, knowing that birds may occur episodically at a site or occur as vagrants. However, the above results support the conclusion that the program of quarterly surveys was successful and should be continued—not least because it requires a much-reduced commitment by the volunteer observers on their annual calendars.

Annex 1. Data on bird species recorded at Nielsen Park in Year 3 of the ARA project

Common Name	no. of records in regular surveys (in 2ha)	no. of additional records	gross total number of individuals (in 2ha)	average count when recorded (in 2ha)
Australasian Figbird	3		12	4.0
Australian Brush-turkey	8	1	12	1.5
Australian King-Parrot	14		35	2.5
Australian Magpie	11	4	17	1.5
Australian Wood Duck	3		5	1.7
Black-faced Cuckoo-shrike	1		1	1.0
Cattle Egret	1		6	6.0
Crested Pigeon	3		3	1.0
Dollarbird	2	1	2	1.0
Eastern Whipbird	9		12	1.3
Galah	20	1	81	4.1
Golden Whistler	3	1	5	1.7
Grey Butcherbird	14		18	1.3
Grey Fantail	1		1	1.0
Laughing Kookaburra	13	2	20	1.5
Little Corella	7	1	16	2.3
Little Lorikeet	2		4	2.0
Magpie-lark	1		2	2.0
Masked Lapwing	1		1	1.0
Noisy Friarbird	1		1	1.0
Noisy Miner	25	3	243	9.7
Pacific Baza		2		
Painted Button-quail		3		
Pale-headed Rosella	14	1	26	1.9
Pied Butcherbird	2		4	2.0
Pied Currawong	16	2	28	1.8
Rainbow Lorikeet	23	2	126	5.5
Satin Bowerbird	8	3	11	1.4
Scaly-breasted Lorikeet	23		162	7.0
Southern Boobook	3	4	7	2.3
Spotted Pardalote	4		6	1.5
Square-tailed Kite		2		
Tawny Frogmouth	4	2	7	1.8
Welcome Swallow	4		7	1.8
White-browed Scrubwren	7		10	1.4
Yellow-tailed Black-Cockatoo	1		2	2.0

Annex 2. Species recorded at Nielsen Park from all ARA surveys, over 3 years to Jan. 2023

Common Name	Scientific Name
Australian Wood Duck	<i>Chenonetta jubata</i>
Australian Brush-turkey	<i>Alectura lathamii</i>
Crested Pigeon	<i>Ocyphaps lophotes</i>
Eastern Koel	<i>Eudynamys orientalis</i>
Tawny Frogmouth	<i>Podargus strigoides</i>
Masked Lapwing	<i>Vanellus miles</i>
Painted Button-quail	<i>Turnix varius</i>
Cattle Egret	<i>Bubulcus ibis</i>
Square-tailed Kite	<i>Lophoictinia isura</i>
Pacific Baza	<i>Aviceda subcristata</i>
Brown Goshawk	<i>Accipiter fasciatus</i>
Barking Owl	<i>Ninox connivens</i>
Southern Boobook	<i>Ninox boobook</i>
Dollarbird	<i>Eurystomus orientalis</i>
Laughing Kookaburra	<i>Dacelo novaeguineae</i>
Yellow-tailed Black-Cockatoo	<i>Zanda funereus</i>
Galah	<i>Eolophus roseicapilla</i>
Little Corella	<i>Cacatua sanguinea</i>
Sulphur-crested Cockatoo	<i>Cacatua galerita</i>
Australian King-Parrot	<i>Alisterus scapularis</i>
Pale-headed Rosella	<i>Platycercus adscitus</i>
Musk Lorikeet	<i>Glossopsitta concinna</i>
Little Lorikeet	<i>Glossopsitta pusilla</i>
Rainbow Lorikeet	<i>Trichoglossus moluccanus</i>
Scaly-breasted Lorikeet	<i>Trichoglossus chlorolepidotus</i>
Satin Bowerbird	<i>Ptilonorhynchus violaceus</i>
Noisy Friarbird	<i>Philemon corniculatus</i>
Little Friarbird	<i>Philemon citreogularis</i>
Blue-faced Honeyeater	<i>Entomyzon cyanotis</i>
Lewin's Honeyeater	<i>Meliphaga lewinii</i>
Yellow-faced Honeyeater	<i>Caligavis chrysops</i>
Noisy Miner	<i>Manorina melanocephala</i>
Spotted Pardalote	<i>Pardalotus punctatus</i>
Striated Pardalote	<i>Pardalotus striatus</i>
White-browed Scrubwren	<i>Sericornis frontalis</i>
Brown Thornbill	<i>Acanthiza pusilla</i>
Black-faced Cuckoo-shrike	<i>Coracina novaehollandiae</i>
Golden Whistler	<i>Pachycephala pectoralis</i>
Eastern Whipbird	<i>Psophodes olivaceus</i>
Australasian Figbird	<i>Sphecotheres vieilloti</i>
Olive-backed Oriole	<i>Oriolus sagittatus</i>
Pied Currawong	<i>Strepera graculina</i>
Australian Magpie	<i>Gymnorhina tibicen</i>
Pied Butcherbird	<i>Cracticus nigrogularis</i>
Grey Butcherbird	<i>Cracticus torquatus</i>
Rufous Fantail	<i>Rhipidura rufifrons</i>
Grey Fantail	<i>Rhipidura fuliginosa</i>
Torresian Crow	<i>Corvus orru</i>
Magpie-lark	<i>Grallina cyanoleuca</i>
Mistletoebird	<i>Dicaeum hirundinaceum</i>
Welcome Swallow	<i>Hirundo neoxena</i>