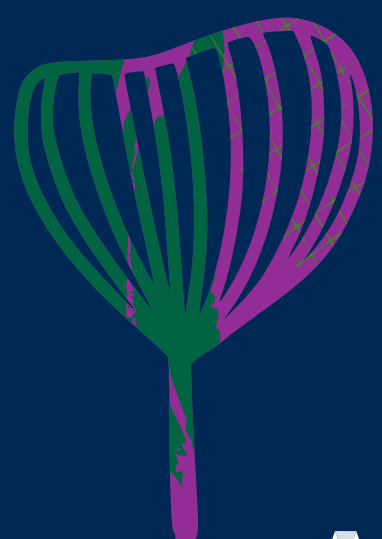
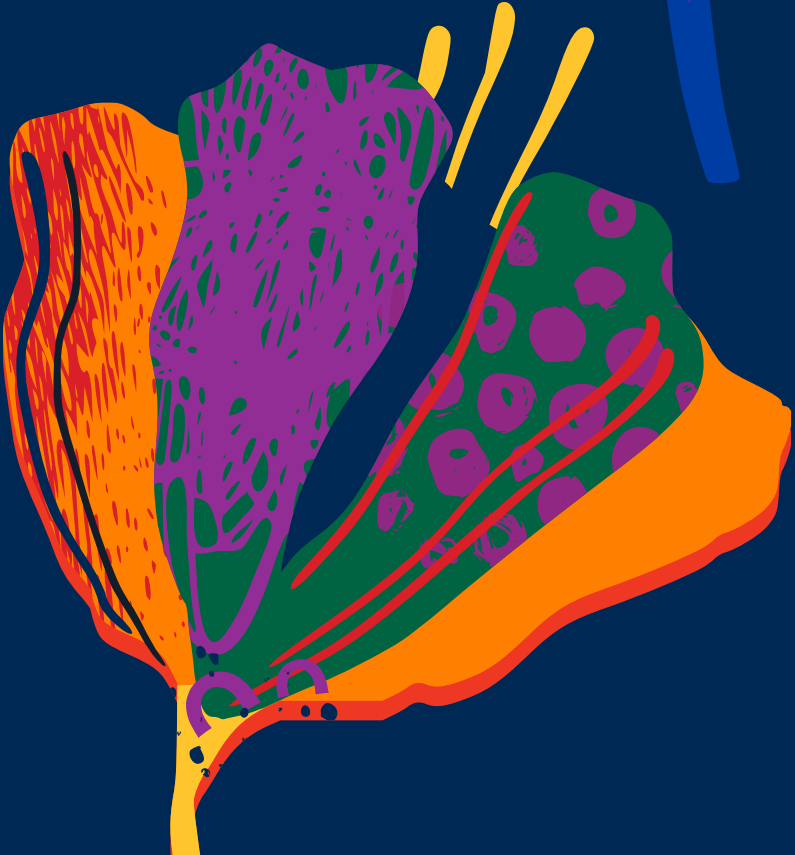


Biodiversity Report

Summary Report 2024





iversity



Acknowledgement of Country

The City of Adelaide acknowledges that we are located on the traditional Country of the Kaurna people of the Adelaide Plains and pays respect to Elders past, present and emerging. We recognise and respect their cultural heritage, beliefs and relationship with the land. We also extend that respect to visitors of other Aboriginal Language Groups and other First Nations.

Biodiversity Survey



Content

Disclaimers

The Biodiversity Report is informed by expert field surveys in 2023/2024, professional databases, literature review, desktop analysis and citizen science. Best endeavours are made to ensure the accuracy of the information. If you would like to provide feedback please contact City of Adelaide.

Acknowledgements

The City of Adelaide thanks the University of Adelaide, Flinders University of SA, state agencies including the SA Museum and Botanic Gardens, non-government environmental organisations, volunteers, nature enthusiasts and collaborators who contributed to this Report.

Image credits

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The illustrations in this document are conceptual in nature and do not represent

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Natural ecosystems are protected and enhanced in a changing climate.



A City Where Nature Thrives

Urban parks are significant biodiverse environments in city environments and integrate a range of species and habitats. They also present opportunities and novel ways to conserve and promote biodiversity. As one of the great park systems of the world, the Adelaide Park Lands is the most significant park in Adelaide for its centrality, its urban heritage, its rich biodiversity and opportunity for human-nature connection.

The City of Adelaide is well positioned to enhance connections between people and nature. Extensive green infrastructure exists in the Adelaide Park Lands which covers an area of 760ha and includes various public land uses, such as gardens, sports grounds, grasslands, woodlands, and waterways. The Adelaide Park Lands are a beacon of forward-thinking urban design and are prized today for their landscape and biodiversity value.

The biodiversity of the Adelaide Park Lands is defined by rich landscapes of open woodlands, grasslands, creeks, wetlands and the River Torrens /Karrawirra Pari. Embedded within these landscapes are areas of remnant native vegetation that attract and host hundreds

of species of wildlife including some with conservation significance.

The environmental value, productivity, quality and biodiversity of the Adelaide Park Lands, Squares, open space and streetscapes are to be protected and strengthened.

Adelaide is a city for nature, unrivalled by any other Australian capital city. We will protect and enhance nature for nature’s sake, taking a Caring for Country approach to improve the health of Kurna Yarta (country).

This includes improving the integrity and connectivity of existing ecosystems and extending our focus to the urban landscapes of the city.

The Council’s Integrated Climate Strategy 2030 provides the framework for ensuring our biodiversity is enhanced, protected, and thriving as the city’s natural lifeline and an important asset to offset heat impacts and a changing climate.

The Integrated Climate Strategy 2030 delivers on the Strategic Plan 2024-2028 and the Council’s aspiration for Our Environment—resilient, protected, and sustainable.

Our environment

City of Adelaide Strategic Plan 2024-28	Integrated Climate Strategy 2030
<p>Resilient, protected and sustainable</p> <p>Outcome</p> <p>The status, attributes and character of our green spaces and the Adelaide Park Lands are protected and strengthened.</p>	<p>Priorities</p> <p>Biodiversity, native grasslands and woodlands are protected and enhanced.</p> <p>Karrawirra Pari, waterways, Adelaide Park Lands, streets and Squares act as arteries connecting our native species.</p>
<p>Target</p> <p>Achieve a net increase in biodiversity, habitats, and ecosystems health within the City of Adelaide by 2030.</p>	

Table 1 – Our environment

Adelaide

Park

Lands

Map

Covering 760 hectares, the Adelaide Park Lands are a nationally and internationally recognised network of parks that provide a defining feature to the City of Adelaide and contribute to the economic and social well-being of the city.

Today the Adelaide Park Lands consist of 29 individual Parks and six City Squares that support a diverse range of environmental, cultural, recreational and social values and activities.



Figure 1 – Adelaide Park Lands Map



Contributing to a Healthy Kurna Yarta

Healthy Country describes healthy, interconnected natural ecosystems, supported by regenerative practices based on Aboriginal knowledge. The Adelaide Park Lands are home to a wide variety of plants and animals, including rare and endangered species.

The Adelaide Park Lands are located on Kurna Yarta (Country). Respecting Kurna people's rights as Native Title holders, and their relationships with Kurna Yarta, as well as taking a Caring for Country lens to planning and managing the Adelaide Park Lands, benefits community health and wellbeing, education, cultural knowledge protection, and ecological resilience.

Today, the Adelaide Park Lands are rich in biodiversity, however the forced separation of Aboriginal and Torrens Strait Islander peoples from their traditional lands, as well as European colonisation has drastically altered the landscape, including:

- Significant land and vegetation clearing
- Introduction of non-native flora and fauna
- Alternate land management practices.

The City of Adelaide recognises the importance of Kurna people's rights, knowledge and living cultures to help in re-establishing a healthy Kurna Yarta through practices such as cultural burning, revegetation and continued monitoring of our biodiversity.

A Kurna cultural burn was held at Carriageway Park in Tuthangga (Park 17) of the Adelaide Park Lands on Friday 14 May 2021.

Cultural burns produce smoke which is important for germination of seeds and regeneration of native plants. The burn was a powerful example of healing together. It was the first cultural burn in an Australian capital city and the first on Kurna Yarta since European colonisation.

Feedback from community volunteers indicates the cultural burn has increased the health of Country through lower weed load, lower thatch levels and an abundance of local native plant diversity.

Kurna people Caring for Country and returning traditional practices such as cultural burning to the management of the Adelaide Park Lands will help towards restoring a healthy country and increasing biodiversity outcomes for our city.

What is the **Biodiversity Report**

**Key
Biodiversity
Areas (KBAs)**

Vegetation

**Native plants
and Animals**



The Biodiversity Report provides data on biodiversity assets in the Adelaide Park Lands to inform planning, management and conservation activities by the City of Adelaide.

Biodiversity is the variety of life. It is the genetics and species of plants, animals and microorganisms and the ecosystems in which they live.

Our target is to achieve a net increase in biodiversity, habitats, and ecosystems health within the City of Adelaide by 2030.

The Biodiversity Report provides a snapshot of biodiversity within the Adelaide Park Lands including habitat and vegetation condition assessments, and evaluation of plant and animal species diversity in the Adelaide Park Lands. The Biodiversity Report is the evidence base for measuring actions to protect and restore biodiversity in our city.

Habitats in the Adelaide Park Lands are managed at a landscape scale, focused on core areas of remnant native vegetation or reconstructed vegetation that represents five main pre-European vegetation communities. These core areas are our Key Biodiversity Areas (KBAs), each of which supports a diversity of plants, animals, and other conservation-significant species.

The Biodiversity Report focuses on KBAs, other native vegetation, waterways, and wetlands to report on plant and animal species. The Report references species listed as threatened at the regional, State or national level.

The following conservation status is used in the Report:

- Rare – very uncommon, scarce or infrequently encountered (equivalent of international category - near threatened 'NT')
- Threatened – by extinction
- Vulnerable – threatened by extinction and at high risk in the wild
- Endangered – likely to become extinct in the future.

Species of conservation significance are also listed. These are species that may not have recognised conservation status but require additional management due to their local rarity or ecosystem service they provide (*eg only food plant for Chequered Copper Butterfly caterpillars*).

The Biodiversity Report presents findings from field surveys conducted in 2023/2024 and is supported by a literature review, desktop investigations and reporting of species in the Atlas of Living Australia.

The Biodiversity Report is supported by a Technical Report which details the methods and techniques used to assess species.

The Biodiversity Report achieves the following:

- Baseline data for future biodiversity monitoring in the Adelaide Park Lands
- A consistent methodology for biodiversity monitoring
- Comparison of data to identify areas of success or areas for improvement
- An evidence base for decision-making and monitoring the delivery of strategic outcomes, including the support of a healthy Kurna Country and implementation of Council's Integrated Climate Strategy, as well as the Adelaide Park Lands Management Strategy - Towards 2036.

The Biodiversity Report outlines a biodiversity monitoring framework that aims to guide conservation efforts, track changes in biodiversity over time, and inform decision-making processes.

Biodiversity **snapshot**



A summary of the 2024 biodiversity findings is presented in Table 2 below.

Key Biodiversity Areas (KBA)			
G S Kingston Park / Wirrarninthe (Park 23) previously managed as a Community Education Hub (CEH) will now be managed as KBA7	15.8% of the Adelaide Park Lands are managed as Key Biodiversity Areas (inclusive of KBA7)	The KBA's vary in their condition, however, most have maintained or improved their quality and diversity since 2003	KBA5 contains the highest number (62) of individual native species
Vegetation			
7 sites of high value native vegetation described as Key Biodiversity Areas	5 main vegetation communities pre-colonisation	One threatened ecological community: Grey Box (<i>Eucalyptus microcarpa</i>) Grassy Woodland	3.31 ha of aquatic and riparian plants and animals in the River Torrens / Karrawirra Pari and urban watercourses
Native plants and animals			
183 indigenous plant species many of which are remnant to the Adelaide Plains	5 threatened plant species: 1. Swollen Spear Grass – Rare in SA 2. Rock Logania – Rare in SA 3. Mount Lofty Speedwell – Endangered in SA 4. Upright Milfoil – Vulnerable in SA 5. Wavy Marshwort – Rare in SA	6 threatened animal species: 1. Australasian Shoveler - Rare in SA 2. Yellow-tailed Black Cockatoo - Vulnerable in SA 3. Common Brushtail Possum - Rare in SA 4. Grey-headed Flying-fox - Rare in SA 5. Chequered Copper Butterfly – Rare in Metropolitan Adelaide 6. Eastern Water Skink - Vulnerable in Metropolitan Adelaide	Ten local native mammals were observed plus the Grey-headed Flying-fox
Healthy populations of Common Brushtail and Common Ringtail Possums	3 species of bats not previously recorded found in the Adelaide Park Lands in 2024 taking the total to 8 species	71 native bees recorded in the Adelaide Park Lands in 2024, including at least two previously unidentified species	664 unique species of invertebrates (excluding bees) recorded in KBAs in 2024
A rarely recorded species for both the State and region, Jewel Beetle (<i>Diphucrania trimentula</i>)	Chequered Copper Butterflies were observed in additional Adelaide Park Lands locations to the original discovery site	Non-native eucalypts are common and can provide valuable habitat and resources	9 species of native fish in Torrens River /Karrawirra Pari, including the Short-finned Eel (rare sighting)

Table 2 – Biodiversity Snapshot

Adelaide Park Lands Key Biodiversity Areas (KBAs)

Key Biodiversity Areas (KBAs) are management boundaries used by the City of Adelaide to prioritise the management of high-value native biodiversity in the Adelaide Park Lands.

At least one KBA is in each of the five recognised pre-European vegetation communities across the Adelaide Park Lands.

Our remnant and non-remnant vegetation communities are grouped into seven KBAs. Four KBAs contain remnant vegetation, and three are comprised of reconstructed vegetation.

KBAs improve ecological connectivity and facilitate movement of animals and plant material (eg seeds) across and between KBAs.

Creating space for plants and wildlife to move makes the Adelaide Park Lands more resilient to threats presented such as climate change, disease and pests.

The KBAs are made up of four different zones:

- Protected Conservation Zone (PCZ)
- Buffer Conservation Zone (BCZ)
- Revegetation Conservation Zone (RCZ)
- Informal Recreation Zone (IRZ)

There may be more than one of each zone within a KBA (eg PCZ1, PCZ2)

A unique Butterfly Conservation Zone (BUT) was created for the protection and improvement of butterfly habitat within KBA1.

Key Biodiversity Areas

KBA1

Victoria Park / Pakapakanthi (Park 16) and Carriageway Park / Tuthangga (Park 17)

KBA2

Veale Park / Walyu Yarta (Park 21) and Golden Wattle Park / Mirnu Wirra (Park 21 west)

KBA3

Northern Adelaide Park Lands within Parks: Denise Norton Park / Pardipardinyilla (Park 2), Yam Daisy Park / Kantarilla (Park 3), Reservoir Park / Kangatilla (Park 4) and Bragg Park / Ngampa Yarta (Park 5)

KBA4

Lefevre Park / Nantu Wama (Park 6)

KBA5

Mistletoe Park / Tainmuntilla (Park 11)

KBA6

John E Brown Park / Tulya Wardli (Park 27A)

KBA7

G S Kingston Park / Wirrarninthi (Park 23) - new in 2024 - (formerly managed as a Community Education Hub)

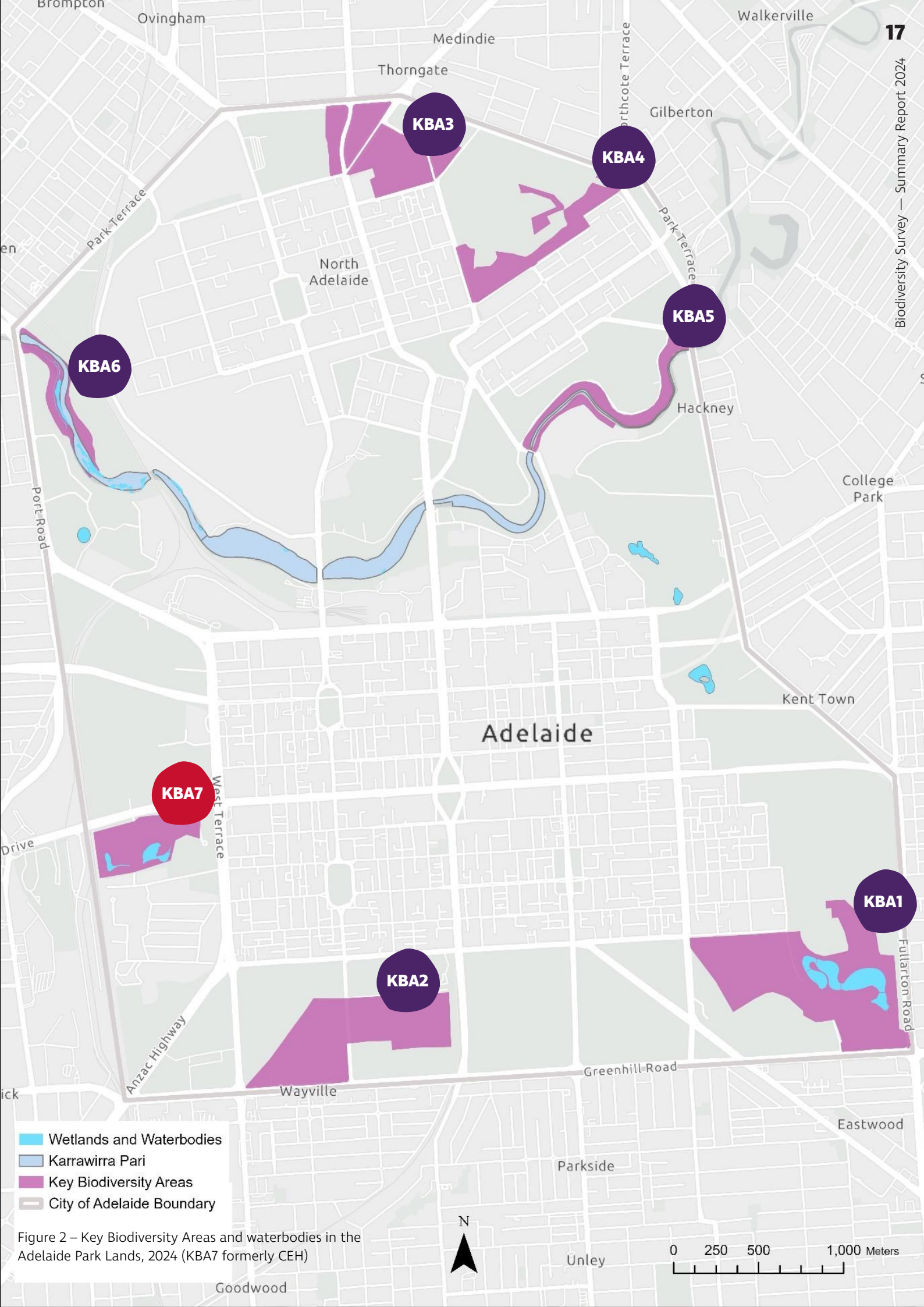


Figure 2 – Key Biodiversity Areas and waterbodies in the Adelaide Park Lands, 2024 (KBA7 formerly CEH)

Key Biodiversity Area 1

**Victoria Park / Pakapakanthi (Park 16) and
Carriageway Park / Tuthangga (Park 17)**



KBA1

Located in the south-eastern Adelaide Park Lands, the target ecological community for KBA 1 is *Eucalyptus microcarpa* (Grey Box) / *E. leucoxyton* (SA Blue Gum) Woodland. The site hosts a great variety of landscapes ranging from full-sun grasslands, open and closed woodlands, creeks, and wetlands.



Figure 3 – KBA1 Victoria Park / Pakapakanthi (Park 16) and Carriageway Park / Tuthangga (Park 17)

Key Survey Findings

KBA1

A qualitative comparison of the 2003 and 2024 surveys (Table 3) shows that there has been an overall increase in the diversity, extent and density of native plant species within KBA1. The Pakapakanthi Wetlands, officially opened in 2022, has increased the diversity of vegetation communities and habitats found within KBA1.

Area/ Zone	2003 survey observations	2024 survey observations
Adjacent Greenhill Road (PCZ2)	Described as having excellent communities of 2 native grass and 2 herb species.	20 native ground-layer species recorded.
Racecourse area (PCZ1/RCZ1)	Continuously mowed and contained 2 species of native grass except for an area (likely PCZ1) where 7 native ground-layer species were recorded.	33 native species recorded in 2024 with the extent and density of native species increased with RCZ1.
Park Lands Creek (BCZ1/RCZ6)	Upstream portion of the creek was largely infested with weed species and very eroded. Seven very large old <i>Eucalyptus camaldulensis</i> ssp. <i>camaldulensis</i> were noted as occurring along the lower portion of the creek with clusters of <i>Austrostipa</i> and <i>Chloris grasses</i> .	Weed species reduced and limited erosion was observed. Parts of the lower portion of the creek are revegetated complementing the existing large tree species. Patches of native grass occur around the creek.
Adjacent South Terrace (PCZ3)	A Trees for Life Bush Care site had been established and "...many indigenous species had been re-introduced. The site is an excellent example of species that would have represented the Black Forest that once encompassed this area."	This area continues to be managed in good condition. As part of the survey, PCZ3 was extended to the north-west and east into part of BCZ1. Two areas of tree plantings were undertaken between 2003 and 2024 and the density of trees is higher than the target open woodland vegetation structure. The areas will be managed towards the target structure.

Table 3 - Qualitative comparison of 2003 and 2024 in KBA1

KBA1 - Vegetation Condition Classification

A summary of the Vegetation Condition Classification shows that two-thirds of the KBA is moderate to excellent and 8% is very poor.

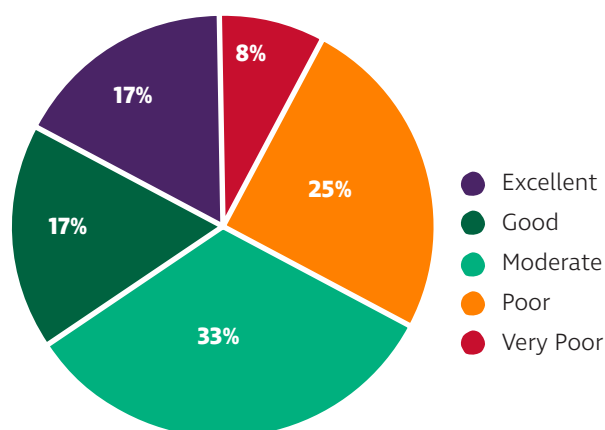


Figure 4 – KBA 1 Vegetation Condition, 2024

Conservation Significance

The Endangered vegetation community *Grey Box Woodlands and Derived Native Grasslands of South-eastern Australia*, and 11 plant species of conservation significance were identified in KBA1:

Common name	Scientific name
Summer Vanilla-lily	<i>Arthropodium fimbriatum</i>
Common Chocolate-lily	<i>Arthropodium strictum</i>
Swollen Spear-grass (Rare)	<i>Austrostipa gibbosa</i>
Garland Lily	<i>Calostemma purpureum</i>
Soft Mat-rush	<i>Lomandra nana</i>
Native Sorrel	<i>Oxalis perennans</i>
Tiny Yellow-star	<i>Pauridia glabella</i> var. <i>glabella</i>
Maroon-hood	<i>Pterostylis pedunculata</i>
Short Wallaby-grass	<i>Rytidosperma carphoides</i>
Kangaroo Grass	<i>Themeda triandra</i>
Derwent Speedwell	<i>Veronica derwentiana</i>
Lesser Broad-leaf Star-lily	<i>Wurmbea latifolia</i> ssp. <i>vanessae</i> *

Table 4 - Conservation significance in KBA1

* The excellent and good scores are attributed to native species condition and diversity, the number of life forms represented, life form cover rating. Moderate and poor scores are attributed to areas of weed abundance.

Key Biodiversity **Area 2**

**Veale Park / Walyu Yarta (Park 21) and
Golden Wattle Park / Mirnu Wirra (Park 21 west)**



KBA2

KBA2 is located in the south-west Adelaide Park Lands across Veale Park / Walyu Yarta (Park 21) and Golden Wattle Park / Mirnu Wirra (Park 21W). The pre-European ecological community for KBA2 is *Eucalyptus microcarpa* (Grey Box) / *E. leucoxylon* (SA Blue Gum) Woodland with *Eucalyptus porosa* (Mallee Box) Woodland in the west of the city and adjoining city area.



Figure 5 – KBA2 Veale Park / Walyu Yarta (Park 21) and Golden Wattle Park / Mirnu Wirra (Park 21 west)

Key Survey Findings

KBA2

The open grassland areas of PCZ1 and PCZ3 (Table 5) contain a good cover and diversity of native grasses and herbaceous species lilies, and Native Sorrel. Exotic grasses are in high abundance. The Bush for Life site adjacent to Greenhill Road (PCZ2) retains moderate-high abundance and diversity of native understorey species and low weed threat.

A notable finding was several plants of Mistletoe (*Lysiana exocarpii*). This is significant because it is most likely spread by local native Mistletoe Birds or other woodland bird species. These plants are a valuable resource of pollen and nectar.

A qualitative comparison of the 2003 and 2024 surveys (Table 5) was difficult due to minimal description of the site in 2003.

Area/ Zone	2003 survey observations	2024 survey observations
Golden Wattle Park / Mirnu Wirra (Park 21 West)	Although this area was not specifically described, three areas were identified for specialist biodiversity management.	The lack of description in 2003 suggests little native vegetation was observed. Remnant ground-layer species would have been present, though not observed. The increased survey effort has discovered a rich diversity of native plants.
Veale Park / Walyu Yarta (Park 21) (IRZ1, RCZ 1,2, BCZ2)	"...large open playing fields with avenues of planted exotic and Australian tree species bordering."	RCZ2 and RCZ3 were introduced in 2004, increasing the structural and species diversity of parts of the site.

Table 5: Vegetation - Qualitative comparison of 2003 and 2024 in KBA2

KBA2 - Vegetation Condition Classification

A summary of the Vegetation Condition Classification in 2024 shows that 75% of vegetation is in good to excellent condition and 13% is of poor condition.

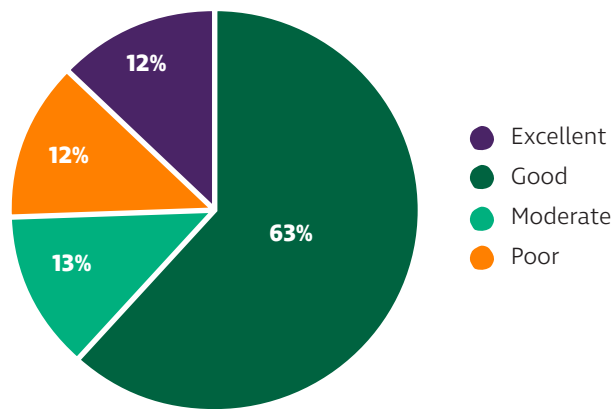


Figure 6 – KBA 2 Vegetation Condition

Conservation Significance

Ten plant species of conservation significance were identified in this KBA2:

Common name	Scientific name
1. Brush Wire-grass	<i>Aristida behriana</i>
2. Summer Vanilla-lily	<i>Arthropodium fimbriatum</i>
3. Garland Lily	<i>Calostemma purpureum</i>
4. Pink Bindweed	<i>Convolvulus angustissimus</i>
5. Curly Windmill Grass	<i>Enteropogon acicularis</i>
6. Wingless Bluebush	<i>Maireana enchylaenoides</i>
7. Native Sorrel	<i>Oxalis perennans</i>
8. Tiny Yellow-star	<i>Pauridia glabella</i> var. <i>glabella</i>
9. Grey Germander	<i>Teucrium racemosum</i>
10. Narrow-leaf New Holland Daisy	<i>Vittadinia blackii</i>

Table 6 - Conservation significance in KBA2

* The excellent and good scores are attributed to native species condition and diversity, the number of life forms represented, life form cover rating. Moderate and poor scores are attributed to areas of weed abundance.

Key Biodiversity Area 3

Denise Norton Park / Pardipardinyilla (Park 2), Yam Daisy Park / Kantarilla (Park 3), Reservoir Park / Kangatilla (Park 4) and Brag Park / Ngampa Yarta (Park 5).



KBA3

KBA3 comprises four park areas in the north-east Adelaide Park Lands. The pre-European ecological community for KBA3 is *Eucalyptus porosa* (Mallee Box) Woodland.



Figure 7 – KBA3 Denise Norton Park / Pardipardinyilla (Park 2), Yam Daisy Park / Kantarilla (Park 3), Reservoir Park / Kangatilla (Park 4) and Brag Park / Ngampa Yarta (Park 5).

Key Survey Findings

KBA3

A small revegetation area in the northern end of IRZ1 contains a diverse mix of native understorey and very few weeds. Based on this assessment, it has been rezoned to a Revegetation Conservation Zone (RCZ3).

PCZ1 hosts a population of remnant Narrow-Leaf New Holland Daisy (*Vittadinia blackii*) and various native grasses. The zone appears to have declined in condition between 2003 and 2024, as although stated significant species are still present, species diversity has declined.

Despite an apparent decline in the condition of PCZ1, a qualitative comparison reveals an overall improvement in native species diversity and cover across KBA3.

Area/ Zone	2003 survey observations	2024 survey observations
Denise Norton Park / Pardipardinyilla (Park 2) (PCZ1, BCZ1)	Plantings of non-local eucalypts fringing ovals, some remnant <i>Austrostipa</i> sp. and <i>Chloris truncata</i> .	13 native ground-layer species observed in PCZ1 with additional plantings in BCZ1.
Yam Daisy Park / Kantarilla (Park 3) (RCZ1, BCZ2)	Plantings of local and non-local trees and shrubs (BCZ2) around a disused oval (RCZ1).	Plantings of local native species within oval better represent target community with good native species diversity and moderate structural diversity.
Reservoir Park / Kangatilla (Park 4) (IRZ1, BCZ3, RCZ2)	Plantings of exotic and native trees and shrubs around ovals. Two <i>Austrostipa</i> spp. in patches.	One oval (RCZ2) has been planted with local native trees and shrubs at spacings that represent the target community and moderate cover of native grass has been achieved. Fringing planting areas in IRZ2 and BCZ3 have a number of native grasses and other ground-layer species.
Brag Park / Ngampa Yarta Park 5 (BCZ3)	Planted with local and non-local trees and shrubs.	Little native understorey so likely to have been little change.

Table 7 – Qualitative comparison of 2003 and 2024 in KBA3

KBA3 - Vegetation Condition Classification

A summary of the Vegetation Condition Classification in 2024 shows that 89% of vegetation is in moderate to good condition and 11% is of poor condition.

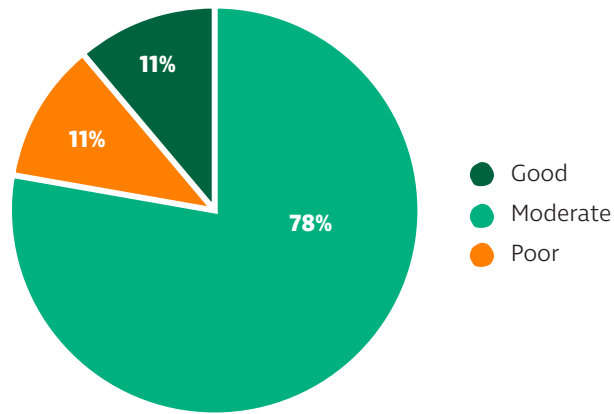


Figure 8 – KBA3 Vegetation Condition, 2024

Conservation Significance

Four plant species of conservation significance were identified in this KBA3:

Common name	Scientific name
1. Rusty Spear-grass	<i>Austrostipa eremophila</i>
2. Wingless Bluebush	<i>Maireana enchylaenoides</i>
3. Native Sorrel	<i>Oxalis perennans</i>
4. Narrow-leaf New Holland Daisy	<i>Vittadinia blackii</i>

Table 8 - Conservation significance in KBA3

* The good scores are attributed to native species condition and diversity, the number of life forms represented, life form cover rating. Moderate and poor scores are attributed to areas of weed abundance.

Key Biodiversity **Area 4**

Lefevre Park / Nantu Wama (Park 6)



KBA4

KBA4 is located in the north Adelaide Park Lands adjacent to horse agistment paddocks in Lefevre Park / Nantu Wama (Park 6). The pre-European ecological community for KBA4 is *Eucalyptus leucoxylon* (SA Blue Gum) / *E. camaldulensis* (River Red Gum) Woodland with *Eucalyptus porosa* (Mallee Box) Woodland in North Adelaide.



Figure 9 – KBA4 Lefevre Park / Nantu Wama (Park 6)

Key Survey Findings

KBA4

A qualitative comparison of the 2003 and 2024 surveys (Table 9) shows that the area has maintained condition and likely improved.

The presence of horses has a significant impact on native vegetation. Grazing behaviour impacts plant, soil and vegetation health.

PCZ2 has been extended to take in the revegetation to the west which contains more native groundcover.

Area/ Zone	2003 survey observations	2024 survey observations
Bush For Life site (PCZ2)	A number of native plants are maintained by volunteers.	Native species are present but in low cover.
River Red Gums adjacent Kingston Tce (PCZ1)	"This site is one of the more natural sites of the Park Lands and has an impressive diversity of possibly remnant locally indigenous grass species."	High diversity of native grasses present.
Lefevre Park / Nantu Wama (Park 6) (entire KBA)	"The site naturally supports quite a diversity of remnant plants..."	Noted species are still present and diversity is likely to have increased.

Table 9 – Qualitative comparison of 2003 and 2024 in KBA4

KBA4 - Vegetation Condition Classification

A summary of the Vegetation Condition Classification in 2024 shows that 75% of vegetation is in moderate to good condition and 25% is of poor condition.

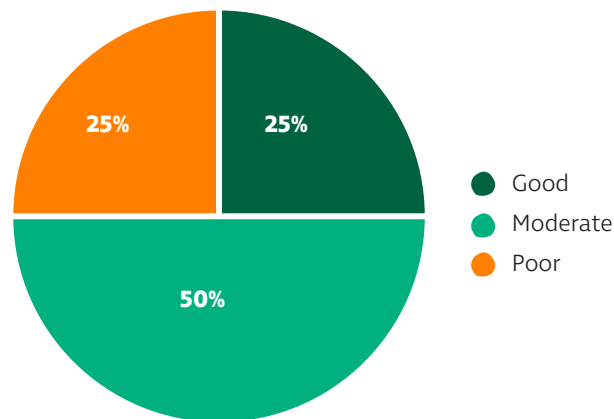


Figure 10 – KBA4 Vegetation Condition, 2024

Conservation Significance

Five plant species of conservation significance have been identified in KBA4 since 2003:

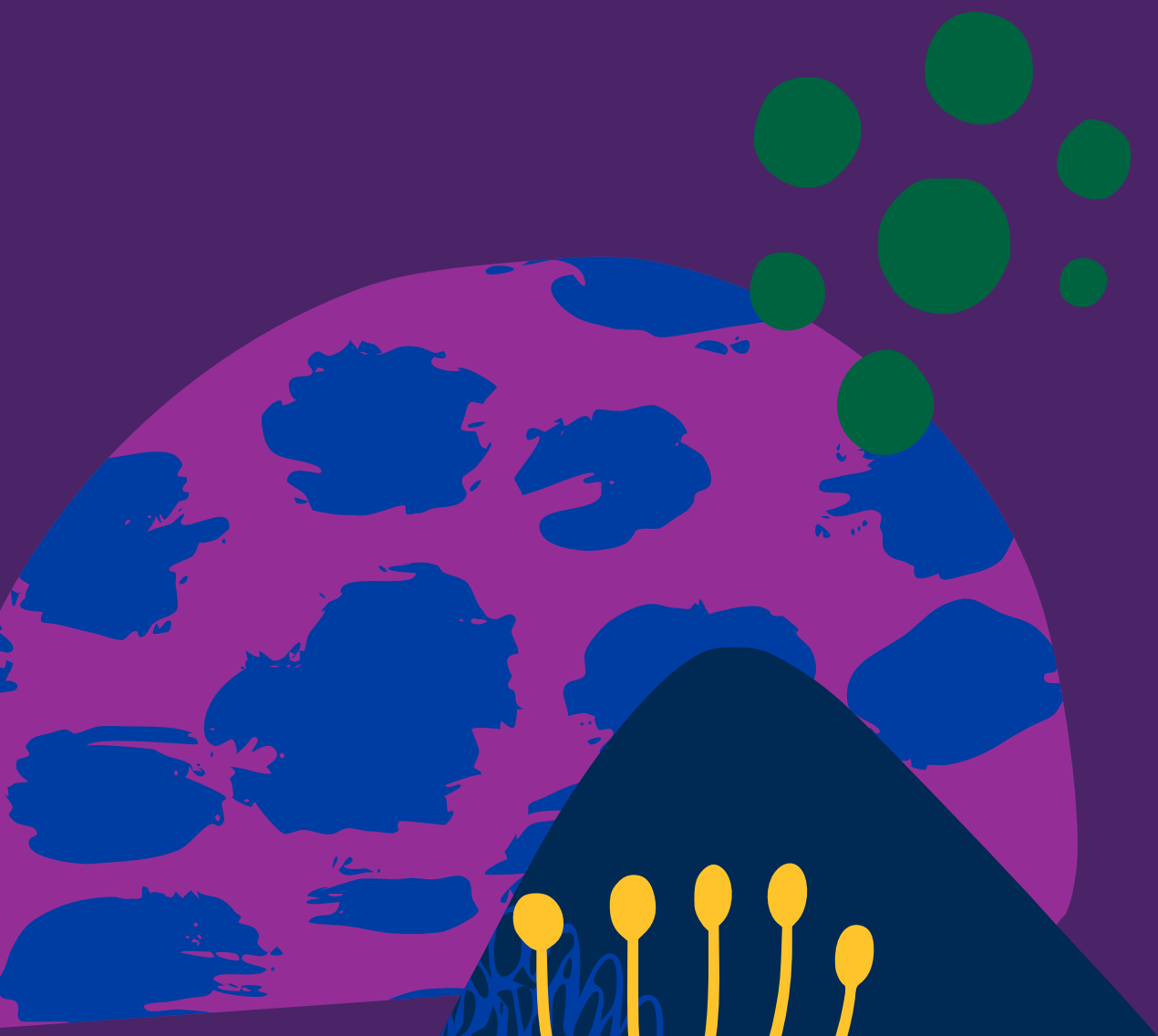
Common name	Scientific name
1. Common Chocolate Lily	<i>Arthropodium strictum</i>
2. Garland Lily	<i>Calostemma purpureum</i>
3. Wingless Bluebush	<i>Maireana enchylaenoides</i>
4. Native Sorrel	<i>Oxalis perennans</i>
5. Lobed Wallaby-grass	<i>Rytidosperma auriculatum</i>

Table 10 - Conservation significance in KBA4

* The good scores are attributed to native species condition and diversity, the number of life forms represented, life form cover rating. Moderate and poor scores are attributed to areas of weed abundance.

Key Biodiversity **Area 5**

Mistletoe Park / Tainmuntilla (Park 11)



KBA5

KBA5 is situated along the River Torrens / Karrawirra Pari near the Adelaide Zoo and Botanic Park in Mistletoe Park / Tainmuntilla (Park 11). The pre-European ecological community for KBA5 is *Eucalyptus camaldulensis* (River Red Gum) Woodland along the creeks and river systems.



Figure 11 – KBA5 Mistletoe Park / Tainmuntilla (Park 11)

Key Survey Findings

KBA5

The 2003 survey provides limited description of KBA5. Combined with the knowledge of revegetation efforts and weed control, there is high confidence that the biodiversity values of this KBA are improved.

Since 2003, significant lengths of the high riverbank have been revegetated with River Red Gum Woodland species.

Both terrestrial zones are in good to excellent condition. Both riparian zones are in moderate condition, with good to excellent native species and life form diversity but also abundant weed species such as Giant Reed (*Arundo donax*), Narrow-leaved Ash (*Fraxinus angustifolia*) and Kikuyu (*Cenchrus clandestinus*).

Area/ Zone	2003 survey observations	2024 survey observations
River Torrens / Karrawirra Pari (riparian zones)	Has a 'natural' character (no native species listed, most likely River Red Gums bullrushes).	Improved native species diversity very likely.
Adjacent War Memorial Drive (RCZ2)	The only native herbaceous plants observed were along War Memorial Drive and include Tar-vine (<i>Boerhavia dominii</i>) and Berry Saltbush (<i>Atriplex semibaccata</i>).	These species are still present and overall diversity has increased.

Table 11 – Qualitative comparison of 2003 and 2024 in KBA5



KBA5 - Vegetation Condition Classification

A summary of the Vegetation Condition Classification in 2024 is skewed due to the presence of a small recreation zone. The very poor scores are attributed to the turfed barbeque/picnic space with very low native plant diversity. The remaining four zones were divided into terrestrial and riparian. The riparian zones scored moderate or poor for plant condition and weed related criteria. The terrestrial zones were good and excellent condition.

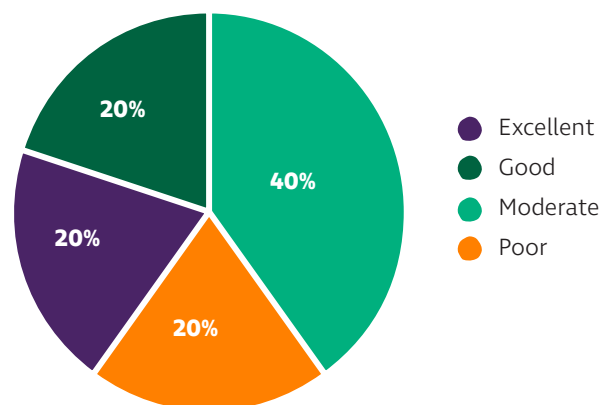


Figure 12 – KBA5 Vegetation Condition

Key Biodiversity Area 6

**River Torrens / Karrawirra Pari and
Bonython Park / Tulya Wardli (Park 27)**



KBA6 is located along the River Torrens / Karrawirra Pari west of the city and downstream of the weir in Bonython Park / Tulya Wardli (Park 27). The pre-European ecological community for KBA6 is *Eucalyptus camaldulensis* (River Red Gum) Woodland along the creeks and river systems and *Eucalyptus porosa* (Mallee Box) Woodland on upper slopes.





Figure 13 – KBA6 River Torrens / Karrawirra Pari and Bonython Park / Tulya Wardli (Park 27)

Key Survey Findings

KBA6

A qualitative comparison of the 2003 and 2024 surveys provides little insight due to the lack of 2003 detail.

Area/ Zone	2003 survey observations	2024 survey observations
River Torrens / Karrawirra Pari banks	<i>Typha domingensis</i> , <i>Calystegia sepium</i> a few <i>Cyperus</i> or <i>Juncus</i> species and several large colonies of <i>Persicaria decipiens</i> exist along the banks of the river.	Native species diversity has increased significantly through intensive revegetation in terrestrial and riparian zones.

Table 12: Vegetation - Qualitative comparison of 2003 and 2024 in KBA6



KBA6 - Vegetation Condition Classification

A summary of the Vegetation Condition Classification shows that two-thirds of the KBA scored good or excellent and one-third poor. This was clearly divided in RCZ1 terrestrial and riparian zones scoring mostly excellent. The lower scores were attributed to RCZ2 and RCZ3 (small islands) and the surrounding IRZ, which is mostly a formal park. Most of the lower scores were given because of weed abundance and native vs exotic biomass scores.

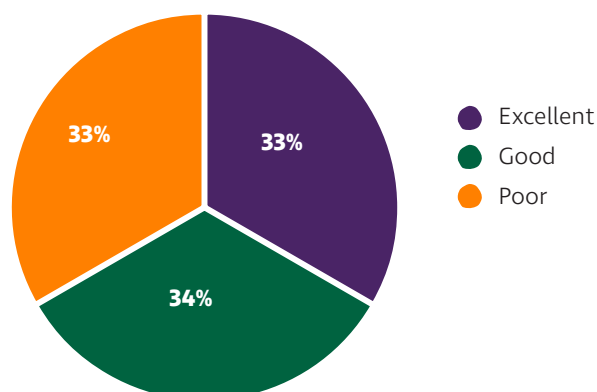
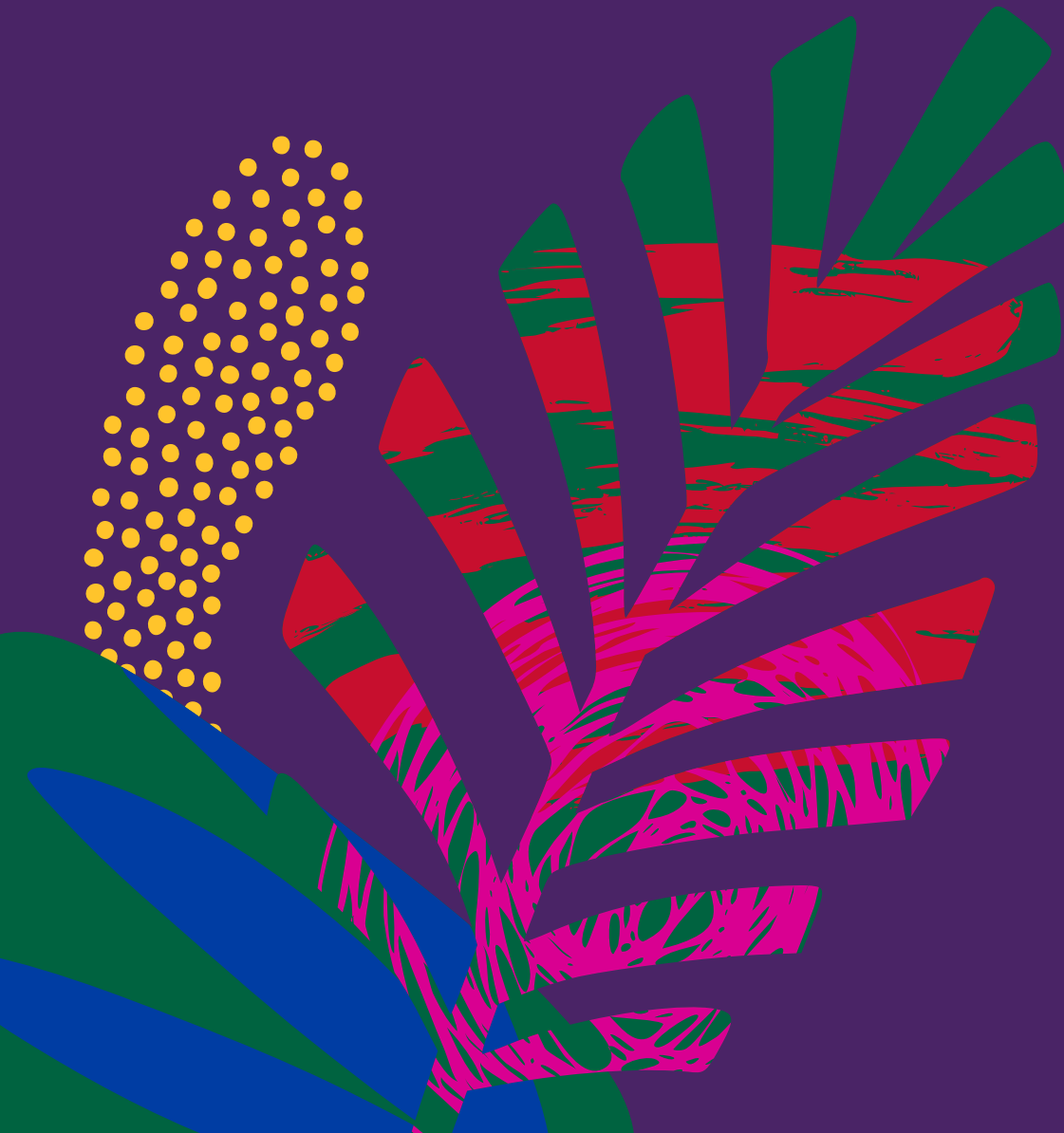


Figure 14 – KBA6 Vegetation Condition

Key Biodiversity **Area 7** **(former Community Education Hub)**

G S Kingston Park / Wirrarninthi (Park 23)



KBA7



Figure 15 – KBA7 G S Kingston Park / Wirrarrinithi (Park 23)

Key Survey Findings

KBA7

KBA7 is located between the West Terrace Cemetery and Sir Donald Bradman Drive in G S Kingston Park / Wirrarninthe (Park 23).

The area has been managed as a Community Education Hub by the City of Adelaide since 2018. The area includes the Wirrarninthe Wetlands and a vegetated creek line and warrants classification as a KBA due to sustained revegetation of native species and current good ecological condition.

The pre-European ecological community for the KBA7 is *Eucalyptus porosa* (Mallee Box) Woodland.

KBA7 has a walking trail equipped with interpretive signage and art installations. A vegetated creek-line traverses the park from the east feeding into constructed wetlands.

The wetlands started as stormwater detention ponds that were constructed and planted in the early 1990s. The species composition resembles a River Red Gum (*Eucalyptus camaldulensis*) Woodland over native rush and sedgeland.

Dryland areas have been planted with a species mix comprised of *Eucalyptus porosa*, *E. microcarpa* and *E. leucoxylon* over local native shrubs. While the species composition is good, the structure is dominated by tree species resulting in a lack of ground-layer coverage.

Area/ Zone	2003 survey observations	2024 survey observations
Wetlands (BCZ3)	An area north of the West Terrace Cemetery has a drainage creek that leads to a deep waterhole that is lined with Typha (<i>Typha domingensis</i>) and Common Reed (<i>Phragmites australis</i>).	The waterhole in KBA7 has few fringing reeds and rushes due to trees and shrubs shading the edge. There is a presence of native sedge and rush species.
RCZ1	An area near the waterhole has been planted out with that would have formed the Mallee Woodland that once occupied this area.	Previously observed species are still present and now with greater diversity, although limited cover of native ground-layer due to high tree density and/or lack of source populations.

Table 13 – Qualitative comparison of 2003 and 2024 in new KBA7



KBA7 - Vegetation Condition Classification

A summary of the Vegetation Condition Classification in 2024 shows that the condition of KBA7 is better than most KBAs. A management plan will be created for KBA7.

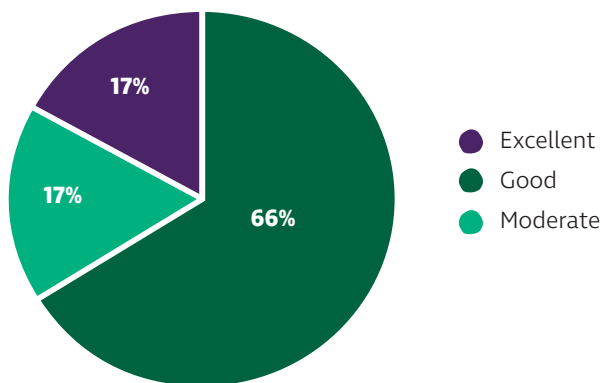


Figure 16 – KBA7 Vegetation Condition

Conservation Significance

Two plant species of conservation significance were identified in KBA7:

Common name	Scientific name
1. Rock Logania (Rare)	<i>Logania saxatilis</i>
2. Upright Milfoil (Vulnerable)	<i>Myriophyllum crispatum</i>

Table 14 – Vegetation Condition Summary

Vegetation

The field survey program reviewed the condition of the KBAs and identified new reconstructed vegetation communities in the Adelaide Park Lands.

A summary of the field survey program is provided in this section.









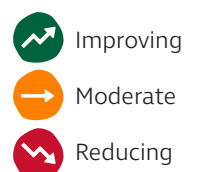
Vegetation Communities	
	<p>Remnant vegetation</p> <p>Remnant vegetation is improving in quality through careful management. Seed collection and propagation by the City of Adelaide is providing new plant material for revegetation sites. Weed management is an ongoing requirement.</p>
	<p>Revegetation</p> <p>Revegetation sites have generally improved throughout the Adelaide Park Lands due to regular and seasonal maintenance undertaken by the City of Adelaide and supported by ongoing volunteer activities by community organisations and resident groups. Sites within G S Kingston Park / Wirrarnintheta (Park 23) are recognised as KBA7.</p>
Aquatic Communities	
	<p>Aquatic vegetation</p> <p>Good species diversity exists in wetland environments including Pakapakantheta Wetlands and Wirrarnintheta Wetlands, with submerged aquatic vegetation in Pakapakantheta Wetlands currently low but anticipated to increase as the system matures. This is offset by significant decline in submerged aquatic native vegetation in Torrens Lake (over 90%), and high cover of introduced species.</p>
	<p>Torrens Lake aquatic vegetation</p> <p>There was a significant decline in submerged aquatic native vegetation in Torrens Lake (over 90% between 2022 and 2024), most evident between King William Street Bridge and Morphett Street Bridge. This result is unexpected, given previous surveys in 2020 and 2022 reported increases in submerged aquatic vegetation. Causes for investigation include a decline in water quality light penetration, debris, removal of plants in high flow events, increased grazing by waterfowl and disturbance by European Carp and watercraft.</p>
	<p>Pakapakantheta Wetlands</p> <p>Revegetated wetland areas are attracting and hosting a wide range of species not previously recorded including frogs, water birds, reptiles, fish, bees and other insects. There is a higher species diversity than would be expected in a comparable natural system reflective of a young reconstructed wetland area. Submerged aquatic vegetation is low to absent and as these beds are established there is opportunity to improve habitat and water quality.</p>
	<p>Wirrarnintheta Wetlands</p> <p>The wetlands in G S Kingston Park / Wirrarnintheta (Park 23) feature some of the best-condition emergent vegetation surveyed. Aquatic vegetation varied in quality, with the wetlands west of Catholic Cemetery Road in good condition and fairer condition to the east of the road, with lower plant diversity and native wetland plants. No submerged aquatic vegetation was recorded despite the presence of an area of open water with River Red Gum Woodland mid-open forest. Emergent vegetation was generally very sparse with large areas of unvegetated bare ground.</p>

Table 15 – Vegetation Condition Summary



Vegetation Communities

The traditional landscapes of the City of Adelaide included a rich diversity of eucalypt woodlands with other ecosystems such as grassy plains, wetlands and waterholes, and shrublands made up of five main vegetation communities (Figure 17).

Vegetation communities in the Adelaide Park Lands are managed to prioritise the protection of areas of the highest-condition remnant vegetation, with surrounding areas of fairer-condition vegetation less intensively managed.





Legend

City of Adelaide Boundary	Mallee Box Woodland
Pre-European Ecological Community	River Red Gum Woodland
Grey Box Woodland	Blue Gum & River Red Gum Woodland
Grey Box Woodland	Blue Gum & River Red Gum Woodland

Figure 17: Map showing pre-European vegetation boundaries



Aquatic Vegetation



Karrawirra Pari / River Torrens is a significant ecosystem in the city winding through the Adelaide Park Lands en route from the Mount Lofty Ranges to Gulf St Vincent.

The Adelaide Park Lands feature wetland environments at GS Kingston Park / Wirrarninthe Wetlands (Park 23) and Victoria Park / Pakapakanthe Wetlands (Park 16).

Vegetation that grows in and around Karrawirra Pari and the wetlands supports their health and function. This vegetation is classified according to where it grows:

Submerged

grows entirely underwater and has roots in the soil underwater.

Emergent

has roots in the soil that is underwater most of the time and shoots that emerge from the water.

Terrestrial

is almost always out of the water, though its roots likely benefit from the waterway.



Survey of aquatic and wetland vegetation in 2024 indicates:

- There is good species diversity in wetland environments, including Pakapakanthi Wetlands and Wirrarninthe Wetlands.
- Submerged aquatic vegetation in Pakapakanthi Wetlands is currently limited but is anticipated to increase as the system matures.
- There has been a significant decline (over 90%) in submerged aquatic native vegetation in Torrens Lake (since 2022), and high cover of introduced species.

Fish diversity in Karrawirra Pari

The 2024 biodiversity survey included five representative sites across Torrens Lake and downstream of the city weir to record fish and aquatic species.

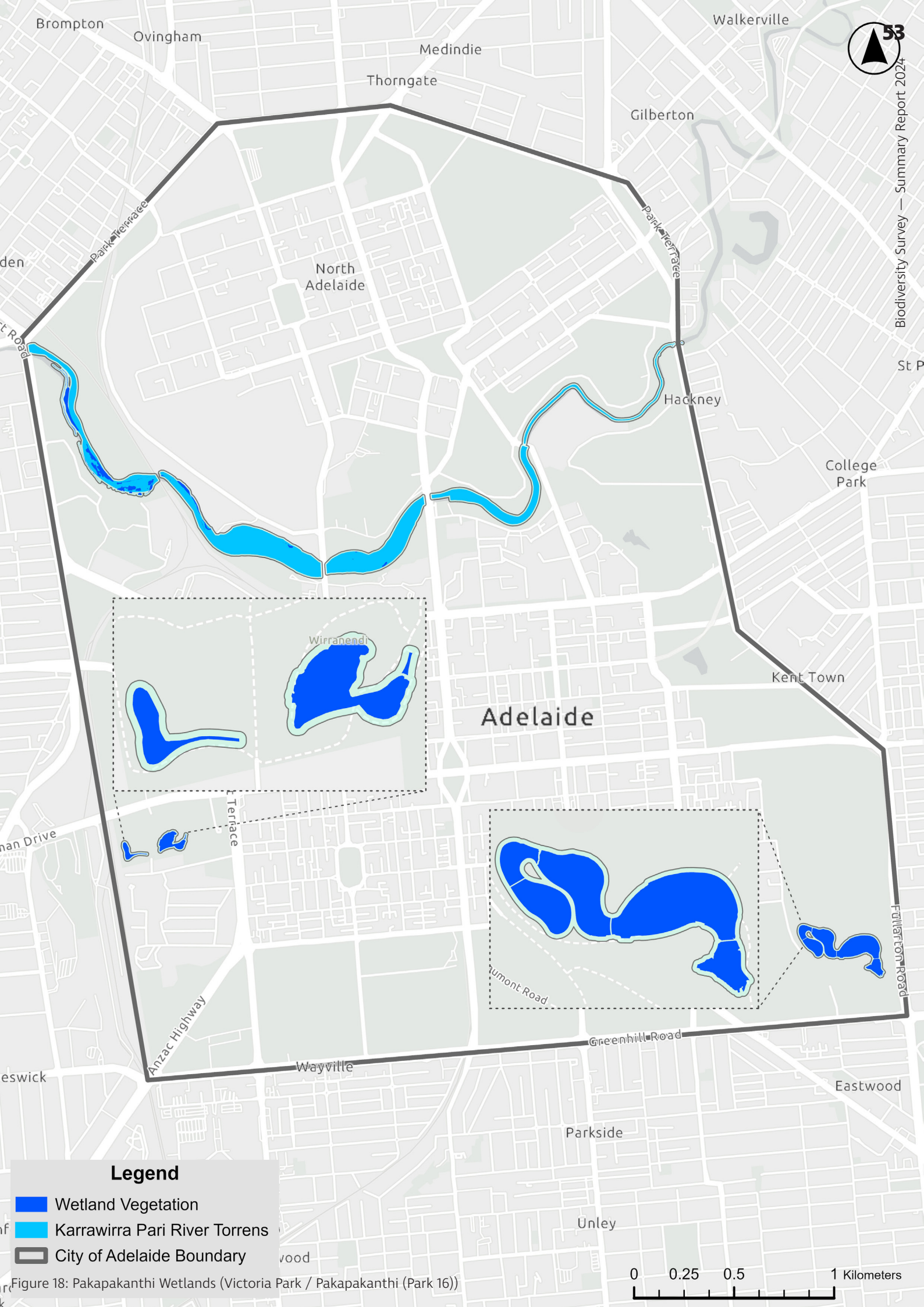
A total of 4,258 individuals from 14 fish species were recorded including 12 species previously recorded in 2023. Species included three invasive fish species, nine native fish species including the Short-finned Eel (*Anguilla australis*), two species of native turtles and one native crustacean.

Torrens Lake - Hackney Bridge to Torrens Weir	628m ² of submerged aquatic vegetation and five vegetation associations.
Karrawirra Pari - Torrens Weir to Hindmarsh Bridge	13,915m ² of wetland vegetation and 21 wetland vegetation associations (no submerged aquatic vegetation). High cover of introduced species, with wetland vegetation absent from some of the riverbank and lawn to the water's edge.
Pakapakanthi wetland	39,189m ² of wetland vegetation and 15 vegetation associations.
Wirrarninthe wetland	8,496m ² of wetland vegetation and 13 vegetation associations with varied quality of emergent vegetation.

Table 16 – Aquatic and wetland vegetation summary



Photo: Wirrarninthe Wetlands (G S Kingston Park / Wirrarninthe (Park 23))



Legend

- Wetland Vegetation
- Karrawirra Pari River Torrens
- City of Adelaide Boundary



Figure 18: Pakapakanthi Wetlands (Victoria Park / Pakapakanthi (Park 16))

Native plants and animals

The native grasslands and woodlands of the Adelaide Park Lands support a good diversity of plant species. The Biodiversity Report presents information on native plants based on surveys conducted between 2003 and 2024 inclusive and identified:

Birds are among the most documented animal groups in the Adelaide Park Lands. Common species include rosellas, magpies, and lorikeets, water birds including cormorants and herons, and less frequent visitors such as birds of prey like falcons and kites.

- 5 Threatened plant species: Swollen spear-grass, Rock Logania, Mount Lofty Speedwell, Upright Milfoil, and Wavy Marshwort
- 12 Species of spear grass
- 6 Species of wallaby grass
- 3 Species of orchids

Six threatened animal species call the Adelaide Park Lands home.

Common name	Scientific name	Conservation status
1. Australasian shoveler	<i>Spatula rhynchoti</i>	Rare in SA
2. Yellow-tailed Black Cockatoo	<i>Zanda funerea</i>	Vulnerable in SA
3. Common Brushtail Possum	<i>Trichosurus vulpecula</i>	Rare in SA
4. Grey-headed Flying-fox	<i>Pteropus poliocephalus</i>	Rare in SA
5. Chequered Copper Butterfly	<i>Lucia limbaria</i>	Rare in Metropolitan Adelaide
6. Eastern Water Skink	<i>Eulamprus quoyii</i>	Vulnerable in Metropolitan Adelaide

Table 17 – Threatened fauna species recorded in the Adelaide Park Lands since 2003



Photo: Yellow-tailed Black Cockatoo. Photo credit: Thomas Hunt

Field survey of animal species



microbats
and possums



Microbats (small insectivorous bats)

- Seven microbat species were observed across eighteen sites in 2024 compared with four microbat species across six sites in 2003.
- The three newly observed species are associated with more densely vegetated habitats, flowering shrubs to attract insects, and less urbanised areas.
- The Gould's Wattled Bat was the most abundant bat species recorded in the Adelaide Park Lands in 2024.

Photo: Lesser Long-Eared Bat (*Nyctophilus geoffroyi*)
Photo credit: Ariana Ananda



Possoms

- The Adelaide Park Lands are home to two species of arboreal, nocturnal marsupials: the Common Brushtail Possum and the Common Ringtail Possum.
- Significant populations of Common Brushtail Possums and Common Ringtail Possums were recorded in the southern and northern Adelaide Park Lands.
- High numbers of Common Brushtail Possums were recorded in Whitmore Square / Iparrityi
- The greatest number of possums were recorded in Lefevre Park/Nantu Wama (Park 6) with evidence of both species sharing habitat.

Common Brushtail Possum (*Trichosurus vulpecula*) utilising a nesting box. Photo credit: Elisa Sparrow

Photo: Common Ringtail Possum (*Pseudocheirus peregrinus*). Photo credit: Tara McKenzie





native bees
and butterflies

Native bees

- The survey identified 71 native bee species in the Adelaide Park Lands. At least two of these, and possibly more, are new to science. It is estimated that there are about 100 to 120 native bee species in the Adelaide Park Lands.
- The most common species collected was Sweat Bee (*Lipotriches flavoviridis*). The second most common species was Furrow Bee (*Lasioglossum urbanum*).
- Most native bees feed on native plant species such as Eucalypts, which in turn rely on native bees for pollination. Eucalypts, bottlebrush, goodenia, and other native nectar-producing plants support bee diversity.



Photo: Sweat Bee (*Lipotriches (Austronomia) flavoviridis*), the most common native bee in the Adelaide Park Lands.
Photo credit: Bernhardt Jacobi

Butterflies

- Presence of Chequered Copper Butterfly (*Lucia limbaria*), a species of conservation significance in South Australia, was observed in Bragg Park / Ngampa Yarta (Park 5) and Lefevre Park / Nantu Wama (Park 6).

Photo: Chequered (Grassland) Copper Butterfly (*Lucia limbaria*)

Photo credit: Butterfly Conservation SA



insects and
beetles

Insects and invertebrate

- The high diversity of recorded invertebrates represents 165 unique Families of invertebrates.
- A high diversity of invertebrates (mostly insect) species were identified across the four KBAs with a total of 664 species being recorded in 2024 survey.
- Greatest invertebrate diversity was observed at KBA6 with 302 species.
- The field survey found a rarely recorded species for both the State and region, which comprised of two individuals *Diphucrania trimentula*, a Jewel Beetle (*Buprestidae*), at KBA5. To date there are only four records of this small beetle in South Australia and this survey presents the first known record of this species for the Adelaide Metropolitan area.



Photo: Jewel Beetle (*Diphucrania trimentula*)
Photo credit: Peter Lang



Biodiversity Monitoring Framework for Adelaide Park Lands

The City of Adelaide is developing a biodiversity monitoring framework that aims to guide conservation efforts, track changes in biodiversity over time, and inform decision-making processes by the City of Adelaide.

The monitoring framework will:

- 1** Assess and monitor the diversity of landscapes, plants, animals, fungi and micro-biomes present in the Adelaide Park Lands.
- 2** Evaluate the health and condition of ecosystems within the Adelaide Park Lands, including Torrens Lake / Karrawirra Pari, wetlands, woodlands, grasslands, and water bodies.
- 3** Identify and prioritise key biodiversity indicators to measure the effectiveness of conservation initiatives and management practices.
- 4** Engage with the community, experts, and stakeholders to enhance biodiversity monitoring efforts and promote citizen science participation.
- 5** Utilise data collected to inform evidence-based management decisions, restoration projects, and biodiversity conservation strategies to support a healthy Kurna Country and the implementation of Council's Integrated Climate Strategy 2030 and the Adelaide Park Lands Management Strategy – Towards 2036.



Glossary

Report terminology	Definition
Atlas of Living Australia	The Atlas of Living Australia (ALA) is Australia's largest repository of data on animals, plants, fungi and microorganisms.
Animal	Animal means a live vertebrate or invertebrate animal.
Arboreal	Inhabiting or frequenting trees.
Bioacoustic	Refers to the investigation of sound production and reception in animals which is an effective means to identify species.
Biodiversity	Biodiversity is the variety of life. It is the genetics and species of plants, animals and microorganisms and the ecosystems in which they live.
Buffer Conservation Zone (BCZ)	Areas that are of lower conservation value than protected conservation zones, but have sufficient remnant biodiversity that they can be sympathetically managed to achieve broader biodiversity outcomes.
Bush for Life	A program created to help people take practical steps to conserve bushland.
Butterfly Conservation Zone (BUT)	An area for Chequered Copper Butterfly conservation.
Citizen Science	Voluntary undertaking of scientific research by members of the public.
Crustacean	A class of water dwelling animals with an external skeleton.
Conservation Significance	Species both with and without formal conservation status that are considered to be of particular importance and warrant management focus and/or protection.
Ecological integrity	Ecological integrity is the diversity and quality of ecosystems and their capacity to adapt to change.
Ecosystem	Ecosystem means a dynamic complex of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit.
Emergent	Plant with roots in the soil that is underwater most of the time and shoots that emerge from the water.
Environment Protection Biodiversity Conservation Act 1999 (EPBC Act)	The Environment Protection and Biodiversity Conservation Act 1999 is Australia's national environmental law. It provides the legal framework to protect the environment, especially those aspects that are matters of national environmental significance.
Exotic	Not occurring naturally in the ecosystem of an area.
Families	Animal families are comprised of animals with similar features and can be divided into two main groups – vertebrates and invertebrates.
Fauna	The typical collection of animal life found in a specific area.
Flora	The typical collection of plant life found in a specific area.
Ground layer	The lowest layer of vegetation generally comprised of grasses, sedges, forbs, herbs, prostrate shrubs or seedling trees.
Invasive	Spreads quickly and undesirably.
Informal Recreation Zone (IRZ)	Areas that contain scattered native plants or other notable conservation values, but have informal recreation or similar as the primary land use.
Invertebrates	Animals without a backbone or bony skeleton.

Report terminology	Definition
Key Biodiversity Areas (KBAs)	The Key Biodiversity Areas (KBA) in the Adelaide Park Lands are a management boundary that prioritises high value native biodiversity. At least one Key Biodiversity Area is in each of the five recognised pre-European vegetation communities across the Adelaide Park Lands.
Mammals	Warm-blooded animals with a backbone, mammary glands that produce milk and some form of hair.
Microorganism	An organism that can only be seen through a microscope.
Micro-biome	The microorganisms in a particular environment.
Midstorey	The middle layer of a vegetation community usually consisting of shrubs and small trees that grow below the canopy of the overstorey.
Native Vegetation	Native vegetation means a plant or plants of a species indigenous to South Australia, including plants growing in or under water.
Nocturnal	Being active or happening at night rather than during the day.
Overstorey	The uppermost canopy level, formed by the tallest trees.
Plant	Plant means vegetation of any species and includes the seeds and any other form of plant material.
Protected Conservation Zone (PCZ)	The areas within the KBA that are of highest conservation value. Biodiversity conservation is the primary land use and objective within these zones.
Qualitative	A measurement based on quality.
Remnant Vegetation	Remnant vegetation or bushland can be defined as original patches of native trees, shrubs and grasses.
Revegetation Conservation Zone (RCZ)	Areas of high-quality re-established local vegetation and habitat. Only plantings that use stock of carefully considered provenance and that can contribute positively to the ecological objectives for the KBA are considered as revegetation conservation zones.
Species	A group of organisms capable of interbreeding freely with each other but not with members of other species.
Stratum	A stratum of native vegetation means a layer of a plant community consisting of plants that have a similar growth habit.
Submerged	Plant that grows entirely underwater and has roots in the soil underwater.
Terrestrial	Plant is almost always out of the water, though its roots likely benefit from the waterway.
Thatch	Thatch is a layer of roots, leaves, and organic material that settles between grass and the soil surface
Transect	A defined line across a habitat to allow observations at regular intervals.
Trees for Life	A charity organisation focused on protecting and revegetating land within South Australia.
Understorey	A layer of vegetation beneath the main canopy, including small trees, shrubs, and groundcover.

