

# Adelaide Park Lands Biodiversity Survey

Strategic Alignment - Our Environment

Public

Tuesday, 2 July 2024

City Planning, Development  
and Business Affairs  
Committee

**Program Contact:**

Sarah Gilmour, Associate  
Director Park Lands, Policy &  
Sustainability

**Approving Officer:**

Ilia Houridis, Director City  
Shaping

## EXECUTIVE SUMMARY

The purpose of this report is to present the outcomes of the 2023/24 biodiversity survey (the survey) of the Adelaide Park Lands. The survey of the Adelaide Park Lands undertaken in 2023/24 updates the understanding of biodiversity values of the Adelaide Park Lands.

The survey focused on existing Key Biodiversity Areas in the Adelaide Park Lands, select native vegetation and revegetation sites, aquatic vegetation in the River Torrens / Karrawirra Pari, Victoria Park / Pakapakanthi Wetlands, and G S Kingston Park / Wirrarninthe Wetlands.

The survey is being delivered in three phases:

- Phase 1 (complete) – Desktop analysis including a literature review, gap analysis and update of data sharing and biodiversity monitoring methodologies.
- Phase 2 (complete) – Implementation of expert field surveys and citizen science campaign.
- Phase 3 (2024/25) – Development of a digital reporting framework to publicly report the findings.

Field surveys mapped, assessed and identified plant and animal species and vegetation associations that add to the knowledge of Adelaide Park Lands biodiversity. Key new animal species recordings by the field surveys include:

- Three species of microbat that were not previously recorded in the Adelaide Park Lands – bringing the total number of species to seven microbat species plus the Grey-headed Flying-fox, which was not present for the 2003 survey report.
- One Short-finned Eel (*Anguilla australis*) was observed in Torrens Lake, which represents the first observation of the species above the city weir recorded during scientific surveys.
- There is high confidence that at least two, potentially up to ten, unidentified native bee species have not been described in scientific literature and may be new scientific recordings. Additional species will be confirmed by native bee experts and taxonomists.
- A rarely recorded species, the Jewel Beetle (*Diphucrania trimentula*), was recorded twice for the first time in the Adelaide Park Lands and there are only four records of this species in South Australia.

A summary of key survey findings is provided in **Attachment A**. Overall, the survey indicates:

- An increase in total species diversity and abundance in the Adelaide Park Lands.
- An increase in the distribution of biodiversity in the Adelaide Park Lands.
- The return of species to the Adelaide Park Lands through the creation of habitats (e.g. wetlands) and their associated resources.
- G S Kingston Park / Wirrarninthe (Park 23) is recommended as a new Key Biodiversity Area, bringing the total number to seven, due to the high quality and extent of successful and sustained revegetation.

The biodiversity survey was considered by the Kadaltilla / Adelaide Park Lands Authority (Kadaltilla) on 27 June 2024 ([Link 1](#)).

The City of Adelaide is continuing to develop its digital data and evidence base for the Adelaide Park Lands through a digital reporting framework to be delivered in the first quarter of 2024/25.

The survey has informed and will be delivered through the City of Adelaide's Integrated Climate Strategy 2030.

---

## RECOMMENDATION

The following recommendation will be presented to Council on 9 July 2024 for consideration

THAT THE CITY PLANNING, DEVELOPMENT AND BUSINESS AFFAIRS COMMITTEE RECOMMENDS TO COUNCIL

THAT COUNCIL

1. Receives the Adelaide Park Lands Biodiversity Survey Report as contained in Attachment A to Item 7.6 on the Agenda for the meeting of the City Planning, Development and Business Affairs Committee held on 2 July 2024.
  2. Notes that a digital reporting framework for publicly communicating the biodiversity survey findings is in development and will be completed by September 2024.
  3. Authorises the Acting Chief Executive Officer, or delegate, to make minor and technical amendments to the document contained in Attachment A to Item 7.6 on the Agenda for the City Planning, Development and Business Affairs Committee held on 2 July 2024 for the purpose of finalising the document for publication.
-

## IMPLICATIONS AND FINANCIALS

City of Adelaide 2024-2028 Strategic Plan	<p><b>Strategic Alignment – Our Environment</b></p> <p>To lead and advocate for the environmental value, productivity, quality and biodiversity of the Park Lands, squares, open space and streetscapes.</p>
Policy	<p>The survey responds to the Integrated Climate Strategy - Goal 3: A city where nature thrives, of the City of Adelaide's Integrated Climate Strategy 2030, which seeks to protect and enhance biodiversity, native grasslands and woodlands in the Adelaide Park Lands.</p> <p>The biodiversity survey supports the priorities and strategies of the draft Adelaide Park Lands Management Strategy – Towards 2036:</p> <p>Strategy 3.4 – Through Biodiversity Sensitive Design enhance biodiversity in the Adelaide Park Lands and provide food resources and habitat for target species</p> <p>Strategy 3.5 - Continue to protect and seek to expand Key Biodiversity Areas</p> <p>Strategy 3.6 – Seek opportunities to improve the condition of remnant vegetation</p> <p>Strategy 3.7 – Participate in global urban biodiversity initiatives and research.</p>
Consultation	<p>Consultation has been undertaken with:</p> <ul style="list-style-type: none"> <li>• Representatives from the Kurna community including Firesticks Alliance Members</li> <li>• Department for Environment and Water (DEW)</li> <li>• Green Adelaide</li> <li>• South Australian Museum</li> <li>• Botanic Gardens of South Australia</li> <li>• University of Adelaide, University of South Australia, and the Flinders University of South Australia</li> <li>• Environmental Non-Government Organisations.</li> </ul> <p>The biodiversity survey was considered by Kadaltilla on 27 June 2024.</p>
Resource	<p>The City of Adelaide engaged specialist consultants to conduct field surveys and review current biodiversity monitoring practices.</p>
Risk / Legal / Legislative	<p>Field surveys identified species that have a conservation status. Management of these species considers the <i>National Parks and Wildlife Act 1972 (SA)</i> and the <i>Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)</i>.</p>
Opportunities	<p>This project provides evidence-based data to inform the implementation of the Integrated Climate Strategy 2030.</p> <p>Opportunities for citizen science to supplement data gathering will allow for a high level of community involvement and advocacy.</p>
24/25 Budget Allocation	<p>Future surveys and an ongoing monitoring program will be programmed according to seasonal conditions and delivered through the Integrated Climate Strategy subject to annual budget deliberations.</p>
Proposed 25/26 Budget Allocation	<p>Not as a result of this report</p>
Life of Project, Service, Initiative or (Expectancy of) Asset	<p>The Biodiversity Survey provides a comprehensive baseline to inform ongoing monitoring and reporting of biodiversity in the Adelaide Park Lands.</p>

24/25 Budget Reconsideration (if applicable)	Not as a result of this report
Ongoing Costs (eg maintenance cost)	Not as a result of this report
Other Funding Sources	Not as a result of this report

---

# DISCUSSION

## Introduction

1. The purpose of this report is to present the outcomes of the 2023/24 biodiversity survey (the survey) of the Adelaide Park Lands. The survey updates the understanding of biodiversity values of the Adelaide Park Lands.
2. The last comprehensive biodiversity survey of the Adelaide Park Lands was completed in 2003. It was commissioned from the Biological Survey and Monitoring Group (then Department of Environment and Heritage, South Australia) and funded by the City of Adelaide.
3. The survey focused on existing Key Biodiversity Areas in the Adelaide Park Lands, select native vegetation and revegetation sites, aquatic vegetation in the River Torrens / Karrawirra Pari, Victoria Park / Pakapakanthi Wetlands, and G S Kingston Park / Wirrarninthe Wetlands.
  - 3.1. Key Biodiversity Areas are management boundaries used by the City of Adelaide to prioritise the management of high-value native biodiversity.
  - 3.2. The Adelaide Park Lands support six Key Biodiversity Areas, with at least one Key Biodiversity Area in each of the five recognised pre-European vegetation communities across the Adelaide Park Lands.
  - 3.3. Based on the survey, G S Kingston Park / Wirrarninthe (Park 23) is recommended as a new Key Biodiversity Area, bringing the total number to seven, due to the high quality and extent of successful and sustained revegetation.
4. The biodiversity survey was considered by Kadaltilla at its meeting on 27 June 2024 ([Link 1](#)).

## Biodiversity Survey of the Adelaide Park Lands

5. The survey is being delivered in three phases:
  - 5.1. Phase 1 (complete) – Desktop analysis, including literature review, gap analysis and update of data sharing and biodiversity monitoring methodologies.
  - 5.2. Phase 2 (complete) – Implementation of expert field survey and citizen science campaign.
  - 5.3. Phase 3 (2024/25) – Development of a digital reporting framework to publicly report the findings.

### Phase 1 – Desktop analysis

6. The literature review and gap analysis completed in Phase 1 by the University of Adelaide indicates gaps in knowledge across all biota themes and the expansion of research since 2003 in areas such as microbial biodiversity, human health, invertebrate diversity, and ecosystem services.
  - 6.1. Current and future biodiversity surveys can address these gaps by conducting focused and regular surveys that measure biodiversity in consistent biota categories (subject to a funded monitoring program).
  - 6.2. The literature review highlights the importance of partnerships between government, academia, private industry, and the public to provide a clear picture of the Adelaide Park Lands biodiversity over time.
7. Data sharing and biodiversity monitoring methods were considered by a joint team from the Flinders University of South Australia and the University of Adelaide for Phase 1. Key outcomes of the assessment are:
  - 7.1. A seasonal calendar to guide future biodiversity monitoring (flora, fauna, fungi, and microbiome) aligned with seasonal activity and environmental conditions.
  - 7.2. Data integration to ensure high-quality records and open data sharing with the Biodiversity Database of South Australia and the Atlas of Living Australia.
  - 7.3. Alignment with international monitoring practices to allow for global benchmarking and reporting for comparable cities tracking and enhancing their biodiversity.

### Phase 2 – Expert field survey and citizen science campaign

8. The field survey program was conducted at targeted sites throughout the Adelaide Park Lands as a series of individual surveys by relevant experts in the fields of:
  - 8.1. Native grasslands and woodlands
  - 8.2. Aquatic vegetation and associated wildlife (including fish)

- 8.3. Possums
  - 8.4. Bats
  - 8.5. Reptiles and amphibians
  - 8.6. Native bees
  - 8.7. Insects and invertebrates
  - 8.8. Butterflies.
9. During the 2023 Nature Festival, a citizen science campaign was launched using established platforms such as iNaturalist, the Aussie Bird Count, and the Environment Protection Authority (EPA) Frog Census. The campaign's results were represented with data records in the Atlas of Living Australia.

### Key observations from the field survey program

10. A summary of key survey findings is provided in **Attachment A**. Overall, the survey indicates:
- 10.1. An increase in total species diversity and abundance in the Adelaide Park Lands.
  - 10.2. An increase in the distribution of biodiversity in the Adelaide Park Lands.
  - 10.3. The return of species to the Adelaide Park Lands through the creation of habitats (e.g. wetlands) and their associated resources.
  - 10.4. G S Kingston Park / Wirrarnintheta (Park 23) is recommended as a new Key Biodiversity Area, bringing the total number to seven, due to the high quality and extent of successful and sustained revegetation.
11. Observations from individual field surveys and desktop analyses are summarised as:
- 11.1. Native grasslands and woodlands:
    - 11.1.1. Two rare flora species were recorded: Swollen Spear Grass (*Austrostipa gibbosa*) and Rock Logania (*Logania saxatilis*).
    - 11.1.2. The former Community Education Hub, now Key Biodiversity Area 7 in G S Kingston Park / Wirrarnintheta (Park 23) was assessed and mapped with appropriate zones.
  - 11.2. Aquatic vegetation:
    - 11.2.1. The wetlands in Victoria Park / Pakapakantheta (Park 16) and a revegetated area of the Adelaide Park Lands under the Hackney Road Bridge are attracting and hosting a wide range of species that would not previously have visited the area, including frogs, water birds, reptiles, fish, bees, and other insects.
    - 11.2.2. Submerged aquatic vegetation in Torrens Lake has significantly declined (95%) since 2022.
  - 11.3. Possums:
    - 11.3.1. Significant populations of Brushtail Possums and Ringtail Possums in the southern and northern Adelaide Park Lands.
    - 11.3.2. High numbers of Brushtail Possums were observed in Whitmore Square / Iparrityi but not in other Squares.
  - 11.4. Bats:
    - 11.4.1. Three species of microbat have been recorded that were not previously recorded in the Adelaide Park Lands – bringing the total number of species to seven microbat species plus the Grey-headed Flying-fox, which was not present for the 2003 survey report.
  - 11.5. Birds:
    - 11.5.1. Based on the comparative abundance of existing data, the field survey program conducted no field surveys for birds .
    - 11.5.2. Data gathered from previous surveys reported 177 bird species dominated by a small number of abundant bird species, including Rainbow Lorikeets and Noisy Miners. This is consistent with urban environments featuring Eucalyptus canopy with limited understorey vegetation.
  - 11.6. Reptiles and amphibians:
    - 11.6.1. The field survey program did not comprehensively survey this subject; however, it observed 2 turtle species, 4 lizard species, and 1 frog species.

- 11.6.2. 5 species of reptile and 1 frog species were reported from a 2017/18 CoA fauna survey.
- 11.6.3. Atlas of Living Australia data (including Citizen Science records) reported 12 reptiles (1 snake, 2 turtles and 9 lizards) and 4 frogs.
- 11.7. Fish:
  - 11.7.1. 8 species of native fish and 3 exotic species were caught at five survey sites in the Torrens Lake.
  - 11.7.2. The sites were selected to observe the impact of the Torrens Weir on upstream fish movement; results suggest an impact on at least two native species.
  - 11.7.3. A Short-finned Eel (*Anguilla australis*) was observed in Torrens Lake, which represents the first observation of the species above the city weir recorded during scientific surveys.
- 11.8. Native bees:
  - 11.8.1. A total of 548 native bees were caught, belonging to 68 species, with a further 3 species identified 'on the wing'. At least two species were unknown to science and considered newly discovered, these are under further review.
- 11.9. Butterflies:
  - 11.9.1. Chequered Copper Butterflies (*Lucia limbaria*) were observed in multiple Adelaide Park Land locations including Lefevre Park / Nantu Wama (Park 6), Carriageway Park / Tuthangga (Park 17) and Golden Wattle Park / Mirnu Wirra (Park 21W), suggesting growing populations in addition to the original discovery site in Victoria Park / Pakapakanthi (Park 16).
- 11.10. Invertebrates (arthropods):
  - 11.10.1. 664 species of arthropods (mostly insects and spiders) were identified across four survey areas. While common species were seen at all four sites, each site recorded at least 260 unique species. Preliminary analysis revealed species from 165 unique Families of arthropod; further analysis may reveal unique species in the Adelaide Park Lands.
  - 11.10.2. A rarely recorded species the Jewel Beetle (*Diphucrania trimentula*) was recorded twice for the first time in the Adelaide Park Lands. There are only four records of this species in South Australia.

### Next steps

- 12. The City of Adelaide is finalising its digital data evidence base for the Adelaide Park Lands through a digital reporting framework to be delivered in the first quarter of 2024/25.
- 13. The reporting framework is investigating the potential to share data with the Biodiversity Database of SA and Atlas of Living Australia. This provides the capacity to regularly send and receive new data from researchers and citizen science programs and applications (such as iNaturalist).
- 14. The survey has informed and will be delivered through the City of Adelaide's Integrated Climate Strategy 2030.

---

## DATA AND SUPPORTING INFORMATION

[Link 1 – Kadaltilla / Adelaide Park Lands Authority – Agenda – Thursday, 27 June 2024](#)

---

## ATTACHMENTS

**Attachment A** – Adelaide Park Lands Biodiversity Survey Summary Report

---

- END OF REPORT -