



## Karrawirra Pari Riparian Fauna Survey

City of Adelaide

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## Abbreviations

| Abbreviation | Description                                                           |
|--------------|-----------------------------------------------------------------------|
| BOM          | Bureau of Meteorology                                                 |
| DCCEEW       | Commonwealth Department of Climate Change, Energy and the Environment |
| ELA          | Eco Logical Australia                                                 |
| PMST         | Protected Matters Search Tool                                         |
| IBRA         | The Interim Biogeographic Regionalisation for Australia               |
| EPBC         | <i>Environment Protection and Biodiversity Conservation Act 1999</i>  |
| NPW          | <i>National Parks and Wildlife Act 1972</i>                           |
| NVC          | Native Vegetation Council                                             |
| NVIS         | Native Vegetation Information System                                  |
| BDBSA        | Biological Database of South Australia                                |
| ALA          | Atlas of Living Australia                                             |
| SE           | Standard Error                                                        |
| SEB          | Significant Environmental Benefit                                     |
| BOM          | Bureau of Meteorology                                                 |
| SPRAT        | Species Profile and Threats Database                                  |
| SA           | South Australia                                                       |
| TAS          | Timed Area Search                                                     |
| km           | Kilometres                                                            |
| OP           | Opportunistic                                                         |

## Executive Summary

Eco Logical Australia Pty Ltd (ELA) was commissioned by the City of Adelaide to survey selected riparian areas along a roughly 5 km stretch of Karrawirra Pari (the River Torrens), between Hackney Road and the Port Road–Park Terrace intersection. This study focused on areas with high biodiversity value.

The survey aimed to fill knowledge gaps about riparian vertebrate fauna following a previous survey of the Adelaide Parklands conducted in 2023-24. ELA ecologists carried out the 2025 surveys over three periods between April and June 2025. The initial scoping survey took place on April 9th, 2025, during daylight in section G-H. Additional dawn, daytime, and dusk surveys were conducted on April 22nd and 23rd, timed to follow rainfall over the preceding weekend. A nocturnal survey was also completed on June 13th, after further rainfall in the weeks before. The dry conditions throughout the survey period likely influenced the lower abundance and diversity of fauna recorded. The Study Area (Figure 1) showed generally low weed cover, possibly due to effective management and/or the dry conditions.

In total, 54 fauna species were recorded: 44 birds, 5 mammals, 4 reptiles, and 1 amphibian. Notably, the Vulnerable *Pteropus poliocephalus* (grey-headed flying fox) was observed throughout the site, including populations near Botanic Park adjacent to the Study Area. The *Trichosurus vulpecula* (common brushtail possum), listed as Rare under state legislation, was also found and is considered stable in the greater Adelaide region. Frog numbers were very low, with only one species detected at a single site. Native woodland birds were also recorded in low numbers, likely due to habitat degradation, land clearing, or high populations of aggressive *Manorina melanocephala* (noisy miner) that exclude other bird species.

To better understand these patterns, further, ongoing surveys are recommended—especially in spring when species are more active. Additional work after periods of increased rainfall will help determine how species abundance and diversity respond to changing environmental conditions.

This report also suggests incorporating acoustic recording devices into future monitoring to improve detection of fauna species. Finally, it recommends managing noisy miner populations on site, as their presence may be negatively impacting native woodland bird numbers.

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## 1. Introduction

Eco Logical Australia Pty Ltd (ELA) was engaged by the City of Adelaide to conduct a survey of selected riparian areas along an approximately 5 km stretch of Karrawirra Pari (the River Torrens) between Hackney Road and downstream to the Port Road-Park Terrace intersection (the Study Area, Figure 1). The work was intended to fill gaps in knowledge around riparian vertebrate fauna following a 2023/24 survey of the Adelaide Parklands

In Kaurna language the River Torrens is called Karrawirra Pari which means Red Gum Forest River. It is approximately 85 km long and is the main river in Adelaide, flowing down through the Mount Lofty Ranges near Mount Pleasant, to the sea at West Beach. The Urban River Torrens Recovery Project has been managing stormwater management, undertaking weed control, completing revegetation, stabilising riverbanks, reducing litter and pollutants and removing large volumes of *Cyprinus carpio* (European carp). This has assisted in improving ecosystem function and diversity, with regenerated native habitat for flora and fauna, as well as areas for recreational use.

Much of this area has historically been highly degraded following European settlement, but some parts have undergone extensive restoration over the last decades. The survey area was fragmented by the highly modified Torrens Lake region, characterised by extensive lawned areas around Elder Park and extending upstream towards the Adelaide Zoo, hence this area was excluded from surveys and resulted in non-contiguous survey zones.

Fauna surveys completed to date within the Study Area include the most recent 2023/24 survey of the Adelaide Parklands (Taylor et al. 2024). Therefore, the 2025 field investigation focussed on better understanding the diversity of fauna species across the riparian corridor through a combination of timed area searches, opportunistic observations, spotlighting and baited camera traps.



**Figure 1: Study Area**

- |                                                |                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                        |                                                                                                                                                                                                                    |
|------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Watercourse</p> <p>Study Area (Section)</p> | <p>MNES recorded within 500m of the Study Area</p> <ul style="list-style-type: none"> <li>Australasian darter</li> <li>black falcon</li> <li>black-chinned honeyeater</li> <li>blue-billed duck</li> <li>Cape Barren goose</li> </ul> | <ul style="list-style-type: none"> <li>chestnut-rumped heathwren (Mount Lofty Ranges)</li> <li>common brushtail possum</li> <li>Gilbert's whistler</li> <li>great Crested grebe</li> <li>little eagle</li> <li>little egret</li> </ul> | <ul style="list-style-type: none"> <li>Macquarie River turtle</li> <li>musk duck</li> <li>southern water skink</li> <li>spotless crane</li> <li>white-bellied cuckooshrike</li> <li>white-winged chough</li> </ul> |
|------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

0 100 200 400 600  
Metres

Datum/Projection:  
GDA 1994 MGA Zone 54  
Project: 24ADL9722-AL Date: 6/20/2025

## 2. Methods

### 2.1. Desktop assessment

A desktop assessment was completed prior to the field investigation and included reviews of the following datasets:

- Commonwealth Department of Climate Change, Energy and the Environment (DCCEEW) *Protected Matters Search Tool (PMST) for Matters of National Environmental Significance (MNES) listed under the Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act)
- SA Department of Environment and Water (DEW) *NatureMaps online database* (Enviro Data SA 2023)
- DCCEEW *Native Vegetation Information System (NVIS) native vegetation layer* (DCCEEW 2025)
- *Atlas of Living Australia (ALA) online database* (ALA 2025)
- DEW *Biological Database of South Australia (BDBSA)* (DEWb 2025)
- Survey guidelines for Australia's threatened birds: *Guidelines for detecting birds listed as threatened under the EPBC Act* (DCCEEW 2017)
- Pre-European floristic vegetation mapping for the area Information on threatened species recovery priorities including recovery plans, conservation advice listings, SPRAT database etc.
- Taylor et al. 2024. *Wetland Vegetation Mapping and Fauna Surveys of the Adelaide Park Lands*. Report to the City of Adelaide
- City of Adelaide, 2024. Biodiversity Report Summary Report.
- City Planning, Development and Business Affairs Committee, 2024. *Adelaide Park Lands Biodiversity Survey*
- Department of Environment and Heritage, 2023. *A Biodiversity Survey of Adelaide Park Lands in South Australia*.

## 2.2. Field investigation

The Study Area for the project (Figure 1) covered four sections of the Karrawirra Pari within the City of Adelaide area. These four sections were selected to represent the areas of expected higher biodiversity due to the presence of native vegetation: Hackney Road to Albert Bridge (Section A-B), Adelaide Oval Footbridge to Montefiore (North/Pinkey Flat Side Only) – (Section C-D), Montefiore Bridge to the Torrens weir (North and South Sides)- (Section E-F) and the Torrens Weir to the Hindmarsh Bridge (Section G-H).

The vegetation communities across the Study Area vary in structural complexity and condition. *Eucalyptus camaldulensis* (river red gum) dominate the tree canopy across most of the Study Area with a range of other, mostly planted, species including *Eucalyptus cladocalyx* (sugar gum) as well as exotic species such as *Pinus sp.* (pine) and *Populus sp.* (poplar) occurring in patches. Beneath this canopy, *Phragmites australis* (common reed) forms dense thickets along much of the stream channel with the exception of the lower reaches in section G-H. The ground story though sections C-D and E-F is dominated by introduced tussock grasses (predominantly *Cynodon dactylon* - cooch) which grows to the waterline where *Phragmites australis* is absent. It is less dominant through the lower reaches of section G-H where more active revegetation has taken place, and the upper canopy creates denser shade.

The field investigations were separated into three separate trips to cover bird surveys, reptile, amphibian and mammal surveys. Surveys were conducted by Emrys Leitch (Senior Ecologist- ELA), Dave Armstrong (Ecologist - Subcontractor) and Lauren Heddle (Ecologist – ELA) as follows:

- bird surveys, dawn, daytime and dusk: 22 and 23 April
- reptile, amphibian and mammal surveys: 22 and 23 April
- mammal and frog surveys, nocturnal: 13 June
- camera traps: 13 to 16 June.

### 2.2.1. Bird surveys

Bird surveys considered all bird species within the Study Area. The methodology for timed area searches used a search of a two-hectare area for a period of 20 minutes, a Birdlife Australia approved method in the *Survey guidelines for threatened birds: Guidelines for detecting birds listed as threatened under the EPBC Act* (DCCEEW 2017). It is effective for detecting many bird species and is the best of the random and systematic sampling methods in detecting target species due to easy application and flexibility of observer movement (DCCEEW 2010). Free movement allows the investigator to more thoroughly explore any noises, indicative signs or favoured habitat features, than other more structured searches such as transects and point counts. The shape of the sample area can be tailored to better target preferred habitat compared with transect methods (DCCEEW 2010). This was particularly important given the narrow, linear nature of the riparian zone that forms the Study Area. Targeted avifauna surveys were undertaken at 14 sites along the four selected sections. Site locations for these are shown in Figure 8.

### 2.2.2. Reptile, amphibian and mammal survey

Surveys for reptiles were conducted during daylight hours, while amphibians and mammals were undertaken on foot at dawn, dusk and at night across the Study Area. A range of techniques were employed including spotlighting, thermal camera and rock rolling.

Six Reconyx H2P Hyperfire cameras were deployed in key habitat across the Study Area. This included dense *Phragmites australis* reed beds, steeper banked sections and on periodically inundated areas. Table 1 shows the location information for each camera and Figure 2 to Figure 7 show the habitat surrounding the camera.

The cameras were baited with universal bait (peanut butter, oats & olive oil) contained within a spring-loaded tea strainer and attached to a cork reference board. This camera set up was intended to capture a wide range of ground-dwelling fauna species which may be present in the survey area, as such a variety of orientations and focus points were used (i.e. focussed on a range of different habitat features) The cameras were set up to automatically record and take photographs with movement. When triggered by movement, three photographs were taken in rapid succession. The locations of the fauna transect and camera traps are shown in Figure 8.

**Table 1: Camera trap location information**

| Camera | Start date and time  | End date and time    | Habitat                                                                                                                                                             | Photo    | Latitude | Longitude |
|--------|----------------------|----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------|-----------|
| ELA001 | 13/06/2025<br>4:00PM | 16/06/2025<br>4:00PM | Steep hill to river. Some grasses but mainly leaf litter on ground. Area mainly open with little shrubs present. Camera under large <i>Eucalyptus camaldulensis</i> | Figure 2 | -34.9096 | 138.5785  |
| ELA002 | 13/06/2025<br>1:30PM | 16/06/2025<br>2:16PM | Steep slope facing river, exposed area no groundcover or shrubs, one large palm behind camera                                                                       | Figure 5 | -34.9121 | 138.6056  |
| ELA003 | 13/06/2025<br>1:55PM | 16/06/2025<br>2:08PM | <i>Acacia paradoxa</i> , under <i>Eucalyptus camaldulensis</i> , on a hill slope                                                                                    | Figure 4 | -34.9121 | 138.6083  |
| ELA004 | 13/06/2025<br>3:16PM | 16/06/2025<br>2:25PM | Part of embankment comes up into river, small area with slow moving river either side of embankment. Lots of leaf litter, trees and shrubs to hide                  | Figure 3 | -34.9148 | 138.5811  |
| ELA005 | 13/06/2025<br>2:50PM | 16/06/2025<br>3:00PM | On island with dense Kikuyu and Blackberry. Camera placed on Melaleuca with small dug out area within grasses. Weir nearby and water flowing slowly                 | Figure 6 | -34.9174 | 138.5868  |
| ELA006 | 13/06/2025<br>2:27PM | 16/06/2025<br>3:25PM | In thick reed bed. Out of water but on embankment                                                                                                                   | Figure 7 | -34.9186 | 138.5922  |



**Figure 2. ELA001**



**Figure 3. ELA004**



**Figure 4. ELA003**



**Figure 5: ELA002**



**Figure 6. ELA005**



**Figure 7. ELA006**

### **2.2.3. Opportunistic flora and fauna sightings**

Opportunistic sightings of fauna (birds, mammals and pests) and flora, including declared weeds, were recorded during the field investigation, to provide a more complete list of the flora and fauna of the Study Area.



**Figure 8: Ecological features within the Study Area**

- Fauna survey transects
- Watercourse
- Study Area (Section)
- Timed area search point
- Camera trap site
- Opportunistic fauna

0 100 200 400 600  
Metres

Datum/Projection:  
GDA 1994 MGA Zone 54  
Project: 24ADL9722-AL Date: 6/20/2025



## 3. Results

### 3.1. Birds: timed area searches

Fourteen timed area searches (TAS) were conducted across the Study Area, during which 39 bird species were observed. The location and broad habitat description for these sites are shown in Table 3. Table 4 shows the results of each of these searches. The most recorded species was *Gallinula tenebrosa* (dusky moorhen), recorded at 11 of the 14 sites. The highest number of species was detected at site TAS 06, being 17 species. This site was located just downstream of the Adelaide Oval footbridge. None of the species recorded in the timed area searches is listed under State or Commonwealth Legislation.

### 3.2. Fauna transects

Over 24 km of transects were surveyed across the Study Area, dawn, dusk and daytime observations were made at locations shown in Figure 8. A total of 19 species was recorded (8 birds, 4 reptiles, 6 mammals and 1 amphibian), Table 5 details the records of fauna and includes broad habitat descriptions and location information for each record.

### 3.1. Camera trapping

Detections by camera traps are summarised in Table 2. The cameras predominantly recorded rats, mice and brush tailed possums. Birds including *Grallina cyanoleuca* (magpie lark) and *Gallinula chloropus* (moorhen) were also recorded. A selection of the photos from the camera traps are shown in Figure 15 to Figure 29.

Table 2: Summary of detections by camera traps

| Camera | Habitat                                                                                                                                                             | Species recorded                                                                                                                                            |
|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ELA001 | Steep hill to river. Some grasses but mainly leaf litter on ground. Area mainly open with little shrubs present. Camera under large <i>Eucalyptus camaldulensis</i> | <i>Rattus</i> sp. (rat) and <i>Porphyrio melanotus</i> (Australasian swamphen).                                                                             |
| ELA002 | Steep slope facing river, exposed area no groundcover or shrubs, one large palm behind camera                                                                       | <i>Trichosurus vulpecula</i> (common brushtail possum), <i>Gymnorhina tibicen</i> (Australian magpie) and <i>Rattus</i> sp.                                 |
| ELA003 | <i>Acacia paradoxa</i> , under <i>Eucalyptus camaldulensis</i> , on a hill slope                                                                                    | <i>Trichosurus vulpecula</i> (common brushtail possum) and <i>Mus musculus</i> (house mouse).                                                               |
| ELA004 | Part of embankment comes up into river, small area with slow moving river either side of embankment. Lots of leaf litter, trees and shrubs to hide                  | <i>Trichosurus vulpecula</i> (common brushtail possum) <i>Grallina cyanoleuca</i> (magpie-lark), <i>Gallinula chloropus</i> (moorhen) and <i>Rattus</i> sp. |
| ELA005 | On island with dense Kikuyu and Blackberry. Camera placed on Melaleuca with small dug out area within grasses. Weir nearby and water flowing slowly                 | <i>Rattus</i> sp.                                                                                                                                           |
| ELA006 | In thick reed bed. Out of water but on embankment                                                                                                                   | <i>Mus musculus</i> (house mouse).                                                                                                                          |

### 3.2. Opportunistic records

Opportunistic observations of flora and fauna were recorded across all surveys. Table 5 provides a summary of opportunistic observations recorded during the field investigation. Most commonly observed fauna species was the common brushtail possum, common ringtail possum, eastern water skink and common garden skink. Interestingly, we also observed rakali resting within *Phragmites australis* on the riverbank. This data has been collated including all other records collected throughout these surveys as a species matrix in Appendix A.

Table 3: Timed area search locations

| Site No | Section     | Photo | Date       | Timing | Habitat description                                                                                                                                                                                      | Latitude   | Longitude |
|---------|-------------|-------|------------|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|-----------|
| TAS 1   | Section A-B | -     | 22/04/2025 | AM     | <i>Eucalyptus camaldulensis</i> woodland with <i>Phragmites australis</i> understorey                                                                                                                    | -34.910427 | 138.61184 |
| TAS 2   | Section A-B | -     | 22/04/2025 | AM     | <i>Eucalyptus camaldulensis</i> woodland with <i>Phragmites australis</i> understorey                                                                                                                    | -34.912736 | 138.60838 |
| TAS 3   | Section A-B | 41    | 22/04/2025 | AM     | <i>Eucalyptus camaldulensis</i> woodland. Steep with modified banks                                                                                                                                      | -34.911777 | 138.60584 |
| TAS 4   | Section A-B | 3147  | 22/04/2025 | AM     | <i>Eucalyptus camaldulensis</i> woodland, weedy understorey down to waterline                                                                                                                            | -34.913584 | 138.60476 |
| TAS 5   | Section A-B | 1316  | 22/04/2025 | AM     | <i>Eucalyptus camaldulensis</i> woodland mostly introduced grasses in understorey                                                                                                                        | -34.911681 | 138.60784 |
| TAS 6   | Section C-D | 4026  | 22/04/2025 | AM     | <i>Eucalyptus camaldulensis</i> woodland entirely introduced grasses in understorey. Small island with <i>Phragmites australis</i> and <i>Eucalyptus camaldulensis</i> just offshore in the Torrens Lake | -34.918691 | 138.5956  |
| TAS 7   | Section E-F | 5934  | 22/04/2025 | AM     | Narrow strip of <i>Eucalyptus camaldulensis</i>                                                                                                                                                          | -34.918103 | 138.59115 |
| TAS 8   | Section G-H | 2719  | 22/04/2025 | PM     | <i>Eucalyptus camaldulensis</i> woodland, weedy grasses in understorey down to waterline                                                                                                                 | -34.915608 | 138.58289 |
| TAS 9   | Section G-H | 5757  | 22/04/2025 | PM     | Narrow strip of <i>Eucalyptus camaldulensis</i> with <i>Phragmites australis</i> at the waterline                                                                                                        | -34.913773 | 138.58067 |
| TAS 10  | Section G-H | 3541  | 22/04/2025 | PM     | Steep artificial bank with overhanging <i>Eucalyptus camaldulensis</i>                                                                                                                                   | -34.909922 | 138.57888 |
| TAS 11  | Section G-H | 175   | 22/04/2025 | PM     | <i>Eucalyptus camaldulensis</i> open woodland                                                                                                                                                            | -34.914646 | 138.58115 |
| TAS 12  | Section G-H | 3259  | 23/04/2025 | AM     | <i>Eucalyptus camaldulensis</i> woodland <i>Phragmites australis</i> understorey                                                                                                                         | -34.911581 | 138.579   |
| TAS 13  | Section C-D | 1735  | 24/04/2025 | PM     | <i>Eucalyptus camaldulensis</i> with <i>Cynodon dactylon</i> understorey                                                                                                                                 | -34.918596 | 138.59445 |
| TAS 14  | Section G-H | 5115  | 23/04/2025 | PM     | <i>Eucalyptus camaldulensis</i> woodland <i>Phragmites australis</i> understorey - restricted to southern shoe of Torrens Lake                                                                           | -34.917678 | 138.58749 |

Table 4: Timed area search results

| Scientific name                                        | Common name              | TAS<br>1 | TAS<br>2 | TAS<br>3 | TAS<br>4 | TAS<br>5 | TAS<br>6 | TAS<br>7 | TAS<br>8 | TAS<br>9 | TAS<br>10 | TAS<br>11 | TAS<br>12 | TAS<br>13 | TAS<br>14 | Total |
|--------------------------------------------------------|--------------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|-----------|-----------|-----------|-----------|-------|
| <i>Acrocephalus australis</i>                          | reed warbler             | 1        |          |          |          |          |          |          |          |          |           |           |           |           |           | 1     |
| <i>Anas gracilis gracilis</i>                          | grey teal                |          |          |          | 1        |          |          | 1        |          | 1        |           |           | 1         | 8         |           | 12    |
| <i>Anas superciliosa</i>                               | black duck               | 1        | 2        | 1        |          |          | 2        | 3        |          |          |           | 2         | 10        | 2         |           | 23    |
| <i>Anhinga novaehollandiae</i>                         | Australian darter        |          |          | 1        |          |          |          |          |          |          |           |           |           |           |           | 1     |
| <i>Anthochaera carunculata</i>                         | red wattlebird           |          |          | 1        |          |          |          |          |          |          |           |           |           |           |           | 1     |
| <i>Ardea alba modesta</i>                              | great egret              |          |          |          |          |          | 1        |          |          |          |           |           |           |           |           | 1     |
| <i>Cacatua galerita</i>                                | sulphur-crested cockatoo |          | 3        |          |          |          |          |          | 2        |          |           |           |           |           |           | 5     |
| <i>Cacatua sanguinea gymnopsis</i>                     | little corella           |          | 3        |          |          |          |          |          |          |          |           | >20       |           |           |           | >20   |
| <i>Cacatua tenuirostris</i>                            | long billed corella      |          |          |          |          |          |          |          | 3        |          |           | 4         |           |           |           | 7     |
| <i>Chenonetta jubata</i>                               | Australian wood duck     |          | 16       | 2        |          |          | 3        |          | 4        | 12       |           |           |           |           |           | 37    |
| <i>Chroicocephalus novaehollandiae novaehollandiae</i> | silver gull              |          |          |          |          | 1        | 4        | 2        |          |          |           |           | 4         |           |           | 11    |
| <i>Columba livia</i>                                   | feral pigeon             |          |          |          |          |          |          |          |          |          | 3         |           |           |           |           | 3     |
| <i>Corvus mellori</i>                                  | little raven             | 1        |          |          |          |          | 1        |          |          |          |           |           |           |           |           | 2     |
| <i>Eolophus roseicapilla</i>                           | galah                    |          |          |          | 1        |          |          |          |          |          |           |           |           |           |           | 1     |
| <i>Falco longipennis murchisonianus</i>                | Australian hobby         |          | 1        |          |          |          |          |          |          |          |           |           |           |           |           | 1     |
| <i>Fulica atra australis</i>                           | Eurasian coot            |          |          | 1        | 1        |          | 17       | 7        | 2        | 2        |           |           | 19        | 2         |           | 51    |
| <i>Gallinula tenebrosa</i>                             | dusky moorhen            | 2        | 1        | 1        |          |          | 1        | 1        | 4        | 2        | 1         |           | 13        | 1         |           | 27    |
| <i>Glossopsitta concinna</i>                           | musk lorikeet            | 2        |          |          |          |          | 2        | 2        | 1        |          | 2         | 2         | 1         | 3         |           | 15    |
| <i>Grallina cyanoleuca</i>                             | magpie lark              |          | 2        | 1        |          | 1        | 2        | 1        | 2        | 1        |           |           | 1         | 1         |           | 12    |
| <i>Gymnorhina tibicen</i>                              | Australian magpie        | 1        |          |          |          |          |          |          | 8        | 2        |           | 13        | 1         |           |           | 25    |
| <i>Hirundo neoxena neoxena</i>                         | welcome swallow          |          | 4        |          |          |          | 6        | 1        | 6        |          | >10       |           | 20        | >25       |           | >70   |
| <i>Lichenostomus penicillatus</i>                      | white plumed honeyeater  |          |          | 1        | 1        |          |          |          |          |          |           |           |           |           |           | 2     |
| <i>Manorina melanocephala</i>                          | noisy miner              | 3        | >10      | >10      |          | >10      | 1        | 3        | >10      | 3        | 3         | 3         | >10       | 2         |           | >60   |
| <i>Microcarbo melanoleucos melanoleucos</i>            | little pied cormorant    |          |          | 1        |          |          | 5        |          |          | 1        |           |           | 2         | 6         |           | 15    |
| <i>Nycticorax caledonicus australasiae</i>             | nankeen night heron      |          |          |          | 2        |          |          |          |          |          |           |           |           |           |           | 2     |

| Scientific name                                    | Common name            | TAS<br>1 | TAS<br>2 | TAS<br>3 | TAS<br>4 | TAS<br>5 | TAS<br>6 | TAS<br>7 | TAS<br>8 | TAS<br>9 | TAS<br>10 | TAS<br>11 | TAS<br>12 | TAS<br>13 | TAS<br>14 | Total |
|----------------------------------------------------|------------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|-----------|-----------|-----------|-----------|-------|
| <i>Ocyphaps lophotes lophotes</i>                  | crested pigeon         | 1        |          | 2        |          |          |          |          |          |          |           |           |           | 2         |           | 5     |
| <i>Pelecanus conspicillatus</i>                    | pelican                |          |          |          |          |          | 6        |          |          |          |           |           |           |           |           | 6     |
| <i>Phalacrocorax carbo</i>                         | great cormorant        |          |          |          |          |          | 1        | 4        |          |          |           |           |           |           |           | 5     |
| <i>Phalacrocorax sulcirostris</i>                  | little black cormorant |          |          |          |          |          |          |          |          |          |           |           |           | 15        |           | 15    |
| <i>Phylidonyris novaehollandiae</i>                | new holland honeyeater |          |          |          |          |          |          |          |          |          |           |           |           | 5         |           | 5     |
| <i>Platycercus elegans</i>                         | Adelaide rosella       |          | 1        | 2        |          |          |          |          |          |          |           |           |           |           |           | 3     |
| <i>Platycercus eximius eximius</i>                 | eastern rosella        |          |          | 2        |          |          |          |          |          | 3        |           |           |           |           |           | 5     |
| <i>Porphyrio melanotus</i>                         | Australasian swampphen | 1        | 1        | 3        |          | 2        | 1        | 2        | 3        |          | 1         |           | 8         |           |           | 22    |
| <i>Pteropus poliocephalus</i>                      | grey-headed flying fox | 6        |          |          |          |          |          |          |          |          |           |           |           |           |           | 6     |
| <i>Rhipidura leucophrys</i>                        | willie wagtail         |          |          |          |          |          | 1        |          |          |          |           |           |           |           |           | 1     |
| <i>Tachybaptus novaehollandiae novaehollandiae</i> | Australasian grebe     |          | 2        |          |          |          | 5        | 2        | 2        |          |           |           | 5         |           |           | 16    |
| <i>Threskiornis molucca</i>                        | Australian white ibis  |          | 3        | 2        |          | 1        |          |          | 2        | 6        |           |           | 1         |           |           | 15    |
| <i>Trichoglossus moluccanus moluccanus</i>         | rainbow lorikeet       | 2        | 2        | 3        |          |          |          | <10      | 2        | 3        | 3         | 2         | 1         | 2         |           | <30   |
| <i>Vanellus miles</i>                              | masked lapwing         |          |          |          |          |          |          |          |          | 2        |           |           |           |           |           | 2     |

Table 5: Opportunistic fauna observations

| Site | Species name                                                      | Common name                                     | Habitat notes                                                                  | Additional notes                                | Date       | Photo                | Latitude   | Longitude  |
|------|-------------------------------------------------------------------|-------------------------------------------------|--------------------------------------------------------------------------------|-------------------------------------------------|------------|----------------------|------------|------------|
| OP1  | <i>Acrocephalus australis</i>                                     | reed warbler                                    | <i>Phragmites australis</i> on riverbank                                       | Heard                                           | 22/04/2025 |                      | -34.918735 | 138.589167 |
| OP2  | <i>Trichosurus vulpecula</i> ,<br><i>Pseudocheirus peregrinus</i> | common brushtail possum, common ringtail possum | In large <i>Eucalyptus</i> <i>Camaldulensis</i>                                | Scats                                           | 21/04/2025 |                      | -34.910072 | 138.611400 |
| OP3  | <i>Hydromys chrysogaster</i>                                      | rakali                                          | <i>Phragmites australis</i> on riverbank                                       | Observed in water                               | 21/04/2025 | Figure 10            | -34.912798 | 138.610897 |
| OP4  | <i>Pseudocheirus peregrinus</i>                                   | common ringtail possum                          | Scattered <i>Eucalyptus</i> <i>cladocalyx</i>                                  | Scat                                            | 22/04/2025 |                      | -34.917359 | 138.589416 |
| OP5  | <i>*Rattus norvegicus</i>                                         | brown rat                                       | <i>Arundo donax</i> on riverbank, edge of footpath                             | Recently deceased                               | 22/04/2025 |                      | -34.919442 | 138.591602 |
| OP6  | <i>Pteropus poliocephalus</i>                                     | grey headed flying fox                          | Overfly                                                                        | Scat                                            | 22/04/2025 |                      | -34.909659 | 138.578559 |
| OP7  | <i>Eulamprus quoyii</i>                                           | eastern water skink                             | River edge, minimal native veg                                                 |                                                 | 22/04/2025 | Figure 9             | -34.914040 | 138.580216 |
| OP8  | <i>Pteropus poliocephalus</i>                                     | grey headed flying fox                          | Overfly                                                                        | X 6                                             | 22/04/2025 |                      | -34.913179 | 138.580015 |
| OP10 | <i>Trichosurus vulpecula</i> ,<br><i>Pseudocheirus peregrinus</i> | common brushtail possum, common ringtail possum | Weed dominated <i>Eucalyptus</i> <i>camaldulensis</i> woodland                 | Scats                                           | 22/04/2025 |                      | -34.915793 | 138.582238 |
| OP11 | <i>Trichosurus vulpecula</i> ,<br><i>Pseudocheirus peregrinus</i> | common brushtail possum, common ringtail possum | Garden bed with <i>Eucalyptus</i> <i>camaldulensis</i> above                   | Scats                                           | 22/04/2025 |                      | -34.915770 | 138.583117 |
| OP12 | <i>Eulamprus quoyii</i>                                           | eastern water skink                             | Artificial rocky riverbank                                                     | On rock wall below shallow weir                 | 22/04/2025 |                      | -34.913126 | 138.580096 |
| OP13 | <i>Pseudocheirus peregrinus</i>                                   | common ringtail possum                          | In large <i>Eucalyptus</i> <i>cladocalyx</i>                                   | Dray                                            | 22/04/2025 |                      | -34.909656 | 138.577781 |
| OP14 | <i>Phalacrocorax sulcirostris</i>                                 | little black cormorant                          | <i>Eucalyptus</i> <i>camaldulensis</i> over <i>Phragmites australis</i>        | At least x5 nests, currently breeding           | 23/04/2025 | Figure 11            | -34.918592 | 138.588139 |
| OP15 | <i>Nycticorax caledonicus</i>                                     | nankeen night heron                             | Water's edge, open area of riverbank surrounded by <i>Phragmites australis</i> | Juvenile night heron, likely breeding occurring | 23/04/2025 | Figure 12, Figure 13 | -34.913003 | 138.609193 |
| OP16 | <i>Trichosurus vulpecula</i>                                      | common brushtail possum                         | <i>Eucalyptus</i> <i>camaldulensis</i>                                         | x2 adult female and juvenile                    | 23/04/2025 |                      | -34.911342 | 138.607456 |
| OP17 | <i>Dacelo novaeguineae</i>                                        | kookaburra                                      | Introduced Pine trees                                                          | x2                                              | 23/04/2025 |                      | -34.913038 | 138.609996 |
| OP18 | <i>Phalacrocorax carbo</i>                                        | greater cormorant                               | Overfly Torrens Lake                                                           |                                                 | 23/04/2025 |                      | -34.918651 | 138.592208 |

| Site | Species name                    | Common name             | Habitat notes                                                                     | Additional notes             | Date       | Photo     | Latitude   | Longitude  |
|------|---------------------------------|-------------------------|-----------------------------------------------------------------------------------|------------------------------|------------|-----------|------------|------------|
| OP19 | <i>Pteropus poliocephalus</i>   | grey headed flying fox  | Overfly                                                                           | x6                           | 23/04/2025 |           | -34.913025 | 138.610015 |
| OP20 | <i>Anhinga novaehollandiae</i>  | Australasian darter     | Dead log in Torrens Lake                                                          |                              | 23/04/2025 | Figure 14 | -34.918116 | 138.590973 |
| OP27 | <i>Petrochelidon nigricans</i>  | tree martin             | Torrens lake                                                                      | <100                         | 23/04/2025 |           | -34.918327 | 138.589025 |
| OP28 | <i>Lampropholis guichenoti</i>  | common garden skink     | Leaf litter above river channel                                                   |                              | 23/04/2025 |           | -34.906980 | 138.614330 |
| OP29 | <i>Lampropholis guichenoti</i>  | common garden skink     | Leaf litter above river channel                                                   |                              | 23/04/2025 |           | -34.909220 | 138.613410 |
| OP30 | <i>Lampropholis guichenoti</i>  | common garden skink     | Leaf litter above river channel                                                   |                              | 23/04/2025 |           | -34.911820 | 138.611520 |
| OP31 | <i>Eulamprus quoyii</i>         | eastern water skink     | Basking on exposed rocks                                                          |                              | 23/04/2025 |           | -34.909490 | 138.612540 |
| OP32 | <i>Christinus marmoratus</i>    | marbled gecko           | Leaf litter above river channel                                                   |                              | 23/04/2025 |           | -34.912170 | 138.610940 |
| OP33 | <i>Eulamprus quoyii</i>         | eastern water skink     | Basking on exposed rocks                                                          |                              | 23/04/2025 |           | -34.912470 | 138.605040 |
| OP34 | <i>Eulamprus quoyii</i>         | eastern water skink     | Basking on exposed rocks                                                          |                              | 23/04/2025 |           | -34.914230 | 138.580350 |
| OP35 | <i>Pseudocheirus peregrinus</i> | common ringtail possum  | Fence of Adelaide Zoo                                                             |                              | 13/06/2025 |           | -34.912642 | 138.605523 |
| OP36 | <i>Pseudocheirus peregrinus</i> | common ringtail possum  | Scattered <i>Eucalyptus camaldulensis</i> with <i>Cynodon dactylon</i> understory | x8                           | 13/06/2025 |           | -34.911772 | 138.608111 |
| OP37 | <i>Pseudocheirus peregrinus</i> | common ringtail possum  | Scattered <i>Eucalyptus camaldulensis</i> with <i>Cynodon dactylon</i> understory |                              | 13/06/2025 |           | -34.911383 | 138.607505 |
| OP38 | <i>Trichosurus vulpecula</i>    | common brushtail possum | Scattered <i>Eucalyptus camaldulensis</i> with <i>Cynodon dactylon</i> understory | x2 adult female and juvenile | 13/06/2025 |           | -34.912155 | 138.610873 |
| OP39 | <i>Pseudocheirus peregrinus</i> | common ringtail possum  | Scattered <i>Eucalyptus camaldulensis</i> with <i>Cynodon dactylon</i> understory | x2 adult female and juvenile | 13/06/2025 |           | -34.912491 | 138.605101 |

| Site | Species name                    | Common name            | Habitat notes                                                                     | Additional notes | Date       | Photo | Latitude   | Longitude  |
|------|---------------------------------|------------------------|-----------------------------------------------------------------------------------|------------------|------------|-------|------------|------------|
| OP41 | <i>Anhinga novaehollandiae</i>  | Australasian darter    | Water's edge, open area of riverbank surrounded by <i>Phragmites australis</i>    |                  | 13/06/2025 |       | -34.915109 | 138.584965 |
| OP42 | <i>Ardea alba modesta</i>       | eastern great egret    | Water's edge, open area of riverbank surrounded by <i>Phragmites australis</i>    |                  | 13/06/2025 |       | -34.915156 | 138.583787 |
| OP43 | <i>Platalea regia</i>           | royal spoonbill        | Scattered <i>Eucalyptus camaldulensis</i> with <i>Cynodon dactylon</i> understory |                  | 13/06/2025 |       | -34.915467 | 138.583212 |
| OP44 | <i>Crinia signifera</i>         | common eastern froglet | Back water from main channel                                                      | <10              | 13/06/2025 |       | -34.914798 | 138.581256 |
| OP45 | <i>Pseudocheirus peregrinus</i> | common ringtail possum | Scattered <i>Eucalyptus camaldulensis</i> with <i>Cynodon dactylon</i> understory | x2               | 13/06/2025 |       | -34.913458 | 138.579853 |
| OP46 | <i>Pseudocheirus peregrinus</i> | common ringtail possum | Scattered <i>Eucalyptus camaldulensis</i> with <i>Cynodon dactylon</i> understory | x2               | 13/06/2025 |       | -34.914241 | 138.580004 |



Figure 9. *Eulamprus quoyii* (eastern water skink)



Figure 10. *Hydromys chrysogaster* (rakali) habitat



Figure 11. *Phalacrocorax sulcirostris* (little black cormorant) nests



Figure 12. *Nycticorax caledonicus* (nankeen night heron) juvenile



Figure 13. *Nycticorax caledonicus* (nankeen night heron) adult

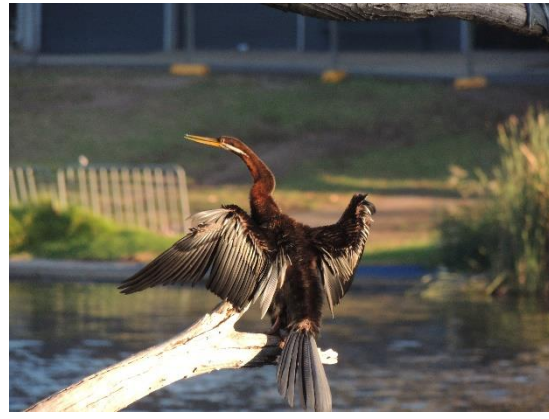


Figure 14. *Anhinga novaehollandiae* (Australasian darter)



Figure 15. Camera ELA001 *Rattus* sp.



Figure 16. Camera ELA001 *Porphyrio melanotus* (Australasian swamphen)



Figure 17. Camera ELA002 *Rattus* sp.



Figure 18. Camera ELA002 *Trichosurus vulpecula* (common brushtail possum)



Figure 19. Camera ELA002 *Gymnorhina tibicen* (Australian magpie)



Figure 20. Camera ELA003 *Trichosurus vulpecula* (common brushtail possum)



Figure 21. Camera ELA003 *Mus musculus* (house mouse)



Figure 22. Camera ELA004 *Trichosurus vulpecula* (common brushtail possum)



Figure 23. Camera ELA004 *Rattus* sp.



Figure 24. Camera ELA004 *Grallina cyanoleuca* (magpie lark)



Figure 25. Camera ELA005 *Rattus* sp.



Figure 26. Camera ELA006 *Rattus* sp.



Figure 27. Camera ELA006 *Mus musculus* (house mouse)



Figure 28. Camera ELA006 *Mus musculus* (house mouse)



Figure 29. Camera ELA00 6 *Rattus* sp.

## 4. Discussion

The key findings from the survey highlight several notable observations about the fauna within the Study Area:

### 1. Absence of *Vulpes vulpes* (fox) scats

No fox scats were observed during the survey, which is unusual as foxes commonly leave scats along walking trails as territorial markers. Given foxes' well-known adaptability and prevalence in urban environments, it is unlikely they are entirely absent from the area. More plausibly, their numbers are low along the city section of the riverine corridor.

### 2. Minimal frog calling activity

Frog calls were detected at only one site within the Study Area. This low calling activity may be influenced by seasonal or environmental factors, including a recent prolonged dry period. Additionally, there has been a documented dramatic decline in frog populations nationally in recent years, largely attributed to the spread of the amphibian chytrid fungus.

### 3. Waterbird breeding activity

Little black cormorants were observed breeding. While not a threatened species, any colonial breeding site of waterbirds near urban areas holds ecological significance.

Nankeen night herons are probable residents breeding in the area. Although not listed as threatened, they are uncommon across the Adelaide Plains. Notably, these herons were documented in the same location approximately ten years ago by Ecologist Dave Armstrong, suggesting a persistent local population.

### 4. Low numbers of woodland birds

Woodland birds were scarce, likely due to the dominance of noisy miners. These birds form aggressive groups that harass and exclude more timid species. The open woodland and parkland habitat along the watercourse provide ideal conditions for Noisy Miners, which thrive in fragmented landscapes.

## Environmental influences on survey results

The prevailing environmental conditions likely affected survey outcomes. The months preceding the survey experienced abnormally low rainfall, representing one of the driest periods since the Millennium Drought (2001-2009) in the Adelaide region. These dry conditions may have reduced species activity and detectability. However, Karrawirra Pari and its riparian zone likely served as a refuge and consistent water source, potentially mitigating some impacts. The exact extent of this influence remains uncertain.

## Effectiveness of survey methods

The surveys detected a wide range of fauna, and bird surveys appeared effective. Camera traps, trialled in the 2025 surveys, offer advantages such as extended deployment with minimal maintenance and cost-effectiveness, especially for nocturnal mammals. However, the substantial time and effort required to set up and analyse the large volume of images must be considered. Given the suboptimal conditions (notably low rainfall), the camera trapping results did not justify the effort in this instance.

### Impact of noisy miners on woodland bird diversity and ecosystem health

Noisy miners were commonly encountered throughout the field investigation. Although native, their populations have surged since European colonisation, leading to over-abundance (DCCEEW 2020). They thrive in fragmented and cleared habitats, contrary to most other native birds in the area. Their aggressive behaviour reduces species richness by excluding other birds. Furthermore, noisy miners indirectly harm *Eucalyptus* trees by deterring lerp-eating birds that help control *Psyllid* populations. This defence mechanism allows *Psyllids* to proliferate, causing increased insect damage to *Eucalyptus* foliage (Low 2016; DCCEEW 2020).

The low woodland bird numbers recorded in this survey are likely influenced by the high presence of noisy miners. To support greater bird diversity, research into revegetation and maintenance of existing habitats is recommended to encourage nesting by other species and help them withstand noisy miner aggression (Crates et al. 2019). Enhancing ecosystem function through vegetation restoration that increases structural complexity may provide more effective, long-term benefits for declining small woodland birds (Grey et al. 2011; Lindenmayer et al. 2018; Beggs et al. 2019).

## 5. Recommendations

### 1. Seasonal and long-term surveys

Ongoing seasonal surveys are recommended to establish a robust baseline and accurately monitor changes in species diversity and abundance. Future surveys should ideally be conducted in spring to determine whether the relatively low fauna diversity and abundance observed in this study reflect true conditions or are influenced by survey timing and dry environmental conditions. Consistency in survey methods and locations across multiple years will enable comparison over varying environmental factors such as climate, rainfall, and temperature. This would require an ongoing funding commitment for these biodiversity surveys and monitoring to provide comparative data and to understand the effectiveness of management actions by the Council over time.

### 2. Incorporation of acoustic monitoring

The use of acoustic detectors should be considered as part of the monitoring program, especially to enhance detection of cryptic species. Given the low number of woodland birds recorded during timed area searches, acoustic recording devices can improve detection of a wider diversity of bird species and other fauna. While acoustic monitoring increases species detection, it does not currently provide reliable abundance estimates; therefore, follow-up surveys remain necessary to determine accurate population sizes. Acoustic analysis, however, serves as a valuable tool for ongoing monitoring. A summary of the benefits and constraints of acoustic monitoring are outlined in Table 6.

### 3. Monitoring of micro bats

Acoustic detectors also offer the opportunity to monitor *Microchiropteran* (micro) bat presence within the Study Area. Since both birds and bats exhibit increased activity during spring, timing surveys and acoustic monitoring accordingly will enhance detection rates. Advances in artificial intelligence and machine learning are expected to facilitate automated species identification, enabling longer-term deployment of monitoring devices with improved efficiency. A summary of the strengths and limitations of acoustic monitoring is provided in Table 6.

### 4. Weed and pest species monitoring

Ongoing surveillance for introduced plant species is essential, particularly given the potential for weed dispersal through the river system. Although few weed species and low cover were detected during this investigation, the recent dry conditions may have suppressed weed presence. Continued management and monitoring will help ensure early detection and control.

### 5. Assessment and management of noisy miners

An assessment of noisy miner abundance and their impacts on native fauna is recommended, with a focus on their effects on bird species. Exploration of control methods to mitigate their negative impact should be considered to support native biodiversity.

### 6. Use of additional technology

The use of smart technology including DNA sampling should be considered as part of any future monitoring. There is the potential to be able to use this to confirm species presence before undertaking targeted surveys and adjust field work programs to maximise detection of target species.

## 7. Citizen Science

Citizen Science can play a useful role in raising awareness and education around threatened species and the health of the river more broadly. This role can be further enhanced through the use of standard scientific methods for verification.

### Summary of Recommendations:

- Repeat survey work in spring at consistent locations.
- Conduct surveys over multiple years to identify trends and environmental influences.
- Integrate acoustic detectors and automated analysis to improve species detection (including birds and bats).
- Implement ongoing monitoring of weed and pest species, potentially aligned with fauna surveys.
- Assess the abundance, impacts, and control options for noisy miners.
- Investigate the use of additional tools such as DNA sampling to allow better targeting of survey effort.
- Ongoing support for Citizen Science work backed by standardised methods for identification of species.

Table 6: Acoustic monitoring strengths and limitations

| Strengths                                                                                                                   | Limitations                                                                                                      |
|-----------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|
| Allows autonomous data collection (sound recording) over long time periods.                                                 | Requires testing before deployment.                                                                              |
| Large data storage capacity.                                                                                                | Large amounts of data can be generated and quickly reach storage capacity of the recording device.               |
| Reduced fieldwork time. Recorders can be deployed throughout the day and scheduled to record for weeks or months at a time. | Only works when sound is a reliable indicator of the target species or environment.                              |
| Does not require an expert in the field for ID, ID can be completed via desktop.                                            | Analysis is often only reliable and effective when undertaken by appropriately trained and experienced analysts. |
| High sampling effort with low technical investment.                                                                         | May be time-consuming if it is not automated or semi-automated.                                                  |
| Can be used in most environments.                                                                                           | Only detects presence data.                                                                                      |
| Greater spatial range than traditional point data.                                                                          |                                                                                                                  |
| Not as prone to occlusion as imagery.                                                                                       |                                                                                                                  |
| Low impact to wildlife and environment at the study.                                                                        |                                                                                                                  |
| Data can be reanalysed (results reproducible).                                                                              |                                                                                                                  |
| Snapshot in time for future use.                                                                                            |                                                                                                                  |

## 6. References

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## Appendix A Fauna species matrix

| Scientific Name                                        | Common Name              | OP | ELA001 | ELA002 | ELA003 | ELA004 | ELA005 | ELA006 | TAS 1 | TAS 2 | TAS 3 | TAS 4 | TAS 5 | TAS 6 | TAS 7 | TAS 8 | TAS 9 | TAS 10 | TAS 11 | TAS 12 | TAS 13 | TAS 14 | Total |
|--------------------------------------------------------|--------------------------|----|--------|--------|--------|--------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|--------|--------|-------|
| <i>Acrocephalus australis</i>                          | reed warbler             | 1  |        |        |        |        |        |        | 1     |       |       |       |       |       |       |       |       |        |        |        |        |        | 2     |
| <i>Anas gracilis gracilis</i>                          | grey teal                |    |        |        |        |        |        |        |       |       |       | 1     |       |       | 1     |       | 1     |        |        | 1      | 8      |        | 12    |
| <i>Anas superciliosa</i>                               | black duck               |    |        |        |        |        |        |        | 1     | 2     | 1     |       |       | 2     | 3     |       |       |        | 2      | 10     | 2      |        | 23    |
| <i>Anhinga novaehollandiae</i>                         | Australian darter        | 2  |        |        |        |        |        |        |       |       | 1     |       |       |       |       |       |       |        |        |        |        |        | 3     |
| <i>Anthochaera carunculata</i>                         | red wattlebird           |    |        |        |        |        |        |        |       |       | 1     |       |       |       |       |       |       |        |        |        |        |        | 1     |
| <i>Ardea alba modesta</i>                              | eastern great egret      | 1  |        |        |        |        |        |        |       |       |       |       |       | 1     |       |       |       |        |        |        |        |        | 2     |
| <i>Cacatua galerita</i>                                | sulphur-crested cockatoo |    |        |        |        |        |        |        |       | 3     |       |       |       |       |       | 2     |       |        |        |        |        |        | 5     |
| <i>Cacatua sanguinea gymnopsis</i>                     | little corella           |    |        |        |        |        |        |        |       | 3     |       |       |       |       |       |       |       |        | <20    |        |        |        | <20   |
| <i>Cacatua tenuirostris</i>                            | long billed corella      |    |        |        |        |        |        |        |       |       |       |       |       |       |       | 3     |       |        | 4      |        |        |        | 7     |
| <i>Chenonetta jubata</i>                               | Australian wood duck     |    |        |        |        |        |        |        |       | 16    | 2     |       |       | 3     |       | 4     | 12    |        |        |        |        |        | 37    |
| <i>Christinus marmoratus</i>                           | marbled gecko            | 1  |        |        |        |        |        |        |       |       |       |       |       |       |       |       |       |        |        |        |        |        | 1     |
| <i>Chroicocephalus novaehollandiae novaehollandiae</i> | silver gull              |    |        |        |        |        |        |        |       |       |       |       | 1     | 4     | 2     |       |       |        |        | 4      |        |        | 11    |
| <i>Columba livia</i>                                   | feral pigeon             |    |        |        |        |        |        |        |       |       |       |       |       |       |       |       |       | 3      |        |        |        |        | 3     |

| Scientific Name                         | Common Name             | OP  | ELA001 | ELA002 | ELA003 | ELA004 | ELA005 | ELA006 | TAS 1 | TAS 2 | TAS 3 | TAS 4 | TAS 5 | TAS 6 | TAS 7 | TAS 8 | TAS 9 | TAS 10 | TAS 11 | TAS 12 | TAS 13 | TAS 14 | Total |
|-----------------------------------------|-------------------------|-----|--------|--------|--------|--------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|--------|--------|-------|
| <i>Corvus mellori</i>                   | little raven            |     |        |        |        |        |        |        | 1     |       |       |       |       | 1     |       |       |       |        |        |        |        |        | 2     |
| <i>Crinia signifera</i>                 | common eastern froglet  | <10 |        |        |        |        |        |        |       |       |       |       |       |       |       |       |       |        |        |        |        |        | <10   |
| <i>Dacelo novaeguineae</i>              | laughing kookaburra     | 2   |        |        |        |        |        |        |       |       |       |       |       |       |       |       |       |        |        |        |        |        | 2     |
| <i>Eolophus roseicapilla</i>            | galah                   |     |        |        |        |        |        |        |       |       |       | 1     |       |       |       |       |       |        |        |        |        |        | 1     |
| <i>Eulamprus quoyii</i>                 | eastern water skink     | 5   |        |        |        |        |        |        |       |       |       |       |       |       |       |       |       |        |        |        |        |        | 5     |
| <i>Falco longipennis murchisonianus</i> | Australian hobby        |     |        |        |        |        |        |        |       | 1     |       |       |       |       |       |       |       |        |        |        |        |        | 1     |
| <i>Fulica atra australis</i>            | Eurasian coot           |     |        |        |        |        |        |        |       |       | 1     | 1     |       | 17    | 7     | 2     | 2     |        |        | 19     | 2      |        | 51    |
| <i>Gallinula tenebrosa</i>              | dusky moorhen           |     |        |        |        | 1      |        |        | 2     | 1     | 1     |       |       | 1     | 1     | 4     | 2     | 1      |        | 13     | 1      |        | 28    |
| <i>Glossopsitta concinna</i>            | musk lorikeet           |     |        |        |        |        |        |        | 2     |       |       |       |       | 2     | 2     | 1     |       | 2      | 2      | 1      | 3      |        | 15    |
| <i>Grallina cyanoleuca</i>              | magpie lark             |     |        |        |        | 1      |        |        |       | 2     | 1     |       | 1     | 2     | 1     | 2     | 1     |        |        | 1      | 1      |        | 13    |
| <i>Gymnorhina tibicen</i>               | Australian magpie       |     |        | 1      |        |        |        |        | 1     |       |       |       |       |       |       | 8     | 2     |        | 13     | 1      |        |        | 26    |
| <i>Hirundo neoxena neoxena</i>          | welcome swallow         |     |        |        |        |        |        |        |       | 4     |       |       |       | 6     | 1     | 6     |       | <10    |        | 20     | <25    |        | <70   |
| <i>Hydromys chrysogaster</i>            | rakali                  | 1   |        |        |        |        |        |        |       |       |       |       |       |       |       |       |       |        |        |        |        |        | 1     |
| <i>Lampropholis guichenoti</i>          | common garden skink     | 3   |        |        |        |        |        |        |       |       |       |       |       |       |       |       |       |        |        |        |        |        | 3     |
| <i>Lichenostomus penicillatus</i>       | white plumed honeyeater |     |        |        |        |        |        |        |       |       | 1     | 1     |       |       |       |       |       |        |        |        |        |        | 2     |

| Scientific Name                             | Common Name            | OP   | ELA001 | ELA002 | ELA003 | ELA004 | ELA005 | ELA006 | TAS 1 | TAS 2 | TAS 3 | TAS 4 | TAS 5 | TAS 6 | TAS 7 | TAS 8 | TAS 9 | TAS 10 | TAS 11 | TAS 12 | TAS 13 | TAS 14 | Total |
|---------------------------------------------|------------------------|------|--------|--------|--------|--------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|--------|--------|-------|
| <i>Manorina melanocephala</i>               | noisy miner            |      |        |        |        |        |        |        | 3     | <10   | <10   |       | <10   | 1     | 3     | <10   | 3     | 3      | 3      | <10    | 2      |        | <60   |
| <i>Microcarbo melanoleucos melanoleucos</i> | little pied cormorant  |      |        |        |        |        |        |        |       |       | 1     |       |       | 5     |       |       | 1     |        |        | 2      | 6      |        | 15    |
| <i>Mus musculus</i>                         | house mouse            |      |        |        | 1      |        |        | 1      |       |       |       |       |       |       |       |       |       |        |        |        |        |        | 2     |
| <i>Nycticorax caledonicus australasiae</i>  | nankeen night heron    | 1    |        |        |        |        |        |        |       |       |       | 2     |       |       |       |       |       |        |        |        |        |        | 3     |
| <i>Ocyphaps lophotes lophotes</i>           | crested pigeon         |      |        |        |        |        |        |        | 1     |       | 2     |       |       |       |       |       |       |        |        |        | 2      |        | 5     |
| <i>Pelecanus conspicillatus</i>             | pelican                |      |        |        |        |        |        |        |       |       |       |       |       | 6     |       |       |       |        |        |        |        |        | 6     |
| <i>Petrochelidon nigricans</i>              | tree martin            | <100 |        |        |        |        |        |        |       |       |       |       |       |       |       |       |       |        |        |        |        |        | <100  |
| <i>Phalacrocorax carbo</i>                  | great cormorant        | 1    |        |        |        |        |        |        |       |       |       |       |       | 1     | 4     |       |       |        |        |        |        |        | 6     |
| <i>Phalacrocorax sulcirostris</i>           | little black cormorant | 5    |        |        |        |        |        |        |       |       |       |       |       |       |       |       |       |        |        |        | 15     |        | 20    |
| <i>Phylidonyris novaehollandiae</i>         | new holland honeyeater |      |        |        |        |        |        |        |       |       |       |       |       |       |       |       |       |        |        |        | 5      |        | 5     |
| <i>Platalea regia</i>                       | royal spoonbill        | 1    |        |        |        |        |        |        |       |       |       |       |       |       |       |       |       |        |        |        |        |        | 1     |
| <i>Platycercus elegans</i>                  | Adelaide rosella       |      |        |        |        |        |        |        |       | 1     | 2     |       |       |       |       |       |       |        |        |        |        |        | 3     |
| <i>Platycercus eximius eximius</i>          | eastern rosella        |      |        |        |        |        |        |        |       |       | 2     |       |       |       |       |       | 3     |        |        |        |        |        | 5     |
| <i>Porphyrio melanotus</i>                  | Australasian swamphen  |      | 1      |        |        |        |        |        | 1     | 1     | 3     |       | 2     | 1     | 2     | 3     |       | 1      |        | 8      |        |        | 23    |

| Scientific Name                                    | Common Name             | OP | ELA001 | ELA002 | ELA003 | ELA004 | ELA005 | ELA006 | TAS 1 | TAS 2 | TAS 3 | TAS 4 | TAS 5 | TAS 6 | TAS 7 | TAS 8 | TAS 9 | TAS 10 | TAS 11 | TAS 12 | TAS 13 | TAS 14 | Total |
|----------------------------------------------------|-------------------------|----|--------|--------|--------|--------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|--------|--------|-------|
| <i>Pteropus poliocephalus</i>                      | grey-headed flying fox  | 13 |        |        |        |        |        | 6      |       |       |       |       |       |       |       |       |       |        |        |        |        |        | 19    |
| <i>Pseudocheirus peregrinus</i>                    | common ringtail possum  | 23 |        |        |        |        |        |        |       |       |       |       |       |       |       |       |       |        |        |        |        |        | 23    |
| <i>Rattus norvegicus</i>                           | brown rat               | 1  | 1      | 1      |        | 1      | 1      |        |       |       |       |       |       |       |       |       |       |        |        |        |        |        | 5     |
| <i>Rhipidura leucophrys</i>                        | willie wagtail          |    |        |        |        |        |        |        |       |       |       |       |       | 1     |       |       |       |        |        |        |        |        | 1     |
| <i>Tachybaptus novaehollandiae novaehollandiae</i> | Australasian grebe      |    |        |        |        |        |        |        | 2     |       |       |       |       | 5     | 2     | 2     |       |        |        | 5      |        |        | 16    |
| <i>Threskiornis molucca</i>                        | Australian white ibis   |    |        |        |        |        |        |        | 3     | 2     |       | 1     |       |       |       | 2     | 6     |        |        | 1      |        |        | 15    |
| <i>Trichoglossus moluccanus moluccanus</i>         | rainbow lorikeet        |    |        |        |        |        |        | 2      | 2     | 3     |       |       |       |       | <10   | 2     | 3     | 3      | 2      | 1      | 2      |        | <30   |
| <i>Trichosurus vulpecula</i>                       | common brushtail possum | 5  |        | 1      | 1      | 1      |        |        |       |       |       |       |       |       |       |       |       |        |        |        |        |        | 8     |
| <i>Vanellus miles</i>                              | masked lapwing          |    |        |        |        |        |        |        |       |       |       |       |       |       |       |       | 2     |        |        |        |        |        | 2     |

