

Bird surveys by A Rocha Australia at Nielsen Park Middle Ridge, Toowoomba, in 2020

Roger Jaensch, Rob Brodribb & John Wall
January 2021

Introduction

The project is located at Nielsen Park, Middle Ridge, within the south-eastern part of the plateau at altitude around 600m on which sits the city of Toowoomba, southern Queensland. The property is owned and managed by Toowoomba Regional Council with management assistance (mainly weeding) contributed by a community group, Friends of the Escarpment Parks Inc. (FEP), and collaborating volunteers (A Rocha Australia: ARA).

Nielsen Park protects a remnant less than 6 hectares in extent of eucalypt open-forest dominated by New England blackbutt *Eucalyptus montivaga* (= *E. andrewsii*) and common blackbutt *E. pilularis*, with associated pink bloodwood *Corymbia intermedia* and some grey gum *E. propinqua* on red volcanic soil. Many of these trees have died over the past two years, presumably due to drought (major regional droughts in the 2000s and 2010s), long-term decline in rainfall and/or increase in temperature. Lying under the trees through much of the park, but least so in the southernmost part, is a diverse tall shrub layer with many 'dry rainforest' (softwood scrub) species—common shrubs are *Pittosporum undulatum*, coffee bush *Breynia oblongifolia* and *Trema tomentosa*—as well as taller *Acacia* species. The ground layer has a rich mix of indigenous and some introduced plant species. Under Queensland legislation (Vegetation Management Act 1999) the entire park is mapped as an Endangered regional ecosystem (RE 12.8.1a) ¹ which in Toowoomba, on the cusp of the Great Dividing Range, is now confined to several small patches in the outer south-east of the plateau.



Bird survey plots: yellow line indicates northern plot (site) boundary; blue line indicates southern plot. Each plot covers 2.0 hectares.

¹ <https://apps.des.qld.gov.au/regional-ecosystems/details/?re=12.8.1>

Surveys of birds in Nielsen Park were started by several members of ARA and FEP in early 2020, to build a baseline knowledge of bird fauna in a systematic, replicable fashion and to inform property management. It is hoped that, after enough years, the benefits of weeding and encouragement of regeneration of indigenous vegetation will be manifest in positive changes in the park's avifauna.

Surveys were conducted by the authors, mainly RJ and RB but occasionally just one observer; this variation and differences in time of day and weather are not considered to have greatly influenced the survey results in the context of a 12-month period. The '2.0 ha, 20 minute' method of BirdLife Australia was applied and records were documented in the *Birdata* app; the data are publicly available online.

Surveys were conducted in two plots (sites), each of 2.0 hectares, of irregular shape; one covers the northernmost part of the park and the other the southernmost, with a slightly smaller area of similar habitat separating the two plots (see map). Habitat in the two plots was broadly similar but the density, height and extent of shrubs were generally greater in the northern plot and many small trees of introduced bunya pine occurred there. The southern plot is at the nearest points of connection to large blocks of forest/woodland on the east-facing escarpment of the Divide, lying 400m to south and 600m to south-east; a narrow incomplete corridor of trees runs off the park's SE corner.

Results from the first year (February 2020 to January 2021)

1. Number of survey efforts (property visits) in 2020 = 14, being monthly except in June, August and October when an extra visit was made. Thus, a seasonal bias in the unadjusted data.
2. Total number of surveys conducted = 26 standardised surveys and 6 incidental surveys.
3. Total number of bird records = 261.
4. Total number of species recorded, from all surveys = 35.
 - Includes non-indigenous (introduced) species = 0.
 - Nationally Threatened² Species = 0.
 - Migratory³ Species = 0.
5. Total number of species found breeding⁴, from all surveys = 6.
6. Number of species, and breeding, by site:

Site (2 ha plot)	species recorded	Species found breeding
northern	26	Laughing Kookaburra, Noisy Miner (3 efforts), Grey Butcherbird, Australian Brush-turkey.
southern	30	Australian Magpie, Little Corella.

² Under the Commonwealth's EPBC Act 1999; a Matter of National Environmental Significance (MNES).

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

⁴ Includes behaviour strongly suggestive of breeding.



Images of Nielsen Park showing tree and shrub layers. Photos: R. Jaensch



7. Species of ornithological interest due to general rarity (small population and/or large area of territory), occurrence at margins of known range, unusual in this habitat, or secretive behaviour (not commonly detected):

- Square-tailed Kite ⁵ (Seen in small numbers around Toowoomba in autumn.)
- Barking Owl ⁶ (A pair holding territory across this SE corner of Toowoomba in 2020.)

8. Most frequently recorded species ⁷:

rank	species	% of surveys (n=26)
1	Noisy Miner	100
2	Pied Currawong	96
3	Rainbow Lorikeet	92
4	Galah	85
5	Scaly-breasted Lorikeet	81
=6	Laughing Kookaburra	50
=6	Grey Butcherbird	50
=8	Australian Magpie	46
=8	Australian King-Parrot	46
=8	Satin Bowerbird	46

9. Most abundant species, based on cumulative tally of individuals across all surveys ⁸:

rank	species	No. of individuals
1	Noisy Miner	217
2	Rainbow Lorikeet ⁹	131
3	Scaly-breasted Lorikeet ¹⁰	130
4	Galah	128
5	Pied Currawong	63
6	Australian King-Parrot	33
7	Laughing Kookaburra	30
8	Pale-headed Rosella	29
9	Australian Magpie	21
10	Grey Butcherbird	18

10. Analysis of data by season (2 ha data only):

The number of seasonal samples is too small at this stage to conduct robust analysis. But some preliminary indications of seasonality may eventually prove to be meaningful:

- About a dozen species might be considered residents of the Park, being recorded in all four seasons; less common examples are Australian King Parrot, Pale-headed Rosella and Satin Bowerbird.
- Striated Pardalote was recorded only in autumn and winter and Little Corella only in winter and spring.
- Olive-backed Oriole and Yellow-faced Honeyeater were recorded only in autumn and Musk Lorikeet only in winter.

⁵ Not recorded in a standardised survey—documented via an incidental survey record.

⁶ Not recorded in a standardised survey—documented via an incidental survey record.

⁷ Using data for the northern plot & for the southern plot, standardized surveys only.

⁸ Using data for the northern plot & for the southern plot, standardized surveys only.

⁹ Considered to have been significantly undercounted due to difficulty of detection in tall tree canopies.

¹⁰ As for footnote (9).



Satin Bowerbird and one of the bowers in Nielsen Park in mid-2020



Tawny Frogmouth at daytime roost in Nielsen Park
Photos: R. Jaensch

11. Information on bird usage of particular sites (northern or southern ends of the park):

The number of samples by site is too small at this stage to conduct robust analysis. But some preliminary indications of preference may eventually prove to be meaningful:

- Satin Bowerbird was recorded six times in each plot, more females than males, as is to be expected. In the earlier surveys, there was a cluster of three apparently active bowers under *Trema* shrub seedlings in the far north of the park and one active bower in the south-east. Towards the later part of 2020, all of these bowers were abandoned and dismantled, apparently *not* due to human or animal-pest interference. Bowerbirds remain in the park and possibly the change in bowers involved the actions of new or rival males.
- All but one of the 10 records of Brush-turkey were in the northern plot, possibly because the greater density and maturity of shrubs and generally moister habitat is more suited to its mound-nesting regime. At least two active mounds lie in this plot and are unusually large in diameter.
- A pair of roosting Tawny Frogmouths was documented on five occasions, all in the northern plot, possibly due to the denser cover there.
- The two small bush birds of the lower strata, Brown Thornbill and White-browed Scrubwren, were recorded in both plots, collectively six records in the southern plot and four in the northern. They were also seen in the middle section, which is not surveyed in a 2ha plot, and thus seem to be inhabiting much of the park except the SW corner, which has relatively few, more isolated shrubs.

12. Comments on the results:

- The lists of most frequently recorded and most abundant species at Nielsen Park are dominated by noisy/aggressive species, notably Noisy Miner, Pied Currawong and Grey Butcherbird. These birds are typical of suburban Toowoomba and semi-open habitats but less prevalent inside large blocks of woodland (R. Jaensch obs.).
- It is therefore not surprising that only eight bird species of Noisy Miner size or smaller were recorded whereas local bushland of similar type at Duggan Park supports 32 such species (R. Jaensch records in *Birddata*, from 21 surveys in a standardized plot of 500m radius). The maximum count for any of the eight at Nielsen was only two individuals.
- Of these eight bird species, only Brown Thornbill, White-browed Scrubwren and Eastern Whipbird are ground and/or lowest stratum dwellers.
- The record of Eastern Whipbird—a single bird, in immature plumage, calling weakly—in the northern plot on 16 January 2021 was of great interest because the species had not been noticed in the park for over two years. Later in January 2021 a whipbird was seen also in the southern plot (R. Brodribb obs., not in this analysis).
- There has been an increase in occurrence and numbers (up to 3) of White-browed Scrubwren at a property backing on to the park (next to the northern plot) over the past six months.
- These few records of small bush birds are encouraging and provide some evidence that the program of weeding in the park led by FEP (and supported by ARA), which has contributed to the proliferation of indigenous shrubs following removal of exotic species (e.g. lantana and privet), may be proving beneficial to wild birds. It is, however, difficult to draw robust conclusions given the variable climate (drought in 2018 and 2019; near average in 2020) and other factors that influence the avifauna.
- Note that none of the 35 recorded species (see below) is an introduced species despite the park being surrounded by suburban housing. Species such as Spotted Dove and Common Mynah seem to mostly avoid the park.
- Further surveys will strengthen our capacity to draw strong conclusions about how birds use different habitats and sectors at Nielsen Park.

List of species recorded to date

Common Name	Scientific Name
Australasian Figbird	<i>Sphecotheres vieilloti</i>
Australian Brush-turkey	<i>Alectura lathami</i>
Australian King-Parrot	<i>Alisterus scapularis</i>
Australian Magpie	<i>Gymnorhina tibicen</i>
Australian Wood Duck	<i>Chenonetta jubata</i>
Barking Owl	<i>Ninox connivens</i>
Black-faced Cuckoo-shrike	<i>Coracina novaehollandiae</i>
Blue-faced Honeyeater	<i>Entomyzon cyanotis</i>
Brown Goshawk	<i>Accipiter fasciatus</i>
Brown Thornbill	<i>Acanthiza pusilla</i>
Crested Pigeon	<i>Ocyphaps lophotes</i>
Dollarbird	<i>Eurystomus orientalis</i>
Eastern Whipbird	<i>Psophodes olivaceus</i>
Galah	<i>Eolophus roseicapilla</i>
Grey Butcherbird	<i>Cracticus torquatus</i>
Laughing Kookaburra	<i>Dacelo novaeguineae</i>
Little Corella	<i>Cacatua sanguinea</i>
Magpie-lark	<i>Grallina cyanoleuca</i>
Mistletoebird	<i>Dicaeum hirundinaceum</i>
Musk Lorikeet	<i>Glossopsitta concinna</i>
Noisy Miner	<i>Manorina melanocephala</i>
Olive-backed Oriole	<i>Oriolus sagittatus</i>
Pale-headed Rosella	<i>Platycercus adscitus</i>
Pied Currawong	<i>Strepera graculina</i>
Rainbow Lorikeet	<i>Trichoglossus moluccanus</i>
Satin Bowerbird	<i>Ptilonorhynchus violaceus</i>
Scaly-breasted Lorikeet	<i>Trichoglossus chlorolepidotus</i>
Spotted Pardalote	<i>Pardalotus punctatus</i>
Square-tailed Kite	<i>Lophoictinia isura</i>
Striated Pardalote	<i>Pardalotus striatus</i>
Tawny Frogmouth	<i>Podargus strigoides</i>
Torresian Crow	<i>Corvus orru</i>
Welcome Swallow	<i>Hirundo neoxena</i>
White-browed Scrubwren	<i>Sericornis frontalis</i>
Yellow-faced Honeyeater	<i>Caligavis chrysops</i>

Note that Southern Boobook was also recorded in the Park on at least one occasion during FEP spotlighting surveys in 2020.