



Kokoda offset site



Bird and kangaroo monitoring 2024

Northparkes

18 December 2024

➔ The Power of Commitment



Project name		Bird and kangaroo monitoring 2024					
Document title		Kokoda offset site Bird and kangaroo monitoring 2024					
Project number		12648607					
File name		12648607_REP_Kokoda offset site_Bird and kangaroo monitoring 2024.docx					
Status Code	Revision	Author	Reviewer		Approved for issue		
			Name	Signature	Name	Signature	Date
S4	A	Jennifer Gainsford	Mal Weerakoon		Nicola Bailey		18/12/2024
S4	1	Mal Weerakoon	Nicola Bailey		Nicola Bailey		18/12/2024

GHD Pty Ltd | ABN 39 008 488 373
133 Castlereagh Street, Level 15
Sydney, New South Wales 2000, Australia
T +61 2 9239 7100 | **F** +61 2 9239 7199 | **E** sydmail@ghd.com | **ghd.com**

© GHD 2024
This document is and shall remain the property of GHD. The document may only be used for the purpose for which it was commissioned and in accordance with the Terms of Engagement for the commission. Unauthorised use of this document in any form whatsoever is prohibited.

Contents

1.	Introduction	1
1.1	Project background	1
1.2	Purpose of this report	2
1.3	Scope and limitations	2
1.4	Assumptions	2
2.	Existing environment	3
2.1	Weather conditions	3
2.2	Personnel	4
3.	Method	5
3.1	Desktop and literature review	5
3.2	Field surveys	5
3.2.1	Winter bird surveys for target threatened avian species	6
3.2.2	Spring bird surveys for target threatened avian species	6
3.2.3	Kangaroo population monitoring	7
4.	Results	11
4.1	Desktop and literature review	11
4.2	Targeted bird surveys	12
4.2.1	Comparison of years and species diversity	12
4.3	Kangaroo population monitoring	15
5.	Discussion and recommendations	16
5.1	Bird species diversity	16
5.1.1	Winter bird surveys for target threatened avian species	16
5.1.2	Spring bird surveys for target threatened avian species	16
5.2	Kangaroo population monitoring	16
5.3	Additional measures	17
6.	References	18

Table index

Table 1	Weather conditions (BoM 2024)	3
Table 2	Desktop and literature review resources	5
Table 3	Recommended survey method for threatened species	6
Table 4	Threatened and migratory species recorded during 2024 Kokoda bird surveys	12
Table 5	Bird diversity across survey periods	13
Table 6	Kangaroo population numbers 2024	15

Figure index

Figure 1: Winter bird survey sites	8
Figure 2: Spring bird survey sites	9
Figure 3: Kangaroo walking transect locations	10
Figure 4: Winter surveys species diversity over survey years 2017-2024	14
Figure 5: Spring surveys species diversity over survey years 2017-2024	14
Figure 6: Kangaroo abundance verse rainfall at the Kokoda site	15

Appendices

Appendix A	Desktop searches
Appendix B	Bird species lists

1. Introduction

Evolution Mining's Northparkes copper and gold mine (Northparkes) is located approximately 27 Kilometres (km) north-west of Parkes, New South Wales (NSW). Northparkes is a joint venture between Evolution Mining (Northparkes) Pty Ltd and Sumitomo Group, with Northparkes Mining Services Pty Ltd as managers of the mine.

Northparkes consists of both underground and open cut mining operations accessing several copper sulphide porphyry ore bodies. In addition, Northparkes farms over 6,000 hectares (ha) of farming country including land within its four existing mining leases.

1.1 Project background

The Northparkes Mines Step Change Project (the Project) was approved with conditions under the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act) (DA11_0060) and Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) (2013/6788) in 2014. Key elements of the Project included:

- Continued underground block cave mining in two existing ore bodies
- The development of an additional underground block cave mine, under one of the existing open cut pits
- Additional campaign open cut mining in existing mine leases
- Augmenting approved Tailings Storage Facilities (TSFs); moving the existing access road; construction of the new TSF (Rosedale)
- Extending the life of the mine by seven years to 2032.

Ecological surveys of the Mine Extension Project area for the Step Change Project recorded two threatened woodland bird species:

- Superb Parrot (*Polytelis swainsonii*) (vulnerable - NSW *Biodiversity Conservation Act 2016* (BC Act) and EPBC Act)
- Grey-crowned Babbler (eastern subspecies) (*Pomatostomus temporalis temporalis*) (vulnerable - BC Act).

Suitable habitat for the following Matters of National Environmental Significance (MNES) was also identified within the Mine Extension Project area:

- Swift Parrot (*Lathamus discolor*) (endangered - BC Act and critically endangered - EPBC Act)
- Regent Honeyeater (*Anthochaera phrygia*) (critically endangered - BC Act and EPBC Act).

As part of the Step Change Project approval conditions, residual impacts resulting from the Project required biodiversity offsetting. To fulfil this requirement, Northparkes secured the Kokoda Offset Area (Kokoda), a 350 ha site located in the Mandagery locality of the Central West Slopes of NSW.

A Biodiversity Offset Management Plan (BOMP) was prepared in 2014 (Umwelt 2014), which guides the short, medium and long-term conservation and management actions at Kokoda. The BOMP was prepared in accordance with the NSW Development Consent (DA11_0060) and Commonwealth Project Approval (EPBC 2013/6788) requirements and provides a framework for the implementation of ecological management actions, regeneration strategies, controls and monitoring programs at Kokoda.

In particular, the BOMP outlines the requirement of threatened bird monitoring to be conducted, in areas of both woodland and recovering Derived Native Grassland (subject to supplementary planting). In 2017, the NSW Office of Environment and Heritage (OEH) (now the NSW Department of Planning and Environment (DPE)) requested, during the revision of the BOMP, that a survey be conducted of kangaroo numbers in the derived native grasslands of the Kokoda Offset Area (KOA). Both diurnal bird and kangaroo monitoring surveys have been conducted each year since 2017.

1.2 Purpose of this report

This report has been prepared by GHD to address the biannual environmental monitoring requirements listed within the BOMP for threatened bird and kangaroo populations at the KOA.

This report aims to:

- Describe the existing environment of the study area, including the results of the desktop assessment and site surveys
- Outline the results of the winter and spring 2024 bird and kangaroo monitoring surveys undertaken at Kokoda, to fulfil the requirements outlined in the BOMP
- Recommend measures for longer term monitoring of key threatened bird and kangaroo populations.

1.3 Scope and limitations

This report has been prepared by GHD for Northparkes and may only be used and relied on by Northparkes for the purpose agreed between GHD and Northparkes as set out in section 1.2 of this report.

GHD otherwise disclaims responsibility to any person other than Northparkes arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report (refer section 1.4 of this report). GHD disclaims liability arising from any of the assumptions being incorrect.

1.4 Assumptions

Although the Project Approvals were issued under the NSW *Threatened Species Conservation Act 1995* (TSC Act), on the 25 August 2017, this act was repealed and replaced with the BC Act. All state listed threatened species formerly listed under the TSC Act are now listed under the BC Act. Any reference to state listed species from here on, should refer to the BC Act rather than the TSC Act.

All survey locations are the same as those completed in the previous bird monitoring years. GHD assumes that these locations and habitat types remain consistent based on the location data provided by Northparkes.

2. Existing environment

The Kokoda Offset Area (KOA) is a 350 ha site located in the Mandagery locality of the Central West Slopes of NSW. Kokoda is located within the Cabonne Council local government area (LGA) which is known for its agriculture, mining, ballooning, food and wine industries.

Prior to purchase by Northparkes, Kokoda was a hobby farm, with the areas of grassy woodland used for sheep grazing and large patches of remnant vegetation occurring in the southern section of the property. Kokoda was strategically selected as it is located along a north-south vegetation corridor, connecting remnant woodland and forest vegetation along the ridges and hills from north of Eugowra in the south to east of Narromine in the north. This vegetation corridor includes Goobang National Park (NPWS 2023), the largest conserved remnant patch of woodland and forest vegetation in the Central West region of NSW.

Supplementary planting was conducted in the winter and spring of 2020 within active regeneration areas identified in the BOMP, and including S1, S6 and S7 as shown in Figure 2. Mortality of some plantings have been observed in these specific regeneration areas. At the time of the 2024 winter survey period the canopy species present at all of the DNG regeneration sites had not reached the minimum height of four meters, and as such no additional surveys were undertaken here in the spring survey.

2.1 Weather conditions

The 2024 weather conditions during bird and kangaroo surveys are detailed in Table 1. Climate data is taken from the Parkes Airport weather station (65068) (BoM 2024), as this is the nearest weather station in the locality. The proposal site is located about 27 km north-west of Parkes (and the weather station).

Table 1 Weather conditions (BoM 2024)

Date	Survey type	Max. temperature (°C)	Min. temperature (°C)	Rainfall (mm)
Winter surveys				
21/08/2024	Kangaroo counts	18.3	8.0	0.0
22/08/2024	Bird surveys	18.1	8.3	0.0
22/08/2024	Kangaroo counts	18.1	8.3	0.0
23/08/2024	Bird surveys	19.5	2.5	0.0
Spring surveys				
27/11/2024	Kangaroo counts	28.3	21.0	3.0
28/11/2024	Bird surveys	31.5	18.5	1.0
28/11/2024	Kangaroo counts	31.5	18.5	1.0
29/11/2024	Bird surveys	27.3	18.9	1.0

From 2017, when surveys commenced at the KOA, until 2019, the region experienced severe drought conditions. These conditions subsided in 2020, where the mean average of rainfall of 637.8 millimetres (mm) was surpassed over the next three years. Total rainfall for 2024 is not yet known, but is tracking towards a 'average' rainfall year with more rainfall predicted throughout December.

Rainfall patterns across the years of survey are as follows:

- 2017 recorded 561.6 mm
- 2018 recorded 328.4 mm
- 2019 recorded 229.8 mm
- 2020 recorded 870.2 mm
- 2021 recorded 857.2 mm
- 2022 recorded 813.0 mm

- 2023 recorded 552.8 mm
- 2024 recorded 596.0 mm (Until 2 December 2024)

2.2 Personnel

Field surveys described in the report were undertaken by Mal Weerakoon (GHD Ecologist) and Ben Harrington (GHD Ecologist). Mal replaces Leigh Maloney, who had previously completed all site surveys and technical review of the reporting from 2017 until 2021 for the KOA. Mal is familiar with the local avian fauna due to his ongoing biodiversity work within the E44 and Rocklands areas of Northparkes Mines and ongoing biannual monitoring surveys at the Kokoda Offset Area for the last three years. Ben Harrington is a Technical Director for Biodiversity at GHD and is experienced in avian fauna ecology and survey within New South Wales.

3. Method

3.1 Desktop and literature review

A desktop review of relevant literature, ecological databases and reports was completed before conducting the site visit in order to identify the existing avian biodiversity values within the KOA (Table 2 and Figure 1).

Table 2 Desktop and literature review resources

Source	Data	Description of source	Search area
Protected Matters Search Tool (PMST) (DCCEEW 2024a)	Information on species and communities listed under the EPBC Act	This search tool does not produce species records, it uses data on species and communities listed under the EPBC Act to produce indicative distribution maps, which are used to inform the likelihood of species presence within an area.	10 km buffer around a rough polygon of the property.
NSW BioNet (2024a)	Government-held information about plants and animals in NSW	This search tool provides records from a variety of sources, including from members of the public and scientific surveys.	Search criteria: Licensed Report of all of all Valid Records of Birds (Class: Aves) in selected area (North: -33.22 West: 148.40 East: 148.50 South: -33.32) returned a total of 740 records and 115 species including 9 threatened species.
Birds Australia (BA) (2024)	Bird data only	Generates a list of species within a drawn polygon. No date or location information provided with records.	Birds listed for a polygon covering the Kokoda property and a roughly 10 km radius.
Northparkes Mines winter and spring bird survey 2015 to 2023 reports	Reports the desktop and field survey results from the ecological surveys undertaken at Kokoda from 2015 to 2023	Surveys and reporting undertaken by GHD senior ecologist in 2017 and 2023 and by Northparkes Mines environment team in 2015 and 2016.	Bird species recorded during targeted bird surveys at Kokoda from 2015 to 2023.
Northparkes Mines Ecological Monitoring Baseline Survey – Winter and Spring 2014 (Umwelt 2014)	Reports the desktop and field survey results from ecological surveys undertaken at Kokoda in 2014	Surveys and reporting undertaken by Umwelt.	Bird species recorded during targeted bird surveys at Kokoda in 2014 (Umwelt 2014).

3.2 Field surveys

‘Winter surveys’ and ‘Spring surveys’ were undertaken during 21-23 August 2024 and 27-29 November 2024, respectively. These periods were generally consistent with periods of surveys undertaken between 2014 to 2023. All survey access was completed on foot.

Winter bird surveys at Kokoda were designed to target the Regent Honeyeater (*Anthochaera phrygia*) and Swift Parrot (*Lathamus discolor*). Spring bird surveys were designed to target the Superb Parrot (*Polytelis swainsonii*) and Grey-crowned Babbler (eastern subspecies) (*Pomatostomus temporalis temporalis*). The recommended survey methods for these species are outlined below in Table 3 as outlined in the Survey Guidelines for Australia’s Threatened Birds (DEWHA 2010) (excluding the Grey-crowned Babbler which is only listed under the BC Act).

Kangaroo population estimates were conducted biannually during both survey periods.

Table 3 Recommended survey method for threatened species

Species	Recommended survey methods (DEWHA 2010)
Winter targeted species	
Regent Honeyeater (<i>Anthochaera Phrygia</i>)	Area searches in suitable habitat, preferably in the morning but other times may also be appropriate. Detection by call is possible when birds are most vocal (outside the breeding season). Otherwise, detection is by sighting. Targeted searches of woodland patches with heavily flowering trees is useful, especially around water points such as dams and creek lines. Also check among flocks of other blossom nomads such as lorikeets and other honeyeaters. Broadcast surveys immediately before and during the breeding season may also be useful.
Swift Parrot (<i>Lathamus discolor</i>)	Area searches or transect surveys of suitable habitat, preferably in the early morning and afternoon when birds are most active and vocal. Detection by sighting or call. Slow-moving vehicle transects also effective in expansive areas, detecting loud, distinctive 'clinking' call that can be heard over noise of engine. Targeted surveys of patches of heavily flowering eucalypts may be useful. Timing: surveys on the mainland should be conducted between March and July.
Spring targeted species	
Superb Parrot (<i>Polytelis swainsonii</i>)	Area searches or transect surveys of suitable habitat, preferably in the early morning (sunrise to 10 am) and evening (4 pm to sunset). Morning surveys may be of greater value as the species' movements is more coordinated at this time. Detection by sighting or call, usually of flying birds. Vehicle-based transects appropriate in areas where most habitat is restricted to roadside remnants. Survey effort will need to be increased outside the breeding season, as dispersal makes the species more difficult to detect.
Grey-crowned Babbler (eastern subspecies) (<i>Pomatostomus temporalis temporalis</i>)	None given. However, the following methods for passerines, including babblers in general, is listed in DEWHA 2010. Diurnal area searches or transect-point surveys in areas of favoured habitat in and around the study area. Detection mostly by sighting and calls, though ravens, swallows and bowerbirds may be detected by nests or bowers.

3.2.1 Winter bird surveys for target threatened avian species

As outlined in the BOMP, the winter bird monitoring consists of '*Site based diurnal winter bird surveys for Regent Honeyeater and Swift Parrot. As a minimum two 20-minute bird surveys will be undertaken at six reference sites (consistent with flora monitoring where possible). Winter bird surveys will be undertaken at derived native grassland (DNG) regeneration sites once the regenerating canopy species reach a minimum height of four meters.*'

Targeted bird surveys were undertaken at the six existing winter bird survey sites (Figure 1). Surveys consisted of two, two-hectare area searches for 20 minutes in suitable habitat at each winter survey site. All bird surveys were undertaken by one ecologist. During targeted bird surveys, all birds seen (using binoculars) or heard (using diagnostic calls) were recorded. Targeted bird surveys were undertaken at each survey site twice, in the early morning when birds are most active and vocal to maximise detectability. Any opportunistic bird species identified incidentally during surveys were also recorded.

Targeted winter bird surveys were not conducted at DNG regeneration sites as regenerating canopy species reach a minimum height of four meters and as such, were consistent with the location of winter surveys from 2014 to 2023. The six survey sites were positioned in areas of suitable habitat for both targeted species.

3.2.2 Spring bird surveys for target threatened avian species

As outlined in the BOMP, the spring bird monitoring consists of '*Site based diurnal spring woodland bird surveys. As a minimum, two 20-minute bird surveys will be undertaken at six reference sites (in target woodland community remnants) and six DNG regeneration sites (consistent with flora monitoring sites where possible). Spring woodland bird surveys will be undertaken in DNG regeneration sites during all growth stages as Grey-crowned Babblers may occur in both DNG and woodland areas and Superb Parrots may forage in DNG areas.*'

Targeted bird surveys were undertaken at 11 of the existing spring bird survey sites (Figure 2). As per the recommendation in the 2017 and 2018 survey report, due to the close proximity of sites S5, S3 and REM4 to each other and the overlap in bird species sightings between these sites, site S5 was moved approximately 750 meters south of its original position. Site S3 was combined with site REM4, to avoid species overlap.

Surveys consisted of two, two-hectare area searches for 20 minutes in suitable habitat within the Kokoda site. During targeted bird surveys, all birds seen (using binoculars) or heard (using diagnostic calls) were recorded. Targeted bird surveys were undertaken at each survey site twice, in the early morning when birds are most active and vocal to maximise detectability. Any opportunistic bird species identified during surveys were also recorded.

3.2.3 Kangaroo population monitoring

The following statement was made in the approved BOMP at the request of DPIE: *'Kangaroo monitoring will be undertaken biannually within the regenerating woodland area. Monitoring is intended to give an indication of relative presence of kangaroo populations within the regenerating area over time. If a significant increase in the kangaroo population is recorded over two consecutive monitoring periods adaptive management will be investigated. Kangaroo monitoring will commence in 2017, at which point a suitable, repeatable survey methodology will be developed and documented in the Annual Review (AR). All adaptive management actions undertaken are to be documented in the AR.'*

Numbers of Eastern Grey Kangaroo, Common Wallaroo, Red-necked Wallaby and Swamp Wallaby were counted by completing two walking transects from west to east (one direction) in the south and then east to west (return transect) across the DNG areas in the north of the property (Figure 3) at dusk over two consecutive days in both winter and spring.



- Legend
- ★ Winter bird survey sites
 - ▭ Kokoda property boundary

0125250500

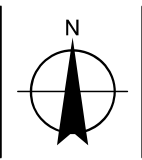
Meters

Paper Size A3

Map Projection: Transverse Mercator

Horizontal Datum: GDA 1994

Grid: GDA 1994 MGA Zone 55



Northparkes Mine	Job Number	12648607
Kokoda bird and kangaroo surveys - 2024	Revision	0
	Date	06 Dec 2024

Winter bird survey sites

Figure 1

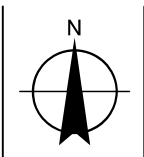
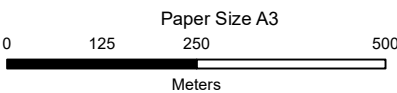
\\ghdnet\ghd\AU\Wagga Wagga\Projects\2\11\12587149\GIS\Maps\Deliverables\12648607\12648607_Fig1_Kokoda2024_WinterBirdSurveySites.mxd
© 2024. Whilst every care has been taken to prepare this map, GHD make no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and cannot accept liability and responsibility of any kind (whether in contract, tort or otherwise) for any expenses, losses, damages and/or costs (including indirect or consequential damage) which are or may be incurred by any party as a result of the map being inaccurate, incomplete or unsuitable in any way and for any reason.
Data source: NSW Government (LPI): Aerial photograph - 2017, roads, waterways, National Park - 2012. Created by:pfernandes



© Department of Customer Service 2020

Legend

- ★ Spring bird survey sites
- ▭ Kokoda property boundary



Northparkes Mine
Kokoda bird and kangaroo surveys - 2024

Job Number	12648607
Revision	0
Date	06 Dec 2024

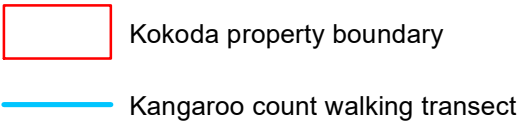
Spring bird survey sites

Figure 2

\\ghdnet\ghd\AU\Wagga Wagga\Projects\2\112587149\GIS\Maps\Deliverables\12648607\12648607_Fig2_Kokoda2024_SpringSurveySites.mxd
© 2024. Whilst every care has been taken to prepare this map, GHD make no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and cannot accept liability and responsibility of any kind (whether in contract, tort or otherwise) for any expenses, losses, damages and/or costs (including indirect or consequential damage) which are or may be incurred by any party as a result of the map being inaccurate, incomplete or unsuitable in any way and for any reason.
Data source: NSW Government (LPI): Aerial photograph - 2017, roads, waterways, National Park - 2012. Created by: pfernandes



Legend



4. Results

4.1 Desktop and literature review

A desktop assessment of avian species recorded within the KOA and surrounding locality revealed the following:

- BioNet - A total of 115 bird species were recorded within the BioNet search area of which 9 are listed under the BC Act, and one listed under both the BC Act and EPBC Act (see Appendix A).
- PMST - A total of 21 threatened bird species listed under the EPBC Act were predicted to occur by the PMST within the search area, comprising seven species is known to occur, seven species likely to occur and seven species that may occur. Additionally, one bird species listed as a terrestrial migratory species under the EPBC Act are also known to occur (see Appendix A and Table 4)
- Birds Australia (BA) - A total of 83 bird species were previously recorded within the BA search area (see Appendix A).
- Baseline - A total of 59 bird species were recorded within Kokoda during baseline surveys (Umwelt 2014), including six species listed as vulnerable under the BC Act and/or EPBC Act (see Table 5)
- 2017 - A total of 60 species were recorded during the 2017 winter surveys and 61 species in the spring surveys. Five species listed under the BC Act and/or EPBC Act were recorded
- 2018 - A total of 50 species were recorded during the 2018 winter surveys and 68 species in the spring surveys. Five species listed under the BC Act and/or EPBC Act were recorded.
- 2019 - A total of 55 species were recorded during the 2019 winter surveys and 68 species in the spring surveys. Four species listed under the BC Act and/or EPBC Act were recorded.
- 2020 - A total of 42 species were recorded during the 2020 winter surveys and 59 species in the spring surveys. Four species listed under the BC Act and/or EPBC Act were recorded.
- 2021 - A total of 54 species were recorded during the 2021 winter surveys and 67 species in the spring surveys. Five species listed under the BC Act and/or EPBC Act were recorded.
- 2022 - A total of 57 species were recorded during the 2022 winter surveys and 61 species in the spring surveys. Four species listed under the BC Act and/or EPBC Act were recorded.
- 2023 – A total of 54 species were recorded during the 2023 winter surveys and 64 species in the spring surveys. Four species listed under the BC Act and/or EPBC Act were recorded.

4.2 Targeted bird surveys

A total of 66 species were recorded during the 2024 winter surveys and 59 species in the 2024 spring surveys (with a combined species diversity of 74 species). Five BC Act and/or EPBC Act listed species have been identified across the winter and spring survey period since 2017 (Table 4).

Table 4 Threatened and migratory species recorded during 2024 Kokoda bird surveys

Species	BC Act status	EPBC Act status	Winter -site ID	Spring – site ID
Brown Treecreeper (eastern subspecies) (<i>Climacteris picumnis victoriae</i>)	V	V	W1, incidental observation outside sites	REM6, S6
Diamond Firetail (<i>Stagonopleura guttata</i>)	V	V	-	-
Grey-crowned Babbler (eastern subspecies) (<i>Pomatostomus temporalis temporalis</i>)	V	-	W3, W4, W6, incidental observation outside sites	REM5, REM6, S1, S5, S6, S7, S10, incidental observation outside sites
Speckled Warbler (<i>Chthonicola sagittate</i>)	V	-	-	REM3
Superb Parrot (<i>Polytelis swainsonii</i>)	V	V	W3, W5, incidental observation outside sites	REM4, REM5, REM6, S1, S5, S6, S7, S10, incidental observation outside sites

The Grey-crowned Babbler (eastern subspecies) (*Pomatostomus temporalis temporalis*), Superb Parrot (*Polytelis swainsonii*) and Speckled Warbler (*Chthonicola sagittate*) were recorded during both the spring and winter surveys on multiple occasions and survey locations throughout the Kokoda Offset site. The Diamond Firetail (*Stagonopleura guttata*) was not recorded during 2024, and is unlikely to regularly occur within the site during the year.

Threatened species records appear generally consistent with previous years records. Typically, Superb Parrots, Brown Treecreepers, Grey-crowned Babblers and Speckled Warblers are recorded consistently at the site over the two survey periods.

A full list of bird species recorded during 2024 surveys is provided in Appendix B.

4.2.1 Comparison of years and species diversity

A comparative analysis of the species observed between different survey periods and years is shown in Table 5. A slightly higher number of species are recorded during the spring survey periods compared with winter periods over the last five years. This is likely to be a function of the greater number of survey sites and microhabitats present in the spring than winter (11 in spring versus six in winter), rather than more species occurring in spring. Further to this, comparative analysis of species diversity at each survey site across all survey years was conducted for both winter (Figure 4) and spring (Figure 5) results. This demonstrates species diversity trends at specific survey points across the project site since 2017. Species diversity was generally lower prior to 2020 (in drought years) which is reflective of dire conditions and a reduction in habitat resources. Species diversity since 2020 (after the drought ended), has been fairly steady.

The most commonly recorded threatened species across all survey years is the Grey-crowned Babbler. The Superb Parrot and Speckled Warblers were also recorded a number of times in both the winter and spring survey periods on multiple occasions. Most notably, small flocks of Superb Parrot (up to nineteen individuals) were observed regularly flying over the KOA during 2024 spring surveys.

Table 5 *Bird diversity across survey periods*

Survey period	Number of bird species	Number of threatened bird species	Threatened species
Baseline	59	6	Brown Treecreeper, Grey-crowned Babbler, Hooded Robin, Little Lorikeet, Speckled Warbler and Superb Parrot
Winter 2015	42	2	Brown Treecreeper and Grey-crowned Babbler
Spring 2015	53	3	Diamond Firetail, Grey-crowned Babbler and Superb Parrot
Winter 2016	41	1	Grey-crowned Babbler
Spring 2016	51	2	Grey-crowned Babbler and Superb Parrot
Winter 2017	52 (+ 8 from x3 spring survey sites)	5	Grey-crowned Babbler, Speckled Warbler, Superb Parrot, Flame Robin and Satin Flycatcher (migratory)
Spring 2017	68	3	Grey-crowned Babbler, Speckled Warbler and Superb Parrot
Winter 2018	50	7	Superb Parrot, Diamond Firetail, Flame Robin, Speckled Warbler, Brown Treecreeper, Grey-crowned Babbler, Little Lorikeet
Spring 2018	61	3 (+1 migratory)	Grey-crowned Babbler, Superb Parrot, Speckled Warbler, Satin Flycatcher (Migratory)
Winter 2019	55	5	Grey-crowned Babbler, Dusky Woodswallow, Diamond Firetail, Superb Parrot, Speckled Warbler
Spring 2019	66	4	Grey-crowned Babbler, Diamond Firetail, Speckled Warbler, Superb Parrot
Winter 2020	42	3	Grey-crowned Babbler, Brown Treecreeper, Speckled Warbler
Spring 2020	59	3	Grey-crowned Babbler, Superb Parrot, Speckled Warbler
Winter 2021	54	4	Diamond Firetail, Grey-crowned Babbler, Superb Parrot Speckled Warbler
Spring 2021	67	4	Grey-crowned Babbler, Superb Parrot, Brown Treecreeper, Speckled Warbler
Winter 2022	57	4	Grey-crowned Babbler, Superb Parrot, Speckled Warbler, Brown Treecreeper
Spring 2022	61	4	Grey-crowned Babbler, Superb Parrot, Brown Treecreeper, Speckled Warbler
Winter 2023	54	4	Grey-crowned Babbler, Superb Parrot, Speckled Warbler, Brown Treecreeper
Spring 2023	64	4	Grey-crowned Babbler, Superb Parrot, Brown Treecreeper, Speckled Warbler
Winter 2024	66	3	Grey-crowned Babbler, Superb Parrot, Brown Treecreeper
Spring 2024	59	4	Grey-crowned Babbler, Superb Parrot, Brown Treecreeper, Speckled Warbler

Figure 4: Winter surveys species diversity over survey years 2017-2024

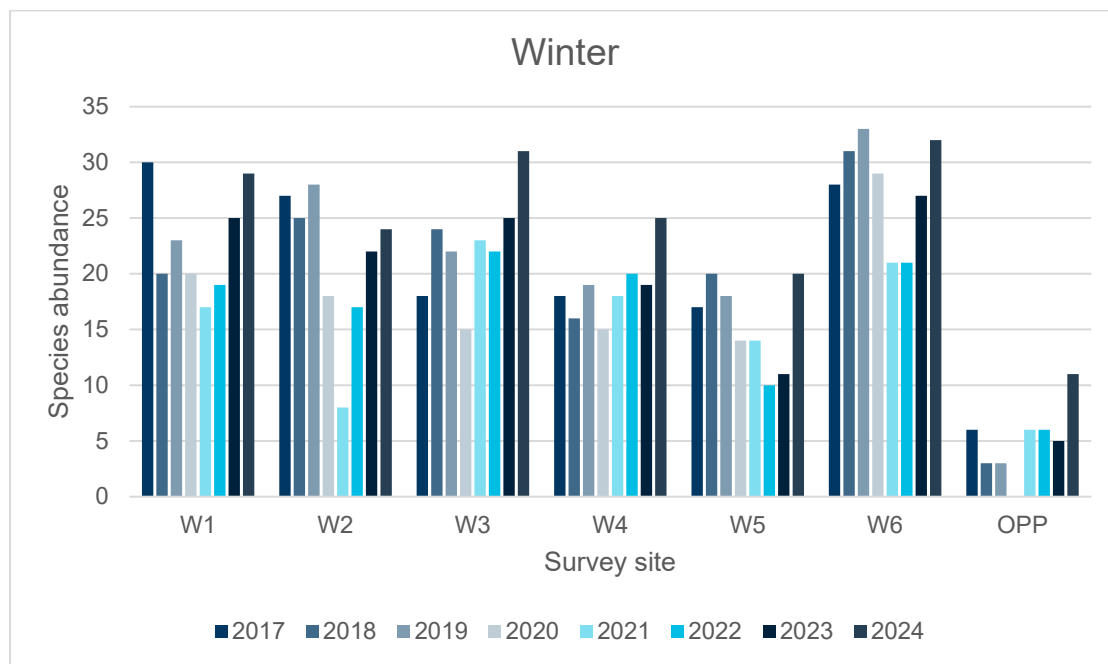
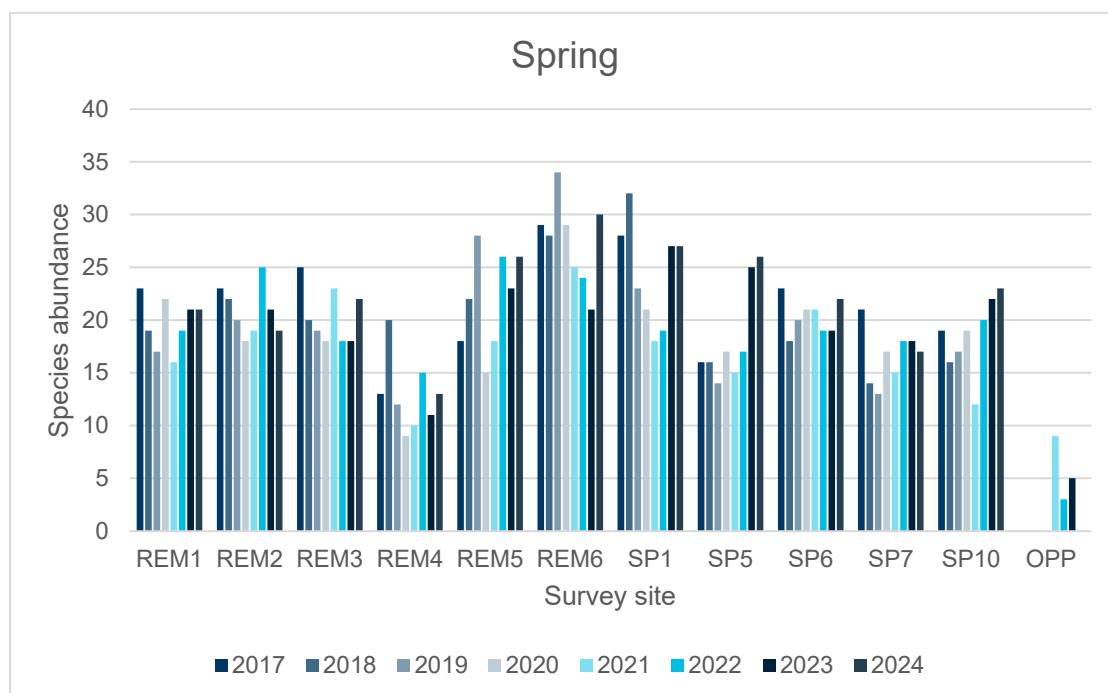


Figure 5: Spring surveys species diversity over survey years 2017-2024



4.3 Kangaroo population monitoring

The kangaroo counts were previously undertaken during spring and winter of 2017–2023. Data collected during these survey periods has been used as a baseline for monitoring kangaroo populations on site. Kangaroos were mostly recorded grazing on top of ridges on either side of a tributary of Sandy Creek, located running north to south in the eastern portion of the offset site.

The 2024 kangaroo surveys recorded up to 512 individuals during the winter surveys and up to 463 individuals during the spring surveys (Table 6). The variation between kangaroo counts within consecutive days of a survey round in 2024 were similar (difference of between ninety individuals and sixty-one individuals during winter and spring respectively). A slight increase in kangaroo abundance is noted in the 2024 survey period compared to the preceding year (see Figure 6), however kangaroo numbers appear to be the highest they have been since 2019.

The construction of kangaroo exclusion fencing around the KOA commenced in late 2019 and was completed in early 2020 before the first kangaroo count survey was conducted (with its completion denoted by the black line in Figure 6). The initial decrease in kangaroo abundance on site by 64.8% from 2019 to 2020 may be attributed to the construction of the exclusion fencing.

Kangaroo count results during 2024 surveys can be observed in Table 6, with trends over the five-year surveying period shown in Figure 6. Eastern Grey Kangaroo (*Macropus giganteus*) accounted for the large majority of the macropods counted, with low counts of Swamp Wallaby (*Wallabia bicolor*), Common Wallaroo (*Macropus robustus*) and Red-necked Wallaby (*Notamacropus rufogriseus*) recorded in the winter survey period.

Table 6 Kangaroo population numbers 2024

Date	Total
Winter	
21 August 2024	211
22 August 2024	301
Winter total	512
Spring	
27 November 2024	262
28 November 2024	201
Spring total	463

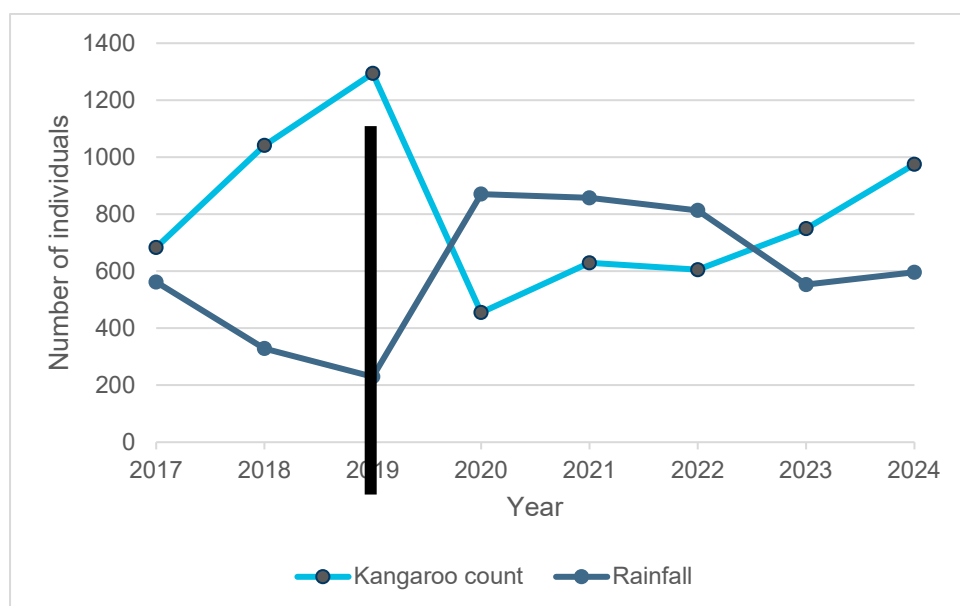


Figure 6: Kangaroo abundance versus rainfall at the Kokoda site

5. Discussion and recommendations

Evolution Mining Northparkes have developed an Excel based spreadsheet to enable the winter and spring bird survey data to be entered into each year. This has created an efficient way in which to review species recorded, numbers and locations of individuals as more data is collected each year. The spreadsheet will continue to be utilised in the future surveys to monitor species composition at each site and across seasons and years.

In addition, GHD has developed a spreadsheet to compare bird diversity and kangaroo data on site. This data will be used to present trends in species sightings at survey locations for birds recorded, and to document population trends for kangaroo counts.

5.1 Bird species diversity

It is recommended that biannual winter and spring bird surveys now be conducted every three years (starting next in 2027) in accordance with the performance criteria within the BOMP (following the first 5 years of yearly bi-annual monitoring since 2020 when active regeneration works were conducted).

5.1.1 Winter bird surveys for target threatened avian species

The six winter bird survey sites have been selected based on the target species of Swift Parrot and Regent Honeyeater. These species rely on heavily flowering Box-Ironbark eucalypt forests for their seasonal movements to feeding areas.

Between 2020 and 2022, the Parkes area experienced much higher rainfall than previous drought years, and higher than average rainfall for the year. As such, the previous low abundance of flowering eucalyptus and acacias, as influenced by the drought (including Mugga Ironbark (*Eucalyptus sideroxylon*)) in the area was not experienced in 2023 or 2024. Acacia and eucalypt species were flowering but not abundantly during the site during surveys. As Mugga Ironbark was not observed to be flowering abundantly in the surrounding area, surveying was limited to the six originally selected winter bird survey sites, and the additional three sites surveyed in 2017 were disregarded. Given the suitable habitat that occurs in these additional three sites for the target species, in a suitable year they should continue to be surveyed in future winter surveys.

There is some natural regeneration of canopy species occurring at two of the DNG sites (S1 and S6). At both sites, regeneration of canopy species is still less than 4 m and these grassland sites however are likely to require survey in the next winter period of 2027. There is limited canopy regeneration at S10, S5 or S7 and these are unlikely to be added to the winter survey schedule in 2027.

5.1.2 Spring bird surveys for target threatened avian species

The 11 spring survey sites were surveyed twice in 2024. As per the recommendation in the 2017 report, survey site S5 was again moved approximately 750 meters south of its previous position, and S3 was removed entirely as a survey site (see Figure 2). Given the mobile nature of bird species and the fact that this isolated, small remnant woodland consists only of canopy and groundcover stratum, it was discovered during the 2017 survey periods that there was considerable overlap between the bird species recorded at these two sites. Based on this, future surveys would benefit from combining these two survey sites into one survey site. This should continue for ongoing survey periods.

Between 51 and 67 different bird species (noting a baseline of 59 species) have been recorded during spring surveys over the last nine years since 2014. The species composition recorded during Spring 2024 (59 species) occurs within this range and shows that bird diversity at the site has not changed significantly since baseline.

5.2 Kangaroo population monitoring

In 2017, a baseline of 683 kangaroos was estimated to occur within the Kokoda offset site primarily within areas of DNG. The population was estimated to have had risen to 1294 individuals by 2019, instigating a change in adaptive management in accordance with the updated BOMP, and at the request of OEH which stated that '*If a significant increase in the kangaroo population is recorded over two consecutive monitoring periods adaptive management will be investigated*'. Management measures for kangaroos were also considered critical, also given the proposed planting of trees in regeneration areas S1, S6 and S7 in early 2020.

The installation of kangaroo exclusion boundary fencing began in late 2019 and was completed in early 2020 before the first survey period in spring. Following the construction of this fence, kangaroo numbers dropped significantly in 2020, before steadily rising. A rise in the estimated population of macropods in recent years at the Kokoda offset site may be due to higher than average rainfall in Parkes between 2020–2022, likely increasing the availability of feed resources at the site, and the continued exclusion of stock resulting in reducing grazing pressure on the understorey. The current kangaroo population is estimated to be above baseline levels recorded in 2017. The lower than average rainfall in 2023 and 2024 to date, is reflective of less vigorous understorey growth and cover in areas of DNG. This has led to significant overgrazing by kangaroos in parts of the site, particularly west of Sandy Creek on top of the natural ridge (see Plate 1). A substantial increase in population size has been noted in the last three years and as such consideration of a kangaroo cull should be considered prior to the next monitoring period in 2027, particularly if dry rainfall years are expected in the short term.



Plate 1 Overgrazing by kangaroos of the understorey at the Kokoda offset site in areas of DNG and supplementary planting

It is recommended that the method outlined in this report for the kangaroo count should continue to be followed for future monitoring.

5.3 Additional measures

No additional management recommendations, other than those outlined in the Northparkes BOMP, are required at this stage.

6. References

Birdlife Australia (2024). Explore data map viewer. Accessed November 2024. URL: https://birddata.birdlife.org.au/explore#map=-33.2640731_148.4470495_10

BoM (Bureau of Meteorology) (2024). NSW Weather Observations. Bureau of Meteorology, online database, accessed November 2024. URL: <http://www.bom.gov.au/nsw/observations/index.shtml>

DCCEEW (Commonwealth Department of Climate Change, Energy, the Environment and Water) (2024a). Protected Matters Search Tool. Commonwealth Department of Climate Change, Energy, the Environment and Water, online database. Accessed November 2024. URL: <http://www.environment.gov.au/erin/ert/epbc/index.html>.

DCCEEW (2024b). Species Profile and Threats Database. Commonwealth Department of Climate Change, Energy, the Environment and Water, online database. Accessed August 2023. URL: <http://www.environment.gov.au/cgi-bin/sprat/public/sprat.pl>

DEWHA (Commonwealth Department of the Environment, Water, Heritage and the Arts) (2010). Survey guidelines for Australian's threatened birds. Guidelines for detecting birds listed as threatened under the *Environment Protection and Biodiversity Conservation Act 1999*. URL: <https://www.dcceew.gov.au/sites/default/files/documents/survey-guidelines-birds-april-2017.pdf>

DotE (Commonwealth Department of the Environment) (2013). Matters of national environmental significance: Significant impact guidelines 1.1, *Environment Protection and Biodiversity Conservation Act 1999*. Commonwealth Department of the Environment, Canberra. URL: https://www.dcceew.gov.au/sites/default/files/documents/nsg-guidelines_1.pdf

DPE (Department of Planning and Environment) (2024a). BioNet Atlas of NSW. NSW Department of Planning and Environment. Licensed data obtained November 2024.

DPE (2024b). NSW threatened species profiles. NSW Department of Planning and Environment, online database, accessed July 2022. URL: <http://www.environment.nsw.gov.au/threatenedspecies/>

NPWS (New South Wales National Parks and Wildlife Services) (2023). Goobang National Park. URL: <https://www.nationalparks.nsw.gov.au/visit-a-park/parks/goobang-national-park>

Umwelt (2014). Biodiversity Offset Management Plan: Kokoda Offset Area for Northparkes Mine. Revised 22 September 2015.

Appendix A

Desktop searches



Australian Government

Department of Climate Change, Energy,
the Environment and Water

EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Please see the caveat for interpretation of information provided here.

Report created: 20-Nov-2024

[Summary](#)

[Details](#)

[Matters of NES](#)

[Other Matters Protected by the EPBC Act](#)

[Extra Information](#)

[Caveat](#)

[Acknowledgements](#)

Summary

Matters of National Environment Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the [Administrative Guidelines on Significance](#).

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance (Ramsar	4
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	3
Listed Threatened Species:	40
Listed Migratory Species:	8

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at <https://www.dcceew.gov.au/parks-heritage/heritage>

A [permit](#) may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Lands:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	17
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have

State and Territory Reserves:	2
Regional Forest Agreements:	None
Nationally Important Wetlands:	None
EPBC Act Referrals:	2
Key Ecological Features (Marine):	None
Biologically Important Areas:	None
Bioregional Assessments:	None
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

Wetlands of International Importance (Ramsar Wetlands)		[Resource Information]
Ramsar Site Name	Proximity	Buffer Status
Banrock station wetland complex	700 - 800km upstream from Ramsar site	In feature area
Hattah-kulkyne lakes	500 - 600km upstream from Ramsar site	In feature area
Riverland	600 - 700km upstream from Ramsar site	In feature area
The coorong, and lakes alexandrina and albert wetland	800 - 900km upstream from Ramsar site	In feature area

Listed Threatened Ecological Communities	[Resource Information]
For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps. Status of Vulnerable, Disallowed and Ineligible are not MNES under the EPBC Act.	

Community Name	Threatened Category	Presence Text	Buffer Status
Grey Box (Eucalyptus microcarpa) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia	Endangered	Community likely to occur within area	In feature area
Poplar Box Grassy Woodland on Alluvial Plains	Endangered	Community may occur within area	In feature area
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Critically Endangered	Community likely to occur within area	In feature area

Listed Threatened Species			[<u>Resource Information</u>]
Status of Conservation Dependent and Extinct are not MNES under the EPBC Act. Number is the current name ID.			
Scientific Name	Threatened Category	Presence Text	Buffer Status
BIRD			

Scientific Name	Threatened Category	Presence Text	Buffer Status
Anthochaera phrygia Regent Honeyeater [82338]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Aphelocephala leucopsis Southern Whiteface [529]	Vulnerable	Species or species habitat known to occur within area	In feature area
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat may occur within area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
Callocephalon fimbriatum Gang-gang Cockatoo [768]	Endangered	Species or species habitat may occur within area	In feature area
Calyptorhynchus lathami lathami South-eastern Glossy Black-Cockatoo [67036]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Climacteris picumnus victoriae Brown Treecreeper (south-eastern) [67062]	Vulnerable	Species or species habitat known to occur within area	In feature area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat may occur within area	In feature area
Grantiella picta Painted Honeyeater [470]	Vulnerable	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat may occur within area	In feature area
Leipoa ocellata Malleefowl [934]	Vulnerable	Species or species habitat known to occur within area	In feature area
Lophochroa leadbeateri leadbeateri Major Mitchell's Cockatoo (eastern), Eastern Major Mitchell's Cockatoo, Pink Cockatoo (eastern) [82926]	Endangered	Species or species habitat may occur within area	In feature area
Melanodryas cucullata cucullata South-eastern Hooded Robin, Hooded Robin (south-eastern) [67093]	Endangered	Species or species habitat likely to occur within area	In feature area
Neophema chrysostoma Blue-winged Parrot [726]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Pedionomus torquatus Plains-wanderer [906]	Critically Endangered	Species or species habitat may occur within area	In buffer area only
Polytelis swainsonii Superb Parrot [738]	Vulnerable	Species or species habitat known to occur within area	In feature area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area	In feature area
Stagonopleura guttata Diamond Firetail [59398]	Vulnerable	Species or species habitat known to occur within area	In feature area
FISH			
Maccullochella macquariensis Trout Cod [26171]	Endangered	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Maccullochella peelii Murray Cod [66633]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Macquaria australasica Macquarie Perch [66632]	Endangered	Species or species habitat may occur within area	In feature area
FROG			
Crinia sloanei Sloane's Froglet [59151]	Endangered	Species or species habitat may occur within area	In feature area
MAMMAL			
Chalinolobus dwyeri Large-eared Pied Bat, Large Pied Bat [183]	Endangered	Species or species habitat may occur within area	In feature area
Dasyurus maculatus maculatus (SE mainland population) Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat may occur within area	In feature area
Nyctophilus corbeni Corben's Long-eared Bat, South-eastern Long-eared Bat [83395]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT) Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Endangered	Species or species habitat likely to occur within area	In feature area
Pseudomys novaehollandiae New Holland Mouse, Pookila [96]	Vulnerable	Species or species habitat known to occur within area	In feature area
Pteropus poliocephalus Grey-headed Flying-fox [186]	Vulnerable	Foraging, feeding or related behaviour may occur within area	In feature area
PLANT			
Austrostipa wakoolica [66623]	Endangered	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Lepidium aschersonii Spiny Peppercress [10976]	Vulnerable	Species or species habitat may occur within area	In feature area
Prasophyllum petilum Tarengo Leek Orchid [55144]	Endangered	Species or species habitat may occur within area	In feature area
Prasophyllum sp. Wybong (C.Phelps ORG 5269) a leek-orchid [81964]	Critically Endangered	Species or species habitat may occur within area	In feature area
Swainsona murrayana Slender Darling-pea, Slender Swainson, Murray Swainson-pea [6765]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Swainsona recta Small Purple-pea, Mountain Swainson-pea, Small Purple Pea [7580]	Endangered	Species or species habitat may occur within area	In feature area
Thesium australe Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Vincetoxicum forsteri listed as Tylophora linearis [92384]	Endangered	Species or species habitat may occur within area	In feature area

REPTILE

Aprasia parapulchella Pink-tailed Worm-lizard, Pink-tailed Legless Lizard [1665]	Vulnerable	Species or species habitat known to occur within area	In feature area
---	------------	---	-----------------

Listed Migratory Species

[Resource Information]

Scientific Name	Threatened Category	Presence Text	Buffer Status
Migratory Marine Birds			
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area

Migratory Terrestrial Species

Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area
--	------------	---	-----------------

Scientific Name	Threatened Category	Presence Text	Buffer Status
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area	In feature area
Migratory Wetlands Species			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat may occur within area	In feature area

Other Matters Protected by the EPBC Act

Listed Marine Species	[Resource Information]		
Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area	In feature area
Bubulcus ibis as Ardea ibis Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area overfly marine area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area overfly marine area	In feature area
Chalcites osculans as Chrysococcyx osculans Black-eared Cuckoo [83425]		Species or species habitat likely to occur within area overfly marine area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat may occur within area overfly marine area	In feature area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat likely to occur within area	In feature area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat may occur within area overfly marine area	In feature area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area overfly marine area	In feature area
Neophema chrysostoma Blue-winged Parrot [726]	Vulnerable	Species or species habitat likely to occur within area overfly marine area	In feature area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat may occur within area overfly marine area	In feature area
Rostratula australis as Rostratula benghalensis (sensu lato) Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area overfly marine area	In feature area

Extra Information

State and Territory Reserves			[Resource Information]
Protected Area Name	Reserve Type	State	Buffer Status
Goobang	National Park	NSW	In buffer area only
Nangar	National Park	NSW	In buffer area only

EPBC Act Referrals					[Resource Information]
Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status	
Not controlled action					
Construction of Single Circuit 132 kV Transmission Line between existing substations	2009/4741	Not Controlled Action	Completed	In buffer area only	
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed	In feature area	

Caveat

1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data is available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance on the contents of this report.

3 DATA SOURCES

Threatened ecological communities

For threatened ecological communities where the distribution is well known, maps are generated based on information contained in recovery plans, State vegetation maps and remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species

Threatened, migratory and marine species distributions have been discerned through a variety of methods. Where distributions are well known and if time permits, distributions are inferred from either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc.) together with point locations and described habitat; or modelled (MAXENT or BIOCLIM habitat modelling) using point locations and environmental data layers.

Where little information is available for a species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc.).

In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More detailed distribution mapping methods are used to update these distributions when time permits.

4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

The following groups have been mapped, but may not cover the complete distribution of the species:

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded breeding sites; and
- seals which have only been mapped for breeding sites near the Australian continent

The breeding sites may be important for the protection of the Commonwealth Marine environment.

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

- [-Office of Environment and Heritage, New South Wales](#)
- [-Department of Environment and Primary Industries, Victoria](#)
- [-Department of Primary Industries, Parks, Water and Environment, Tasmania](#)
- [-Department of Environment, Water and Natural Resources, South Australia](#)
- [-Department of Land and Resource Management, Northern Territory](#)
- [-Department of Environmental and Heritage Protection, Queensland](#)
- [-Department of Parks and Wildlife, Western Australia](#)
- [-Environment and Planning Directorate, ACT](#)
- [-Birdlife Australia](#)
- [-Australian Bird and Bat Banding Scheme](#)
- [-Australian National Wildlife Collection](#)
- [-Natural history museums of Australia](#)
- [-Museum Victoria](#)
- [-Australian Museum](#)
- [-South Australian Museum](#)
- [-Queensland Museum](#)
- [-Online Zoological Collections of Australian Museums](#)
- [-Queensland Herbarium](#)
- [-National Herbarium of NSW](#)
- [-Royal Botanic Gardens and National Herbarium of Victoria](#)
- [-Tasmanian Herbarium](#)
- [-State Herbarium of South Australia](#)
- [-Northern Territory Herbarium](#)
- [-Western Australian Herbarium](#)
- [-Australian National Herbarium, Canberra](#)
- [-University of New England](#)
- [-Ocean Biogeographic Information System](#)
- [-Australian Government, Department of Defence](#)
- [Forestry Corporation, NSW](#)
- [-Geoscience Australia](#)
- [-CSIRO](#)
- [-Australian Tropical Herbarium, Cairns](#)
- [-eBird Australia](#)
- [-Australian Government – Australian Antarctic Data Centre](#)
- [-Museum and Art Gallery of the Northern Territory](#)
- [-Australian Government National Environmental Science Program](#)
- [-Australian Institute of Marine Science](#)
- [-Reef Life Survey Australia](#)
- [-American Museum of Natural History](#)
- [-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania](#)
- [-Tasmanian Museum and Art Gallery, Hobart, Tasmania](#)
- [-Other groups and individuals](#)

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the [Contact us](#) page.

[© Commonwealth of Australia](#)






Department of Climate Change, Energy, the Environment and Water

GPO Box 3090

Canberra ACT 2601 Australia

+61 2 6274 1111

Data from the BioNet Atlas website, which holds records from a number of custodians. The data are only indicative and cannot be considered a comprehensive inventory, and may contain errors and omissions. Species listed under the Sensitive Species Data Policy may have their locations denatured (^ rounded to 0.1°C; ^^ rounded to 0.01°C. Copyright the State of NSW through the Department of Planning, Industry and Environment. Search criteria : Licensed Report of all Valid Records of Birds (Class: Aves) in selected area [North: -33.22 West: 148.40 East: 148.50 South: -33.32] recorded since 20 Nov 2004 until 20 Nov 2024 returned a total of 740 records of 115 species.
Report generated on 20/11/2024 9:20 AM

Kingdom	Class	Family	Species Code	Scientific Name	Exotic	Common Name	NSW status	Comm. status	Records	Info
Animalia	Aves	Casuariidae	0001	<i>Dromaius novaehollandiae</i>		Emu	P		1	
Animalia	Aves	Phasianidae	0011	<i>Synoicus ypsilophora</i>		Brown Quail	P		1	
Animalia	Aves	Anatidae	0211	<i>Anas gracilis</i>		Grey Teal	P		3	
Animalia	Aves	Anatidae	0208	<i>Anas superciliosa</i>		Pacific Black Duck	P		3	
Animalia	Aves	Anatidae	0215	<i>Aythya australis</i>		Hardhead	P		1	
Animalia	Aves	Anatidae	0202	<i>Chenonetta jubata</i>		Australian Wood Duck	P		12	
Animalia	Aves	Podicipedidae	0061	<i>Tachybaptus novaehollandiae</i>		Australasian Grebe	P		2	
Animalia	Aves	Columbidae	8843	<i>Geopelia placida</i>			P		2	
Animalia	Aves	Columbidae	9931	<i>Geopelia striata</i>		Peaceful Dove	P		8	
Animalia	Aves	Columbidae	0043	<i>Ocyphaps lophotes</i>		Crested Pigeon	P		12	
Animalia	Aves	Columbidae	0034	<i>Phaps chalcoptera</i>		Common Bronzewing	P		12	
Animalia	Aves	Aegothelidae	0317	<i>Aegotheles cristatus</i>		Australian Owlet-nightjar	P		1	
Animalia	Aves	Phalacrocoracidae	0100	<i>Microcarbo melanoleucos</i>		Little Pied Cormorant	P		2	
Animalia	Aves	Phalacrocoracidae	0099	<i>Phalacrocorax varius</i>		Pied Cormorant	P		3	
Animalia	Aves	Ardeidae	0188	<i>Egretta novaehollandiae</i>		White-faced Heron	P		5	
Animalia	Aves	Threskiornithidae	0179	<i>Threskiornis moluccus</i>		Australian White Ibis	P		1	
Animalia	Aves	Accipitridae	0224	<i>Aquila audax</i>		Wedge-tailed Eagle	P		3	
Animalia	Aves	Accipitridae	0228	<i>Haliastur sphenurus</i>		Whistling Kite	P		1	
Animalia	Aves	Falconidae	0239	<i>Falco berigora</i>		Brown Falcon	P		1	
Animalia	Aves	Falconidae	0240	<i>Falco cenchroides cenchroides</i>		Nankeen Kestrel	P		2	
Animalia	Aves	Falconidae	0235	<i>Falco longipennis</i>		Australian Hobby	P		1	
Animalia	Aves	Rallidae	0046	<i>Hypotaenidia philippensis</i>		Buff-banded Rail	P		1	
Animalia	Aves	Charadriidae	0144	<i>Elseyaornis melanops</i>		Black-fronted Dotterel	P		1	
Animalia	Aves	Charadriidae	0133	<i>Vanellus miles</i>		Masked Lapwing	P		3	
Animalia	Aves	Cacatuidae	0269	<i>Cacatua galerita</i>		Sulphur-crested Cockatoo	P		10	
Animalia	Aves	Cacatuidae	0271	<i>Cacatua sanguinea</i>		Little Corella	P		1	
Animalia	Aves	Cacatuidae	0273	<i>Eolophus roseicapilla</i>		Galah	P		12	
Animalia	Aves	Cacatuidae	0274	<i>Nymphicus hollandicus</i>		Cockatiel	P		4	
Animalia	Aves	Psittacidae	0281	<i>Alisterus scapularis</i>		Australian King-Parrot	P		4	
Animalia	Aves	Psittacidae	0258	<i>Glossopsitta concinna</i>		Musk Lorikeet	P		1	
Animalia	Aves	Psittacidae	0260	<i>Glossopsitta pusilla</i>		Little Lorikeet	V,P		1	
Animalia	Aves	Psittacidae	0297	<i>Northiella haematogaster</i>		Blue Bonnet	P		5	
Animalia	Aves	Psittacidae	0282	<i>Platycercus elegans</i>		Crimson Rosella	P		3	
Animalia	Aves	Psittacidae	0288	<i>Platycercus eximius</i>		Eastern Rosella	P		11	
Animalia	Aves	Psittacidae	0277	<i>Polytelis swainsonii</i>		Superb Parrot	V,P,3	V	23	
Animalia	Aves	Psittacidae	0295	<i>Psephotus haematonotus</i>		Red-rumped Parrot	P		12	
Animalia	Aves	Psittacidae	9947	<i>Trichoglossus haematodus</i>		Rainbow Lorikeet	P		1	
Animalia	Aves	Cuculidae	0338	<i>Cacomantis flabelliformis</i>		Fan-tailed Cuckoo	P		2	
Animalia	Aves	Cuculidae	0343	<i>Chalcites lucidus</i>		Shining Bronze-Cuckoo	P		1	
Animalia	Aves	Cuculidae	0337	<i>Heteroscenes pallidus</i>		Pallid Cuckoo	P		2	
Animalia	Aves	Tytonidae	9923	<i>Tyto javanica</i>		Eastern Barn Owl	P		1	
Animalia	Aves	Alcedinidae	0322	<i>Dacelo novaeguineae</i>		Laughing Kookaburra	P		12	
Animalia	Aves	Meropidae	0329	<i>Merops ornatus</i>		Rainbow Bee-eater	P		4	
Animalia	Aves	Climacteridae	8127	<i>Climacteris picumnus victoriae</i>		Brown Treecreeper (eastern subspecies)	V,P	V	15	
Animalia	Aves	Climacteridae	0558	<i>Cormobates leucophaea</i>		White-throated Treecreeper	P		13	
Animalia	Aves	Maluridae	0529	<i>Malurus cyaneus</i>		Superb Fairy-wren	P		12	
Animalia	Aves	Acanthizidae	0476	<i>Acanthiza apicalis</i>		Inland Thornbill	P		3	
Animalia	Aves	Acanthizidae	0486	<i>Acanthiza chrysorrhoa</i>		Yellow-rumped Thornbill	P		12	
Animalia	Aves	Acanthizidae	0470	<i>Acanthiza lineata</i>		Striated Thornbill	P		3	
Animalia	Aves	Acanthizidae	0471	<i>Acanthiza nana</i>		Yellow Thornbill	P		9	
Animalia	Aves	Acanthizidae	0475	<i>Acanthiza pusilla</i>		Brown Thornbill	P		9	
Animalia	Aves	Acanthizidae	0484	<i>Acanthiza reguloides</i>		Buff-rumped Thornbill	P		7	
Animalia	Aves	Acanthizidae	0481	<i>Acanthiza uropygialis</i>		Chestnut-rumped Thornbill	P		3	
Animalia	Aves	Acanthizidae	0466	<i>Aphelocephala leucopsis</i>		Southern Whiteface	V,P	V	4	
Animalia	Aves	Acanthizidae	0504	<i>Chthonicola sagittata</i>		Speckled Warbler	V,P		16	
Animalia	Aves	Acanthizidae	0463	<i>Gerygone fusca</i>		Western Gerygone	P		10	

Animalia	Aves	Acanthizidae	0465	<i>Smicrornis brevirostris</i>	Weebill	P	8	
Animalia	Aves	Pardalotidae	0565	<i>Pardalotus punctatus</i>	Spotted Pardalote	P	8	
Animalia	Aves	Pardalotidae	0976	<i>Pardalotus striatus</i>	Striated Pardalote	P	12	
Animalia	Aves	Meliphagidae	0640	<i>Acanthagenys rufogularis</i>	Spiny-cheeked Honeyeater	P	8	
Animalia	Aves	Meliphagidae	0591	<i>Acanthorhynchus tenuirostris</i>	Eastern Spinebill	P	2	
Animalia	Aves	Meliphagidae	0638	<i>Anthochaera carunculata</i>	Red Wattlebird	P	11	
Animalia	Aves	Meliphagidae	0614	<i>Caligavis chrysops</i>	Yellow-faced Honeyeater	P	10	
Animalia	Aves	Meliphagidae	0641	<i>Entomyzon cyanotis</i>	Blue-faced Honeyeater	P	8	
Animalia	Aves	Meliphagidae	0608	<i>Gavicalis virescens</i>	Singing Honeyeater	P	2	
Animalia	Aves	Meliphagidae	0619	<i>Lichenostomus melanops</i>	Yellow-tufted Honeyeater	P	3	
Animalia	Aves	Meliphagidae	0634	<i>Manorina melanocephala</i>	Noisy Miner	P	12	
Animalia	Aves	Meliphagidae	0583	<i>Melithreptus brevirostris</i>	Brown-headed Honeyeater	P	12	
Animalia	Aves	Meliphagidae	0578	<i>Melithreptus lunatus</i>	White-naped Honeyeater	P	4	
Animalia	Aves	Meliphagidae	0617	<i>Nesoptilotis leucotis</i>	White-eared Honeyeater	P	10	
Animalia	Aves	Meliphagidae	0646	<i>Philemon citreogularis</i>	Little Friarbird	P	6	
Animalia	Aves	Meliphagidae	0645	<i>Philemon corniculatus</i>	Noisy Friarbird	P	9	
Animalia	Aves	Meliphagidae	0585	<i>Plectorhyncha lanceolata</i>	Striped Honeyeater	P	3	
Animalia	Aves	Meliphagidae	0613	<i>Ptilotula fusca</i>	Fuscous Honeyeater	P	7	
Animalia	Aves	Meliphagidae	0625	<i>Ptilotula penicillata</i>	White-plumed Honeyeater	P	10	
Animalia	Aves	Pomatostomidae	0445	<i>Pomatostomus superciliosus</i>	White-browed Babbler	P	3	
Animalia	Aves	Pomatostomidae	8388	<i>Pomatostomus temporalis temporalis</i>	Grey-crowned Babbler (eastern subspecies)	V,P	19	
Animalia	Aves	Cinclosomatidae	0436	<i>Cinclosoma punctatum</i>	Spotted Quail-thrush	P	1	
Animalia	Aves	Falcunculidae	0416	<i>Falcunculus frontatus frontatus</i>	Eastern Shrike-tit	P	2	
Animalia	Aves	Campephagidae	0423	<i>Coracina maxima</i>	Ground Cuckoo-shrike	P	4	
Animalia	Aves	Campephagidae	0424	<i>Coracina novaehollandiae</i>	Black-faced Cuckoo-shrike	P	9	
Animalia	Aves	Campephagidae	0430	<i>Lalage sueurii</i>	White-winged Triller	P	3	
Animalia	Aves	Pachycephalidae	0408	<i>Colluricincla harmonica</i>	Grey Shrike-thrush	P	12	
Animalia	Aves	Pachycephalidae	0398	<i>Pachycephala pectoralis</i>	Golden Whistler	P	8	
Animalia	Aves	Pachycephalidae	0401	<i>Pachycephala rufiventris</i>	Rufous Whistler	P	11	
Animalia	Aves	Oriolidae	0671	<i>Oriolus sagittatus</i>	Olive-backed Oriole	P	5	
Animalia	Aves	Artamidae	8519	<i>Artamus cyanopterus cyanopterus</i>	Dusky Woodswallow	V,P	2	
Animalia	Aves	Artamidae	0544	<i>Artamus personatus</i>	Masked Woodswallow	P	1	
Animalia	Aves	Artamidae	0545	<i>Artamus superciliosus</i>	White-browed Woodswallow	P	4	
Animalia	Aves	Artamidae	0700	<i>Cracticus nigrogularis</i>	Pied Butcherbird	P	12	
Animalia	Aves	Artamidae	0702	<i>Cracticus torquatus</i>	Grey Butcherbird	P	7	
Animalia	Aves	Artamidae	0705	<i>Gymnorhina tibicen</i>	Australian Magpie	P	13	
Animalia	Aves	Artamidae	0694	<i>Strepera graculina</i>	Pied Currawong	P	12	
Animalia	Aves	Rhipiduridae	0361	<i>Rhipidura albiscapa</i>	Grey Fantail	P	11	
Animalia	Aves	Rhipiduridae	0364	<i>Rhipidura leucophrys</i>	Willie Wagtail	P	13	
Animalia	Aves	Corvidae	0930	<i>Corvus coronoides</i>	Australian Raven	P	12	
Animalia	Aves	Corvidae	0954	<i>Corvus mellori</i>	Little Raven	P	7	
Animalia	Aves	Monarchidae	0415	<i>Grallina cyanoleuca</i>	Magpie-lark	P	12	
Animalia	Aves	Monarchidae	9955	<i>Myiagra inquieta</i>	Restless Flycatcher	P	7	
Animalia	Aves	Monarchidae	0365	<i>Myiagra rubecula</i>	Leaden Flycatcher	P	2	
Animalia	Aves	Corcoracidae	0693	<i>Corcorax melanorhamphos</i>	White-winged Chough	P	12	
Animalia	Aves	Corcoracidae	0675	<i>Struthidea cinerea</i>	Apostlebird	P	12	
Animalia	Aves	Petroicidae	0392	<i>Eopsaltria australis</i>	Eastern Yellow Robin	P	12	
Animalia	Aves	Petroicidae	0377	<i>Microeca fascinans</i>	Jacky Winter	P	11	
Animalia	Aves	Petroicidae	0381	<i>Petroica goodenovii</i>	Red-capped Robin	P	7	
Animalia	Aves	Petroicidae	0382	<i>Petroica phoenicea</i>	Flame Robin	V,P	2	
Animalia	Aves	Locustellidae	0508	<i>Cincloramphus cruralis</i>	Brown Songlark	P	2	
Animalia	Aves	Locustellidae	0509	<i>Cincloramphus mathewsi</i>	Rufous Songlark	P	4	
Animalia	Aves	Hirundinidae	0357	<i>Hirundo neoxena</i>	Welcome Swallow	P	9	
Animalia	Aves	Hirundinidae	0359	<i>Petrochelidon nigricans</i>	Tree Martin	P	1	
Animalia	Aves	Sturnidae	0999	<i>Sturnus vulgaris</i> *	Common Starling		9	
Animalia	Aves	Zosteropidae	0574	<i>Zosterops lateralis</i>	Silvereye	P	1	
Animalia	Aves	Dicaeidae	0564	<i>Dicaeum hirundinaceum</i>	Mistletoebird	P	4	
Animalia	Aves	Estrildidae	0652	<i>Stagonopleura guttata</i>	Diamond Firetail	V,P	V	4 

Birddata

Common Name	Scientific Name	Count	Reporting Rate
Pacific Black Duck	<i>Anas superciliosa</i>	2	2.94%
Grey Teal	<i>Anas gracilis</i>	3	4.41%
Australian Wood Duck	<i>Chenonetta jubata</i>	5	7.35%
Australasian Grebe	<i>Tachybaptus novaehollandiae</i>	1	1.47%
Common Bronzewing	<i>Phaps chalcoptera</i>	6	8.82%
Crested Pigeon	<i>Ocyphaps lophotes</i>	10	14.71%
Pallid Cuckoo	<i>Heteroscenes pallidus</i>	2	2.94%
White-throated Nightjar	<i>Eurostopodus mystacalis</i>	1	1.47%
Nankeen Night-Heron	<i>Nycticorax caledonicus</i>	1	1.47%
White-faced Heron	<i>Egretta novaehollandiae</i>	1	1.47%
Black-shouldered Kite	<i>Elanus axillaris</i>	1	1.47%
Wedge-tailed Eagle	<i>Aquila audax</i>	4	5.88%
Rainbow Bee-eater	<i>Merops ornatus</i>	1	1.47%
Oriental Dollarbird	<i>Eurystomus orientalis</i>	2	2.94%
Laughing Kookaburra	<i>Dacelo novaeguineae</i>	6	8.82%
Nankeen Kestrel	<i>Falco cenchroides</i>	1	1.47%
Glossy Black-Cockatoo	<i>Calyptorhynchus lathami</i>	1	1.47%
Galah	<i>Eolophus roseicapilla</i>	24	35.29%
Sulphur-crested Cockatoo	<i>Cacatua galerita</i>	6	8.82%
Superb Parrot	<i>Polytelis swainsonii</i>	1	1.47%
Red-rumped Parrot	<i>Psephotus haematonotus</i>	3	4.41%
Bluebonnet	<i>Northiella haematogaster</i>	1	1.47%
Eastern Rosella	<i>Platycercus eximius</i>	28	41.18%
Turquoise Parrot	<i>Neophema pulchella</i>	1	1.47%
Little Lorikeet	<i>Glossopsitta pusilla</i>	1	1.47%
White-throated Treecreeper	<i>Cormobates leucophaea</i>	25	36.76%
Brown Treecreeper	<i>Climacteris picumnus</i>	2	2.94%
Superb Fairy-wren	<i>Malurus cyaneus</i>	17	25.00%
Noisy Friarbird	<i>Philemon corniculatus</i>	8	11.76%
Little Friarbird	<i>Philemon citreogularis</i>	1	1.47%
White-eared Honeyeater	<i>Nesoptilotis leucotis</i>	18	26.47%
Brown-headed Honeyeater	<i>Melithreptus brevirostris</i>	12	17.65%
White-naped Honeyeater	<i>Melithreptus lunatus</i>	4	5.88%
Eastern Spinebill	<i>Acanthorhynchus tenuirostris</i>	8	11.76%
Spiny-cheeked Honeyeater	<i>Acanthagenys rufogularis</i>	1	1.47%
Red Wattlebird	<i>Anthochaera carunculata</i>	16	23.53%
White-plumed Honeyeater	<i>Ptilotula penicillata</i>	6	8.82%
Yellow-faced Honeyeater	<i>Caligavis chrysops</i>	13	19.12%
Yellow-tufted Honeyeater	<i>Lichenostomus melanops</i>	1	1.47%
Noisy Miner	<i>Manorina melanocephala</i>	20	29.41%
Spotted Pardalote	<i>Pardalotus punctatus</i>	12	17.65%
Striated Pardalote	<i>Pardalotus striatus</i>	17	25.00%
White-throated Gerygone	<i>Gerygone olivacea</i>	2	2.94%
Western Gerygone	<i>Gerygone fusca</i>	1	1.47%
Weebill	<i>Smicrornis brevirostris</i>	3	4.41%
Speckled Warbler	<i>Pyrrholaemus sagittatus</i>	1	1.47%
Chestnut-rumped Heathwren	<i>Calamanthus pyrrhopygius</i>	1	1.47%
Yellow-rumped Thornbill	<i>Acanthiza chrysorrhoa</i>	2	2.94%
Yellow Thornbill	<i>Acanthiza nana</i>	10	14.71%
Striated Thornbill	<i>Acanthiza lineata</i>	5	7.35%
Brown Thornbill	<i>Acanthiza pusilla</i>	9	13.24%
Buff-rumped Thornbill	<i>Acanthiza reguloides</i>	17	25.00%
Varied Sittella	<i>Daphoenositta chrysoptera</i>	2	2.94%
Black-faced Cuckoo-shrike	<i>Coracina novaehollandiae</i>	5	7.35%
Spotted Quail-thrush	<i>Cinclosoma punctatum</i>	1	1.47%
Rufous Whistler	<i>Pachycephala rufiventris</i>	8	11.76%
Golden Whistler	<i>Pachycephala pectoralis</i>	9	13.24%
Grey Shrike-thrush	<i>Colluricincla harmonica</i>	9	13.24%

Crested Shrike-tit	Falcunculus frontatus	1	1.47%
Olive-backed Oriole	Oriolus sagittatus	3	4.41%
Pied Currawong	Strepera graculina	9	13.24%
Australian Magpie	Gymnorhina tibicen	22	32.35%
Pied Butcherbird	Cracticus nigrogularis	5	7.35%
Grey Butcherbird	Cracticus torquatus	3	4.41%
Dusky Woodswallow	Artamus cyanopterus	2	2.94%
Willie Wagtail	Rhipidura leucophrys	2	2.94%
Grey Fantail	Rhipidura albiscapa	16	23.53%
Little Crow	Corvus bennetti	2	2.94%
Australian Raven	Corvus coronoides	2	2.94%
Leaden Flycatcher	Myiagra rubecula	2	2.94%
Magpie-lark	Grallina cyanoleuca	9	13.24%
White-winged Chough	Corcorax melanorhamphos	9	13.24%
Apostlebird	Struthidea cinerea	3	4.41%
Scarlet Robin	Petroica boodang	1	1.47%
Red-capped Robin	Petroica goodenovii	1	1.47%
Eastern Yellow Robin	Eopsaltria australis	15	22.06%
Mistletoebird	Dicaeum hirundinaceum	5	7.35%
Brown Songlark	Cincloramphus cruralis	1	1.47%
Rufous Songlark	Cincloramphus mathewsi	1	1.47%
Welcome Swallow	Hirundo neoxena	3	4.41%
Silvereye	Zosterops lateralis	8	11.76%
Common Starling	Sturnus vulgaris	4	5.88%
Crow & Raven spp		11	16.18%

Appendix B

Bird species lists

Bird species recorded during Winter 2024 surveys

Scientific Name	Common Name	BC Act	EPBC Act	W1	W2	W3	W4	W5	W6	Incidental
<i>Struthidea cinerea</i>	Apostlebird	-	-			Y				
<i>Tachybaptus novaehollandiae</i>	Australasian Grebe	-	-							Y
<i>Cracticus tibicen</i>	Australian Magpie	-	-	Y		Y	Y	Y	Y	
<i>Aegotheles cristatus</i>	Australian Owlet-Nightjar	-	-	Y						
<i>Corvus coronoides</i>	Australian Raven	-	-	Y					Y	
<i>Chenonetta jubata</i>	Australian Wood Duck	-	-	Y			Y		Y	
<i>Coracina novaehollandiae</i>	Black-faced Cuckoo-Shrike	-	-	Y		Y			Y	
<i>Northiella haematogaster</i>	Blue Bonnet	-	-				Y			
<i>Entomyzon cyanotis</i>	Blue-faced Honeyeater	-	-			Y				
<i>Coturnix ypsilophora</i>	Brown Quail	-	-							Y
<i>Acanthiza pusilla</i>	Brown Thornbill	-	-						Y	
<i>Climacteris picumnus victoriae</i>	Brown Treecreeper (eastern subspecies)	V	V	Y						
<i>Melithreptus brevirostris</i>	Brown-headed Honeyeater	-	-	Y	Y		Y		Y	
<i>Acanthiza reguloides</i>	Buff-rumped Thornbill	-	-						Y	
<i>Phaps chalcoptera</i>	Common Bronzewing	-	-	Y		Y	Y			
<i>Sturnus vulgaris</i>	Common Starling	-	-				Y			Y
<i>Ocyphaps lophotes</i>	Crested Pigeon	-	-				Y			
<i>Platycercus eximius</i>	Eastern Rosella	-	-	Y	Y	Y	Y	Y	Y	
<i>Eopsaltria australis</i>	Eastern Yellow Robin	-	-	Y	Y					Y
<i>Cacomantis flabelliformis</i>	Fan-tailed Cuckoo	-	-							Y

Scientific Name	Common Name	BC Act	EPBC Act	W1	W2	W3	W4	W5	W6	Incidental
<i>Eolophus roseicapillus</i>	Galah	-	-	Y	Y	Y	Y	Y	Y	
<i>Pachycephala pectoralis</i>	Golden Whistler	-	-						Y	
<i>Cracticus torquatus</i>	Grey Butcherbird	-	-			Y	Y	Y	Y	
<i>Rhipidura albiscapa</i>	Grey Fantail	-	-	Y	Y	Y			Y	
<i>Colluricincla harmonica</i>	Grey Shrike-thrush	-	-	Y	Y	Y		Y	Y	
<i>Pomatostomus temporalis temporalis</i>	Grey-crowned Babbler (eastern subspecies)	V	-			Y	Y		Y	
<i>Chalcites basalis</i>	Horsfield's Bronze-Cuckoo	-	-					Y	Y	
<i>Microeca fascians</i>	Jacky Winter	-	-		Y	Y	Y		Y	
<i>Dacelo novaeguineae</i>	Laughing Kookaburra	-	-	Y	Y	Y	Y	Y	Y	
<i>Cacatua sanguinea</i>	Little Corella	-	-			Y				
<i>Philemon citreogularis</i>	Little Friarbird	-	-							Y
<i>Corvus mellori</i>	Little Raven	-	-	Y		Y	Y	Y	Y	
<i>Grallina cyanoleuca</i>	Magpie-lark	-	-				Y	Y	Y	
<i>Dicaeum hirundinaceum</i>	Mistletoebird	-	-							Y
<i>Glossopsitta concinna</i>	Musk Lorikeet	-	-				Y			
<i>Falco cenchroides</i>	Nankeen Kestrel	-	-				Y			
<i>Philemon corniculatus</i>	Noisy Friarbird	-	-		Y	Y				
<i>Manorina melanocephala</i>	Noisy Miner	-	-	Y		Y	Y	Y	Y	
<i>Oriolus sagittatus</i>	Olive-backed Oriole	-	-				Y			
<i>Anas superciliosa</i>	Pacific Black Duck	-	-					Y		

Scientific Name	Common Name	BC Act	EPBC Act	W1	W2	W3	W4	W5	W6	Incidental
<i>Geopelia striata</i>	Peaceful Dove	-	-		Y	Y				
<i>Cracticus nigrogularis</i>	Pied Butcherbird	-	-			Y	Y	Y		
<i>Strepera graculina</i>	Pied Currawong	-	-	Y	Y			Y		
<i>Anthochaera carunculata</i>	Red Wattlebird	-	-	Y	Y	Y	Y		Y	
<i>Psephotus haematonotus</i>	Red-rumped Parrot	-	-							Y
<i>Myiagra inquieta</i>	Restless Flycatcher	-	-						Y	
<i>Pachycephala rufiventris</i>	Rufous Whistler	-	-		Y	Y			Y	
<i>Pardalotus punctatus</i>	Spotted Pardalote	-	-	Y	Y	Y				
<i>Pardalotus striatus</i>	Striated Pardalote	-	-			Y	Y	Y	Y	
<i>Plectorhyncha lanceolata</i>	Striped Honeyeater	-	-	Y		Y	Y	Y		
<i>Cacatua galerita</i>	Sulphur-crested Cockatoo	-	-			Y		Y	Y	
<i>Malurus cyaneus</i>	Superb Fairy-wren	-	-	Y	Y				Y	
<i>Polytelis swainsonii</i>	Superb Parrot	V	V			Y				Y
<i>Smicrornis brevirostris</i>	Weebill	-	-	Y	Y	Y		Y	Y	
<i>Hirundo neoxena</i>	Welcome Swallow	-	-							Y
<i>Nesoptilotis leucotis</i>	White-eared Honeyeater	-	-	Y	Y	Y				
<i>Egretta novaehollandiae</i>	White-faced Heron	-	-				Y			Y
<i>Melithreptus lunatus</i>	White-naped Honeyeater	-	-		Y				Y	
<i>Ptilotula penicillatus</i>	White-plumed Honeyeater	-	-	Y	Y					
<i>Gerygone olivacea</i>	White-throated Gerygone	-	-		Y			Y	Y	

Scientific Name	Common Name	BC Act	EPBC Act	W1	W2	W3	W4	W5	W6	Incidental
<i>Cormobates leucophaea</i>	White-throated Treecreeper	-	-	Y	Y	Y			Y	
<i>Corcorax melanorhamphos</i>	White-winged Chough	-	-	Y			Y			
<i>Rhipidura leucophrys</i>	Willie Wagtail	-	-	Y	Y	Y			Y	
<i>Acanthiza nana</i>	Yellow Thornbill	-	-	Y	Y	Y			Y	
<i>Caligavis chrysops</i>	Yellow-faced Honeyeater	-	-	Y	Y					
<i>Acanthiza chrysorrhoa</i>	Yellow-rumped Thornbill	-	-					Y		
Total				29	24	31	25	19	32	11

Bird species recorded during Spring 2024 surveys

Scientific Name	Common Name	BC Act	EPBC Act	REM1	REM2	REM3	REM4	REM5	REM6	S1	S5	S6	S7	S10	Incidental
<i>Struthidea cinerea</i>	Apostlebird	-	-					Y			Y		Y	Y	
<i>Cracticus tibicen</i>	Australian Magpie	-	-	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	
<i>Anthus novaeseelandiae</i>	Australian Pipit	-	-							Y					
<i>Corvus coronoides</i>	Australian Raven	-	-			Y	Y	Y	Y	Y		Y		Y	
<i>Chenonetta jubata</i>	Australian Wood Duck	-	-											Y	
<i>Coracina novaehollandiae</i>	Black-faced Cuckoo-shrike	-	-					Y	Y		Y		Y		
<i>Acanthiza pusilla</i>	Brown Thornbill	-	-			Y									
<i>Climacteris picumnis</i>	Brown Treecreeper	V	V						Y			Y			
<i>Melithreptus brevirostris</i>	Brown-headed Honeyeater	-	-	Y	Y	Y				Y					
<i>Acanthiza reguloides</i>	Buff-rumped Thornbill	-	-	Y	Y	Y			Y	Y		Y			
<i>Nymphicus hollandicus</i>	Cockatiel	-	-									Y		Y	
<i>Sturnus vulgaris</i>	Common Starling	-	-							Y	Y		Y		
<i>Ocyphaps lophotes</i>	Crested Pigeon	-	-					Y	Y		Y	Y		Y	
<i>Platycercus elegans</i>	Crimson Rosella	-	-									Y			
<i>Platycercus eximius</i>	Eastern Rosella	-	-				Y	Y	Y	Y	Y	Y		Y	
<i>Eopsaltria australis</i>	Eastern Yellow Robin	-	-	Y	Y	Y		Y	Y		Y				

Scientific Name	Common Name	BC Act	EPBC Act	REM1	REM2	REM3	REM4	REM5	REM6	S1	S5	S6	S7	S10	Incidental
<i>Eolophus roseicapillus</i>	Galah	-	-	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	
<i>Pachycephala pectoralis</i>	Golden Whistler	-	-			Y				Y					
<i>Cracticus torquatus</i>	Grey Butcherbird	-	-	Y		Y			Y	Y	Y		Y	Y	
<i>Rhipidura albiscapa</i>	Grey Fantail	-	-		Y	Y			Y	Y					
<i>Colluricincla harmonica</i>	Grey Shrike-thrush	-	-	Y		Y	Y		Y	Y	Y				
<i>Anas gracilis</i>	Grey Teal	-	-												Y
<i>Pomatostomus temporalis temporalis</i>	Grey-crowned Babbler (eastern subspecies)	V	-					Y	Y	Y	Y	Y	Y	Y	
<i>Chalcites basalis</i>	Horsfield's Bronze-cuckoo	-	-	Y		Y						Y		Y	
<i>Microeca fascinans</i>	Jacky Winter	-	-					Y		Y	Y				
<i>Dacelo novaeguineae</i>	Laughing Kookaburra	-	-	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		
<i>Cacatua sanguinea</i>	Little Corella	-	-										Y		
<i>Corvus mellori</i>	Little Raven	-	-				Y	Y	Y		Y	Y	Y	Y	
<i>Grallina cyanoleuca</i>	Magpie-lark	-	-				Y	Y	Y	Y	Y	Y	Y	Y	
<i>Falco cenchroides</i>	Nankeen Kestrel	-	-												Y
<i>Manorina melanocephala</i>	Noisy Miner	-	-	Y			Y	Y	Y		Y	Y	Y	Y	
<i>Oriolus sagittatus</i>	Olive-backed Oriole	-	-			Y				Y	Y				

Scientific Name	Common Name	BC Act	EPBC Act	REM1	REM2	REM3	REM4	REM5	REM6	S1	S5	S6	S7	S10	Incidental
<i>Cracticus nigrogularis</i>	Pied Butcherbird	-	-				Y	Y			Y		Y		
<i>Strepera graculina</i>	Pied Currawong	-	-	Y		Y		Y	Y		Y				
<i>Anthochaera carunculata</i>	Red Wattlebird	-	-		Y			Y	Y	Y					
<i>Psephotus haematonotus</i>	Red-rumped Parrot	-	-						Y		Y		Y	Y	
<i>Myiagra inquieta</i>	Restless Flycatcher	-	-		Y										
<i>Pachycephala rufiventris</i>	Rufous Whistler	-	-	Y	Y	Y		Y		Y					
<i>Todiramphus sanctus</i>	Sacred Kingfisher	-	-	Y		Y									
<i>Chthonicola sagittata</i>	Speckled Warbler	V	-			Y									
<i>Acanthagenys rufogularis</i>	Spiny-cheeked Honeyeater	-	-							Y	Y	Y		Y	
<i>Pardalotus punctatus</i>	Spotted Pardalote	-	-	Y		Y		Y	Y						
<i>Pardalotus striatus</i>	Striated Pardalote	-	-					Y		Y		Y			
<i>Plectorhyncha lanceolata</i>	Striped Honeyeater	-	-						Y						
<i>Cacatua galerita</i>	Sulphur-crested Cockatoo	-	-	Y			Y		Y				Y	Y	
<i>Malurus cyaneus</i>	Superb Fairy-wren	-	-	Y	Y					Y					
<i>Polytelis swainsonii</i>	Superb Parrot	V	V				Y	Y	Y	Y	Y	Y	Y	Y	
<i>Aquila audax</i>	Wedge-tailed Eagle	-	-				Y								
<i>Smicrornis brevirostris</i>	Weebill	-	-	Y	Y	Y		Y	Y	Y	Y	Y		Y	

Scientific Name	Common Name	BC Act	EPBC Act	REM1	REM2	REM3	REM4	REM5	REM6	S1	S5	S6	S7	S10	Incidental
<i>Hirundo neoxena</i>	Welcome Swallow	-	-						Y						
<i>Nesoptilotis leucotis</i>	White-eared Honeyeater	-	-	Y	Y	Y									
<i>Egretta novaehollandiae</i>	White-faced Heron	-	-									Y		Y	
<i>Gerygone olivacea</i>	White-throated Gerygone	-	-		Y			Y	Y	Y					
<i>Cormobates leucophaea</i>	White-throated Treecreeper	-	-	Y	Y	Y		Y	Y		Y				
<i>Corcorax melanorhamphos</i>	White-winged Chough	-	-		Y			Y			Y	Y		Y	
<i>Rhipidura leucophrys</i>	Willie Wagtail	-	-		Y			Y	Y	Y	Y	Y			
<i>Caligavis chrysops</i>	Yellow-faced Honeyeater	-	-	Y	Y	Y							Y		
<i>Acanthiza chrysorrhoa</i>	Yellow-rumped Thornbill	-	-							Y					
<i>Acanthiza nana</i>	Yellow Thornbill	-	-	Y	Y	Y			Y						
Total				21	19	22	13	26	30	27	26	22	17	23	0



ghd.com

→ **The Power of Commitment**