Blue Gum Lake

Strategic Management Plan
2024-2029

City of Melville

Executive Summary

Strategic reserve plans are required to be developed for selected reserves and periodically updated according to the guidance provided in the City of Melville's Natural Areas Asset Management Plan. The assets and threats identified within the reserve outlined assist in determining the success and projection of the reserve, allowing the prioritisation of management techniques within the reserves. Strategic Management Plans have previously been developed for Blue Gum Lake Reserve in 2004, 2012, and 2018.

Assets present within Blue Gum Lake Reserve were identified and determine how the City is performing in relation to measurable indices outlined in the City's Natural Areas Asset Management Plan (NAAMP). Assets identified at Blue Gum Lake Reserve include:

- a classified Conservation Category Wetland
- bush forever site (ID 228)
- forms part of the High Value Strategic Greenway (Greenway 95)
- contains six different vegetation types
- contains a threatened ecological community, Banksia Woodlands of the Swan Coastal Plain
- vegetation condition ranges from very good to degraded; vegetation condition within the Banksia Woodlands of the Swan Coastal Plain patch has improved in condition since the 2019 Management Plan
- a total of 124 native flora species were recorded, none of which are of conservation significance; flora species diversity has increased over the survey years
- a total of 40 vertebrate fauna species were recorded:
  - 6 amphibians
  - 23 birds
  - 2 mammals
  - 9 reptiles
- two conservation significant fauna species were recorded, Blue-billed Duck (Oxyura australis) and Forest Red-tailed Black Cockatoo (Calyptorhynchus banksii naso).
- presence of largest population of Snake-necked turtles in City of Melville
- a total of four fauna habitats identified
- three bird and bat boxes were present
- a total of 31 potential habitat trees were recorded.

Threats present within Blue Gum Lake Reserve were identified and determine how the City is performing in relation to measurable indices outlined in the City's Natural Areas Asset Management Plan (NAAMP). Threats identified include:

- physical disturbances in the form of rubbish and informal tracks, including evidence of illicit products
- no evidence of recent fire; however, still contains evidence of historic fire events, with the latest fire event recorded in 2006
- a total of 38 weed species identified across the survey area, a decrease in the total number of weed species recorded compared to previous years
- one declared pest species was recorded across the survey area, Rainbow Lorikeet (*Trichoglossus moluccanus)
- European Bees consider to be high priority for control was recorded within a tree hollow
- the southwestern section of the reserve has recorded infestation of dieback in the Eucalyptus spp. Woodland
- no evidence of other plant diseases or pathogens were recorded across the reserve
- the values recorded for lead, pH and conductivity values were recorded within the acceptable ANZECC guidelines

- the values recorded for aluminium, chromium, copper, iron, lead, zinc, total nitrogen, total phosphorus, dissolved oxygen exceed the ANZECC guidelines
- no evidence of impacts from reticulation
- no evidence of climate change impacts during the time of the survey; however, a summer investigation is being undertaken by the City to better understand any climatic changes on the wetlands.

Management strategies include:

- continue undertaking weed control, focusing on very high and high impact weeds
- Continue revegetation works and weed management across the reserve focusing on good vegetation condition areas within the Banksia Woodland
- revegetation of proposed areas as outlined in Map 16
- continue to monitor the turtle population and improve nesting habitat
- Increase number of bird and bat boxes to provide suitable habitat.
- continue to monitor and report any increase in threats within the reserves, and undertake management in accordance with the City's Natural Areas Asset Management Plan (NAAMP)
- continue to monitor assets for decline in health or damage, with repairs or management in accordance with the NAAMP.

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1 Introduction

1.1 Background

Strategic reserve plans (SRP) are required to be developed for selected reserves and periodically updated according to the guidance provided in the City of Melville's Natural Areas Asset Management Plan (NAAMP). Content discussed in detail in the NAAMP is not repeated in this SRP; it is recommended that this document is applied in conjunction with the guidance provided in the NAAMP (Woodgis, 2019).

Three previous management plans have been developed for Blue Gum Lake Reserve:
* Blue Gum Lake Reserve Management Plan (Bennett Brook Environmental Services, 2004), referred as the 2004 Management Plan
* Blue Gum Lake Reserve Strategic Management Plan (Natural Area Consulting Management Services, 2012), referred as the 2012 Management Plan
* Blue Gum Lake Reserve Strategic Management Plan (Ecoscape, 2019), referred as the 2019 Management Plan

1.2 Objectives

The objective of this management plan is to update and expand on content provided in the previous management plans. The outcomes and effectiveness of management strategies, objectives and guidelines set in the previous management plans are reviewed to develop appropriate recommendations in future management plans. The finalised strategic management reserve is intended to guide management activities in the reserve for the proceeding five-year period.

1.3 Scope

Blue Gum Lake Reserve is located in the suburb of Mount Pleasant within the City of Melville. The reserve is
13.46 hectares and is approximately 10 km south of the Perth's Central Business District (CBD) (Map 1).

Under the framework described in the NAAMP this strategic management plan is required to:

* describe any environmental assets present (flora, fauna or vegetation communities, community usage and heritage)
* assess any change evident in the assets present, comparing against previous surveys and plans
* identify current potential threats to environmental assets
* identify management priorities
* identify reserve specific management strategies
* provide recommendations for implementation of reserve specific management strategies
* provide assessment of the success of previously identified objectives and management strategies with consideration of the use of these as leading or lagging indicators.

2 Assets

2.1 Reserve Assets

2.1.1 Bush Forever

Bush Forever Sites are regionally significant bushland and wetland areas within the Swan Coastal Plain that were identified as needing protection in Perth's Bushland Project (Government of Western Australia, 2000a, 2000b).

Blue Gum Lake Reserve meets the key criteria listed in the City of Melville's NAAMP including representation of ecological communities, general criteria for the protection of wetland and coastal vegetation, and criteria not relevant to determination of regional significance (Table 1).

Table 1: Bush Forever Criteria, Blue Gum Lake Reserve (ID 228)

Bush Forever Criteria	Comments
Representation of ecological communities	▪ within the vegetation complex Bassendean-Central and South. ▪ floristic community types comprise of Seasonal Wetlands and Uplands centred on Bassendean Dunes and Dandaragan Plateau.
Diversity	▪ contains Banksia Woodland, biologically is diverse and hosts a wide variety of flora and fauna species.
Rarity	▪ conservation significant species are known to occur including: - Blue billed ducks - Hardhead ducks - Dusky Moorhen.
Ecological processes or natural systems	▪ maintains ecological processes and natural systems.
Scientific or evolutionary importance	▪ contains Banksia Woodland, biologically is diverse and hosts a wide variety of flora and fauna species. ▪ contains regionally significant vegetation on the site.
General criteria for the protection of wetland and coastal vegetation	▪ contains Conservation Category Wetland (UFI 6507).
Criteria not relevant to determination of region significance	▪ contains aesthetic value. ▪ contain sites of significance for Aboriginal people. ▪ contains bushland tracks for recreation values.

Source: Government of Western Australia (2000a, 2000b) and the NAAMP.

Table 2: Bush Forever Listing Indicator

Asset	Objective	Assessment of Success
Bush Forever Listing	Monitor - no change to Bush Forever system expected.	Successful

2.1.2 Ecological Linkages

Ecological linkages are broadly mapped patches of remnant isolated bushlands that represent link habitats to facilitate ecological movements and process across a landscape. Ecological linkage can maintain genetic diversity of flora and fauna species and provide refuge for fauna to move between natural bushlands.

City of Melville's NAAMP (2019) assessed Blue Gum Lake Reserve to be of a high value linkage. The reserve forms part of the local linkages between Blue Gum and Bateman reserves and is part of Greenway 95 (Alan Tingay and Associates, 1998).

Table 3: Ecological Linkages Indicator

Asset	Objective	Assessment of Success
Ecological Linkages	Monitor - no change to Ecological linkages expected.	Successful

2.2 Site Assets

2.2.1 Vegetation

Vegetation Types

The vegetation types across Blue Gum Lake Reserve were mapped by Natural Area in accordance with the Technical Guidance-Flora and Vegetation Surveys for Environmental Impact Assessment (Environmental Protection Authority (EPA), 2016). The full methodology is provided in Appendix 1.

A total of six vegetation types were present across the Blue Gum Lake Reserve, including:

- Banksia Woodland
- Eucalyptus rudis woodland
- Mixed Eucalyptus sp., Melaleuca rhaphiophylla and Melaleuca teretifolia Woodland
- Casuarina cunninghamiana open forest
- parkland
- open water.

In 2018 the Banksia Woodland was split into two separate vegetation types, areas with the transitional zone mapped. The two vegetation types have been combined to represent the Banksia Woodland. Across the different survey periods there has been changes in the survey technical guidance, this has altered the vegetation classification system and the intensity of the surveys undertaken. Fringing rushland was recorded in 2004, this vegetation type has not been recorded since, and the Banksia woodland was recorded as a Jarrah / Marri woodland. The Jarrah and Marri present within the Banksia woodland are considered emergent trees rather than the dominant structure.

A summary of the vegetation types across the strategic management plans are provided in Table 4. The vegetation types from the 2023 survey are described in detail in Table 5 and displayed in Map 2.

Table 4: Summary of vegetation types recorded within the reserve across the strategic management plans

2004 Management Plan	2012 Management Plan	2019 Management Plan	2024 Management Plan	Extent Summary	
				Area (ha)	%
Jarrah/ Marri Woodland	*Banksia* Woodland	*Banksia* Woodland	*Banksia* Woodland	1.95	14.49
		Corymbia calophylla and *Banksia* Transitional Woodland			
Eucalyptus rudis Forest	*Eucalyptus rudis* woodland	*Eucalyptus rudis* and *Melaleuca preissiana* Woodland	*Eucalyptus rudis* Woodland	3.16	23.48
		Eucalyptus rudis and planted *Eucalyptus* sp. Woodland	*Eucalyptus* spp. Woodland	0.67	4.98
Melaleuca Woodland	*Melaleuca* woodland	*Melaleuca rhaphiophylla* and *Melaleuca teretifolia* Low Woodland	*Melaleuca rhaphiophylla* and *Melaleuca teretifolia* Woodland	0.93	6.91
Fringing Rushland					
Parkland	*Landscaped Area*	Parkland	Parkland	1.53	11.37
		Casuarina cunninghamiana Groves	*Casuarina cunninghamiana* Open Forest	0.24	1.78
Open Water		Wetland	Open Water	2.25	16.72
			Unsurveyed	0.19	1.41
			Cleared / developed	2.54	18.87

Table 5: Vegetation types recorded across the reserve

Code	Vegetation Type	Vegetation Description	Photo
BW	*Banksia* Woodland	A woodland of *Banksia attenuata* and *Banksia menziesii* with emerging tree species, *Corymbia calophylla* and *Eucalyptus marginata* over mixed shrubs and herbs	
ErW	*Eucalyptus rudis* Woodland	A woodland of *Eucalyptus rudis* over mixed shrubs and herbs	

Code	Vegetation Type	Vegetation Description	Photo
EW	*Eucalyptus spp.* Woodland	A woodland of mixed *Eucalyptus* species over mixed shrubs and herbs	
MrMtW	*Melaleuca rhaphiophylla* and *Melaleuca teretifolia* Woodland	A woodland of *Melaleuca rhaphiophylla* and *Melaleuca teretifolia* over mixed herbs	

Code	Vegetation Type	Vegetation Description	Photo
CcOF	*Casuarina cunninghamiana* open forest	An open forest of *Casuarina cunninghamiana* over mixed shrubs and herbs	
Parkland	Parkland	Parkland	

Code	Vegetation Type	Vegetation Description	Photo
Open Water	Open water	Open water body	

Vegetation Condition

Vegetation Condition on site ranged from degraded to very good (Table 6, Map 3)

The very good portion of the reserve was located within the Banksia woodland which supported a high diversity of flora species and contained evidence of weed management activities with a reduced number of weeds present.

A large portion of the reserve was in good condition predominantly in the *Eucalyptus rudis* Woodland and the *Melaleuca rhaphiophylla* and *Melaleuca teretifolia* Woodland. The portion of the reserve in degraded condition was in the northern component of the reserve adjacent to Canning Ave and to the southern component adjacent to the community buildings.

Table 6: Vegetation condition extents recorded across the natural areas

Vegetation Condition	Pristine	Excellent	Very Good	Good	Degraded	Completely Degraded	Total
Area (ha)	0.00	0.00	1.30	3.66	1.99	0.00	6.95
Area (%)	0.00	0.00	17.71	52.66	28.63	0.00	100

The vegetation condition extent of the natural areas makes up 52 % of the survey boundary, the remaining 48 % is comprised of:

- 11 % parkland
- 17 % open water
- 19 % cleared / developed
- 1 % unsurveyed.

Ecological communities

Characteristics of the Banksia Woodland of the Swan Coastal Plain Threatened Ecological Community are represented within the Banksia Woodland vegetation type. The site is representative of a threatened ecological community listed for protection under the *Environment Protection and Biodiversity Conservation (EPBC) Act 1999 (Cwlth)* and is listed in the NAAMP as being of high value. The Banksia Woodland patch in very good condition (1.27 ha) and meets the minimum patch size criteria of 1 ha. The remaining patch size of
0.68 ha is in good condition. The locations of the vegetation condition within the Banksia Woodland patch are displayed in Map 4.

The condition of the vegetation within the Banksia woodland has improved in condition since the 2019 Management Plan. The vegetation was only considered to be part of the priority ecological community in the 2019 Management Plan, currently the Banksia Woodland vegetation meets the criteria for threatened ecological community listed for protection under the *EPBC* Act 1999 (Cwlth).

Table 7: Vegetation Asset Indicator

Asset	Objective	Assessment of Success
Vegetation type diversity	Maintain or Enhance - Six vegetation types are currently described.	Successful
Extent of native vegetation	Maintain or Enhance - Expand area of native vegetation.	Successful
Condition of native vegetation	Maintain or Enhance - improve condition of native vegetation.	Unsuccessful

Asset	Objective	Assessment of Success
Significant communities	Maintain or Enhance - this vegetation type satisfies the criteria in terms of species composition and structural description to qualify as *Banksia* Woodland PEC.	Successful

2.2.2 Wetlands

The wetland feature (UFI 6507) present within Blue Gum Lake Reserve is a Conservation Category Wetland (DBCA, 2023). The wetland is predominantly in a good or higher condition and supports the surrounding environment, therefore, still meets the criteria to be classified as a Conservation Category Wetland. Blue Gum Lake Reserve is a component of the eastern wetland chain of the Beeliar Regional Park.

The 2004 Management Plan indicates that the wetland has been modified since the area was urbanised. Prior to 1990, during the 1970s and 1980s the City artificially maintained the water levels. Since 1990 the City has no longer artificially maintained the lake levels. The wetland at Blue Gum Lake Reserve is considered as a permanent wetland.

Table 8: Wetland Asset Indicator

Asset	Objective	Assessment of Success
Conservation Category Wetland listing	Maintain or Enhance - Environmental criteria leading to listing as Conservation Category.	Successful

2.2.3 Heritage

The reserve is within the Whadjuk People Indigenous Land Use Agreement area. The heritage sites are specifically protected under the EPBC Act 1999, Aboriginal Heritage Act 1972 and/or Heritage Act 2018 (WA).

One registered site of significance (35552) under the Aboriginal Heritage Places was present within Blue Gum Lake Reserve. Blue Gum Lake Reserve (3298) is registered as ceremonial. Blue Gum Lake Reserve (25420) is listed on the Heritage Council Local Heritage Survey, which is listed for its importance as a natural environment and association with Beeliar Noongars, and pioneer settlers.

Table 9: Heritage Asset Indicator

Asset	Objective	Assessment of Success
Registered Heritage Site	Monitor - Remain aware of new heritage discoveries or conditions.	Successful - additionally one Aboriginal Heritage registered site of significance (3552) and 25420 listed on the Local Heritage Survey.

2.2.4 Community Interest

Blue Gum Lake Reserve is identified as being a high value community site in the NAAMP. Community and natural resource management organisations are active in the reserve. Groups include:

- Friends of Booragoon and Blue Gum Lakes (FoBBGL)

- South East Centre for Urban Landcare (SERCUL)
- Wirambi Landcare
- Save Our Snake Necked Turtles (SoSNT)
- local residents.

FoBBGL and SERCUL have undertaken project works within the reserve including weed control works in revegetation and bushland areas, revegetation planting, and removal of rubbish.

Table 10: Heritage Asset Indicator

Asset	Objective	Assessment of Success
Community Interest	Maintain or Enhance - improve number or size of active community groups and area being actively managed.	Successful

2.2.5 Reference Sites

No reference sites for long term monitoring or research have been established in Blue Gum Lake Reserve. The establishment of a minimum of one reference site across each of the four vegetation types is recommended to monitor any change in the structure and condition. These reference sites should have a particular focus on the Banksia Woodlands of the Swan Coastal Plain, threatened ecological community.

Table 11: Reference Site Asset Indicator

Asset	Objective	Assessment of Success
Reference Sites	Monitor - no change expected.	Un-assessable

2.3 Species

The survey of Blue Gum Lake Reserve assessed the flora and fauna species present with the reserve boundaries. Native flora and fauna are described in section 2.3.1 and 2.3.2 with introduced species described within the Threats sections 3.3 and 3.5.

2.3.1 Native Flora

A compile of all previous survey undertaken within Blue Gum Lake Reserve since 2004 identified a total of 181 native flora species recorded from 42 families. The compiled data makes up approximately 39 % of the native flora species indicated in the NAAMP recorded within the City. Examples of native flora species present across the reserve are displayed in Figure 1.

The 2012 Management Plan included the flora records from the 2004 Management Plan and identified a total of 139 native flora species from 41 families. The 2019 Management Plan identified 111 native flora species from 33 families. The 2023 spring survey identified a total of 124 native flora species recorded from 32 families during the field survey. A compile of the native flora species identified across each survey period are provided in Appendix 3

The overall native species diversity decreased from the compiled 2004 and 2012 survey data compared to 2018 survey data, decreasing by 28 species. The 2023 spring survey data recorded an additional 13 native flora species compared to the 2018 survey data.

No conservation significant species were identified during the surveys. The listed very high value plant species described in the NAAMP have not been identified during any of the surveys undertaken from 2004 to 2023.

Table 12: Native Flora Asset Indicator

Asset	Objective	Assessment of Success
Species diversity	Maintain or Enhance - increase native species diversity.	Successful
Very high value plant species	Monitor - none of these species are currently known from the reserve.	Successful
Banksia species abundance	Maintain or Enhance - number of Banksia species present within the reserve.	Successful

2.3.2 Native Fauna

A compile of all previous survey undertaken within Blue Gum Lake Reserve since 2004 identified a total of 144 native vertebrate fauna species recorded from 55 families. The compiled data makes up approximately 35 % of the native fauna species indicated in the NAAMP recorded within the City. Examples of native fauna species recorded across the reserve are provided in Figure 2.

The 2012 Management Plan included the fauna records from the 2004 Management Plan and community records and identified a total of 112 native fauna species from 43 families. The 2019 Management Plan identified 43 native fauna species during the survey from 28 families. The 2023 spring survey identified a total of 40 native fauna species recorded from 20 families during the field survey (excluding invertebrates). The number of native fauna species recorded across the reserve grouped by class is provided in Table 13. The native fauna recorded in 2023 and a table comparing occurrences listed in the previous management plans from 2004 to 2019 are provided in Appendix 4.

The joint 2004 Management Plan and the 2012 Management Plan records include community records, the community records for the 2019 Management Plan are included in Appendix 4, the community records are not provided in the data below due to possible false positives. Community records can provide an indication of the species that utilise the site all year round which a single season survey cannot determine.

Two conservation significant fauna species was recorded within Blue Gum Lake Reserve, Blue-billed Duck (Oxyura australis) and Forest Red-tailed Black Cockatoo (Calyptorhynchus banksia naso). The Blue-billed Duck is a Priority 4 underneath the Biodiversity Conservation Act 2016 (WA) and the Forest Red-tailed Black Cockatoo listed as Vulnerable under the EPBC Act (Cwth). The Blue-billed Duck was previously recorded in the 2012 Management Plan and was only recorded in the community records in the 2019 Management Plan. The Forest Red-tailed Black Cockatoo was previously recorded in the 2019 Management Plan.

Blue Gum Lake is also home to the largest known population of South-western snake-necked Turtle within the City of Melville. Trapping for turtles undertaken through Save our Snake-necked Turtle program most recently showed 24 turtles captured in 2022, however previous studies showed the population could be as high as 200+ in 2016/17 (Santoro et al., 2020). Surveys show the population is male dominated and suffering from a historical lack of recruitment, indicating the need to protect nesting females who are the most likely to come under threat when leaving the lake to lay eggs. The Turtle Tracking program has been running for several years and aims to protecting nesting turtles

and their eggs from predation. The hotspots for turtle movements appear to be in the bushland to the south of the lake and the corner of Canning Av and Moolyeen Rd (Santoro et al. 2023). Indications of turtle deaths show that the fence to the NE of the Lake may not be completely effective, and this area should be monitored for possible improvement. This corner could also be restored to provide better cover for nesting turtles and encourage nesting before having to cross a road. Seasonal signage should continue to be used to increase awareness amongst drivers.
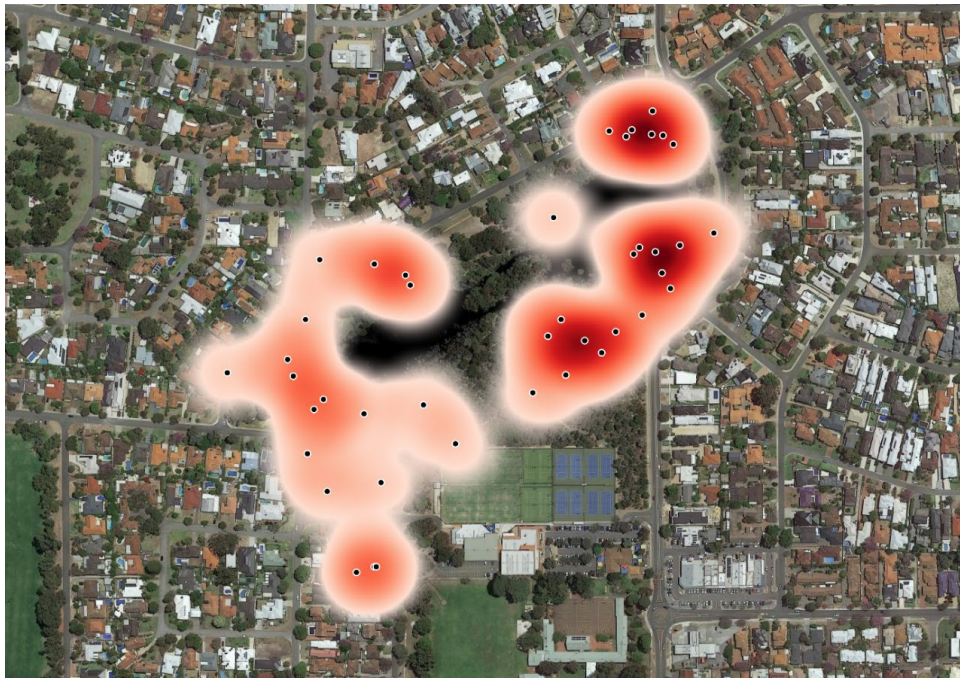
Figure 1: Heat map of the locations of live turtles recorded around Blue Gum Lake on the TurtleSAT application (Santoro *et al.* 2023)

Motorbike Frog (*Litoria moorei*)

Pied Butcherbird (*Cracticus nigrogularis*)

South-western snake-necked turtle (*Chelodina oblonga*)

New Holland Honeyeater (*Phylidonyris novaehollandiae*)

Figure 2: Examples of native fauna species recorded across the reserve

Table 13: Number of native fauna species recorded grouped by class

Class	2012 Management Plan	2019 Management Plan	2024 Management Plan
Amphibian	1	2	6
Birds	96	23	19
Mammals	0	3	1
Reptiles	5	9	9

A total of four fauna habitat types were recorded across Blue Gum Lake Reserve, 31 potential black cockatoo habitat trees, and three bird and bat boxes (Table 14, Map 3). Across the reserve there is suitable habitat for refuge with areas of dense understory, leaf litter and fallen logs. The on-ground survey assessed potential

habitat trees (with a DBH greater than 300mm) across the reserve if they were present within the grid survey point. Of the 31 potential habitat trees recorded, three were observed to contain hollows. The bird and bat boxes across the survey area were established between 2018 and 2023 by the City.

Table 14: Fauna habitat types present across the survey area.

Fauna Habitat Type	Description	Photograph
Paperbark Woodland	A woodland of *Melaleuca rhaphiophylla*, and *Melaleuca teretifolia* over sedgeland	
Eucalyptus Woodland	A woodland of *Eucalyptus rudis*	
Banksia Woodland	A woodland of *Banksia attenuata* and *Banksia menziesii* with emerging tree species, *Corymbia calophylla* and *Eucalyptus marginata*	
Open Water	Open water body	

Table 15: Native Fauna Asset Indicator

Asset	Objective	Assessment of Success
Mammal species	Maintain - continue to protect species diversity and manage habitat to allow ongoing use of reserve by species.	Unsuccessful
Amphibian species		Successful
Reptile species		Successful
Bird species		Unsuccessful
South-western snake-necked Turtle	Enhance - intervention required to reverse trend of ongoing population decline of species.	Indeterminate

3 Threats

Significant threats to natural areas in the City were identified in the NAAMP. The 10 most significant threats include physical disturbance, fire, weeds, habitat loss, feral animals, disease and pathogens, stormwater, reticulation, acid sulfate soils, and climate change. The success of each of the threats as outlined against the objectives provided in the 2019 Management Plan are described at the bottom of each threat discussed.

3.1 Physical Disturbance

Inappropriate access and the presence of rubbish was evident at Blue Gum Lake Reserve. The rubbish was predominantly at low levels with only a few occurrences noted; however, there was a number of Nitrous oxide canisters present. The physical disturbances recorded across Blue Gum Lake Reserve over the survey years are indicated in Table 15 and locations are displayed in Map 6.

Rubbish and vandalism removal across the reserve is undertaken on a regular basis by community groups and the City. As the rubbish and vandalism was noted as minimal during the field survey it is suggested that the effort undertaken to control physical disturbance is relatively effective and is recommended to continue.

Table 16: Physical Disturbances recorded across Blue Gum Lake Reserve over the survey years

Physical Disturbance	2012 Management Plan	2019 Management Plan	2024 Management Plan
Informal track development	400 m over five tracks	220 m over three tracks	71 m over one track on southern side of lake
Disturbance for likely propagation of prohibited substances	One major on island	One small near Tennis Club	None
Rubbish dumping	Small amount of wind/ water transported along road verge and around storm water drains significant amount around island hangout lawn clippings around Tennis Club.	Small amount of wind/ water transported along road verge and around storm water drain.	Minimal litter along the pathways, and minimal litter within the vegetation. Nitrous oxide canisters present.
Tree poisoning	None	None	None

Illegal clearing	None	None	None
Firewood collection	None	None	None
Vandalism	Small amount on signage Significant amount on trees on island	Small amount on signage	Small amount on signage

Table 17: Physical Disturbance Threat Indicator

Threat	Objective	Assessment of Success
Informal Tracks	Eliminate - reduce number and extent of informal tracks in bushland.	Unsuccessful - informal tracks still evident; however, extent has decreased.
Rubbish Dumping	Manage - continue ongoing rubbish removal program. Maintain rubbish occurrence at low levels currently recorded, target no large occurrences of garden waste or household rubbish dumping.	Successful
Tree poisoning Illegal Clearing Firewood Collection	Prevent - no occurrences.	Successful
Vandalism	Manage - maintain current low levels of graffiti on signage only.	Successful

3.2 Fire

The NAAMP identified that small urban bushland remnants are more susceptible to the negative impacts of fire. Frequent fire events and large fire extent that impact more than 50 % of the reserve are more likely to experience local extinction of fire vulnerable species.

Across the reserve since 2003 there has been four fires recorded. In 2003 a fire burnt approximately 1 ha north of the tennis courts which was described as a hot canopy fire. In 2004, a fire burnt approximately 0.5 ha south of the island, this was described as a low intensity fire with limited fire canopy. The largest fire in 2006 burnt approximately 4 ha on the southern side of the wetland, this was described as a very hot canopy fire which caused serious damage to the vegetation. Between 2012 and 2018, one fire occurred north of the tennis courts, this fire was never formally mapped.

Across the survey area there was a high accumulation of leaf litter including dead branches particularly in the Eucalyptus rudis woodland, it is recommended that fire fuel load reduction activities are undertaken across the reserves. Bushfire control and management should be undertaken in line with the City of Melville's Bushfire Management Guideline (2019).

Table 18: Fire Threat Indicator

Threat	Objective	Assessment of Success
Fire	Prevent - manage the reserve so as to prevent any large (>50 % of reserve burnt) or overly frequent (frequency <8 years) fires occurring.	Successful

3.3 Weeds

A compile of all previous survey undertaken within Blue Gum Lake Reserve since 2004 identified a total of 98 weed species recorded from 31 families.

The 2012 Management Plan included the flora records from the 2004 management plan and identified a total of 66 weed species from 24 families. The 2019 Management Plan identified 59 weed species from 25 families. The 2023 spring survey identified a total of 38 weed species recorded from 16 families during the field survey. The combined weed density across Blue Gum Lake Reserve has decreased compared to the 2012

Management Plan. A compilation of the weed species identified across each survey period is provided in Appendix 5.

The overall weed species present across the reserve decreased. The 2019 Management Plan recorded seven less weeds than the compiled 2004 and 2012 survey data. The 2023 spring survey data contained the lowest number of weed species recording 21 fewer weed species than in 2019 Management Plan. The differences in weed species present across the survey area over the survey periods is likely due to weed control activities undertaken within the reserve.

The NAAMP classifies weed species into impact classes of very high, high, medium and low. The number of species present across each impact classes across the survey periods are provided in Table 19 and further categorised into type in Table 20. The location of weeds present across the survey area are provided in Map 7 to 13.

No declared pests and / or Weeds of National Significance (WoNS) have been identified across the survey area over the different survey periods. It is recommended that weed control is undertaken across the reserve prioritizing the species listed under the very high impact class. Weed management across the reserve is undertaken in accordance with the City of Melville's Environmental Weed Management Guidelines (2018a).

Table 19: Number of weed species within each impact class recorded over the survey years

Impact Class	2012 Management Plan	2019 Management Plan	2024 Management Plan
Very High	3	2	2
High	41	32	15
Medium	4	2	4
Low	18	23	17

Table 20: Weeds recorded within each rating and category over the survey years

Rating	Weed	2012 Management Plan	2019 Management Plan	2024 Management Plan
Very High	Perennial Clumping Grass	X		
	African Love Grass	X		
	Perennial Veldt Grass	X	X	X
	Brazilian Pepper	X	X	X
High	Annual Clumping Grasses	10 species	6 species	7 species
	Perennial Running Grasses	3 species	2 species	2 species
	Clumping Geophytes	10 species	8 species	2 species
	Giant Grasses			
	Trees and Shrubs	17 species	16 species	4 species
Medium	All Other Perennial Weeds	3 species	2 species	4 species
Low	All Other Annual Weeds	18 species	23 species	17 species

Table 21: Weeds Threat Indicator

Threat	Objective	Assessment of Success
Very High Impact weed specie	Eliminate - Brazilian Pepper Contain- Yellow Soldiers, Perennial Clumping Grasses (*Ehrharta calycina, Paspalum dilatatum*).	Unsuccessful
High Impact weed species	Contain - Annual Clumping Grasses, Perennial Running Grasses, Clumping Geophyte, Trees and Shrubs.	Unsuccessful
Medium and Low Impact weed species	Contain - species Fumaria (*Fumaria capreolata*). Manage - reduce impact on bushland or revegetation projects when possible.	Unsuccessful

3.4 Habitat Loss

Habitat loss is a significant threat to the long-term viability of some species in urban areas. The NAAMP identified that fragmentation can reduce species diversity and immediate loss of species diversity.

The vegetation complex of Blue Gum Lake Reserve is Bassendean Complex- Central and South. The pre- European extent of this vegetation complex remaining is:

- 26.87 % within the Swan Coastal Plain
- 2.56 % within the City of Melville (Government of Western Australia, 2019).

The NAAMP identified that habitat loss can be assessed by determining the native species cover, bare ground, weed cover and increased fire risk with dense grass infestation. Bare ground cover, weed cover and vegetation condition was assessed across the survey area to determine potential habitat loss.

Weed density was higher on the southeastern section of the reserve surrounding the tennis courts compared to the rest of the reserve (Map 14). Bare ground was greater than 25 % in the centre of the reserve south of the wetland in the Eucalyptus rudis woodland (Map 15). Bare ground has a higher risk of erosion, it is important to revegetated areas of bare ground to mitigate the impact of erosion on the environment. The understorey of the Eucalyptus rudis woodland was comprised predominantly of a high fire fuel load which will need to be removed prior to revegetation works. Bare ground and combined weed density has not been recorded in previous management plans and so was unable to make a comparison to determine possible habitat loss.

Vegetation condition of the site was compared to the vegetation condition recorded in the 2019 Management Plan (Table 22). Overall, the reserve has remained in a relatively stable condition, the portion of the reserve recorded in very good condition has increased, whilst with the portion of the reserve in good condition has decrease, and the portion in degraded condition has increased. The vegetation condition was unable to be

compared to the management plans prior to the 2019 Management Plan due to changes in the survey technical guidance, this has altered the vegetation classification system and the intensity of the surveys undertaken.

The City has established three bird and bat boxes across the site since 2018, increasing available habitat. It is recommended that weed management alongside revegetation works to improve the vegetation condition.
Areas suitable for revegetation incorporate the areas previously identified for revegetation and areas identified in Map 16. It is recommended that further revegetation works, including infilling are undertaken across the reserve.

Table 22: Vegetation condition comparison between the survey years

Vegetation Condition	2019 Management Plan (%)	2024 Management Plan (%)
Pristine	0.00	0.00
Excellent	0.00	0.00
Very Good	14.00	17.71
Good	63.00	52.66
Degraded	19.00	28.63
Completely Degraded	4.00	0.00

Table 23: Habitat Loss Threat Indicator

Threat	Objective	Assessment of Success
Reserve wide habitat loss	Contain - No reduction in vegetation type diversity or extent, no reduction in fauna habitat type diversity or extent, no reduction in vegetation condition.	Unsuccessful
Loss of habitat for significant species (Banksia Woodland)	Contain - No further reduction in Banksia Woodland vegetation type.	Successful

3.5 Feral Animals

A total of five introduced vertebrate fauna species were identified during the 2023 field survey, Laughing Kookaburra (*Dacelo novaeguineae), Rat (*Rattus rattus), Spotted Turtle Dove (*Spilopelia chinensis), Laughing Turtle Dove (*Spilopelia senegalensis), Rainbow Lorikeet (*Trichoglossus moluccanus) (Table 24).

The three species are listed by the city as very high impact: Feral Cat, Fox, and Rabbit. These very high impact introduced animals were not identified during the field survey. The NAAMP notes that feral cats, identified as very high impact, were present in high densities throughout Blue Gum Lake Reserve. It is likely that due to the proximity of urbanised development the cats identified are likely to be free roaming domestic cats rather than feral. Evidence of cats across the reserves were not recorded during the 2023 field survey; however, there is the potential for the occurrence of cats within the reserves due to the proximity to urbanised areas. It is recommended to control domestic and stray cats by promoting responsible pet ownership through education and awareness campaigns to the residents within the City.

One declared pest was present during the field survey, Rainbow Lorikeet (*Trichoglossus moluccanus). Both Rainbow Lorikeet (*Trichoglossus moluccanus) and Laughing Kookaburra (*Dacelo novaeguineae) were identified in the NAAMP as competing with native birds for resources, including tree hollows.

Two species are listed as High Impact introduced animals: European Bee and One-spot Livebearer (a fish). Active control programs for the listed terrestrial species are undertaken on an ongoing basis by contractors for the City under the Feral Animals Management Guidelines (City of Melville, 2015). European Bees was recorded within one of the tree hollows (Figure 3), the location of the beehive is displayed on Map 17.

Table 24: Feral Animals recorded across Blue Gum Lake Reserve

Impact Rating	Feral Animal Species	2012 Management Plan	2019 Management Plan	2024 Management Plan
	Feral Cat	X	X	
Very High	Fox	X		
	Rabbit	X		
High	European Bee	X	X	X
	One-spot Livebearer			

	Black Rat	X	X	X
	House Mouse	X	X	
	Mallard Duck	X		
Non-Priority	Laughing Kookaburra	X	X	X
	Laughing Turtle Dove	X		X
	Spotted Dove	X	X	X
	Rainbow Lorikeet	X	X	X

Figure 3: European Bees recorded within a tree hollow

Table 25: Feral Animal Threat Indicator

Threat	Objective	Assessment of Success
Feral Cats	Manage - Attempt to drive a reduction in observations of cat activity in the reserve.	Successful
Fox and Rabbits	Prevent - No observations to occur.	Successful
European Bee	Contain - Continue control and removal program.	Unsuccessful
Feral Waterfowl	Prevent - No observations to occur, if population exceeds four individuals undertake removal.	Successful

3.6 Diseases and Pathogens

A phytophthora dieback occurrence assessment was undertaken by Glevan Consulting. The assessment determined the southwestern section of the reserve is infested in the Eucalyptus spp Woodland. The Banksia Woodland in the southeastern component of the reserve was assessed as uninfested. The infested component has been previously mapped and recorded by Dieback Treatment Services (Glevan Consulting, n.d.).
It is recommended that the City prevents the spread of infestation, and prevent infestation within the area regarded as uninfested. The management of diseases and pathogens for the reserve are outlined in the City of Melville Disease and Pathogen Management Guidelines (City of Melville, 2018b).

No evidence of other diseases or plant pathogens were recorded.

Table 26: Disease and Pathogens Threat Indicator

Threat	Objective	Assessment of Success
Diseases and Pathogens	Contain - Keep dieback infestation at current size (2016 mapped extent).	Successful
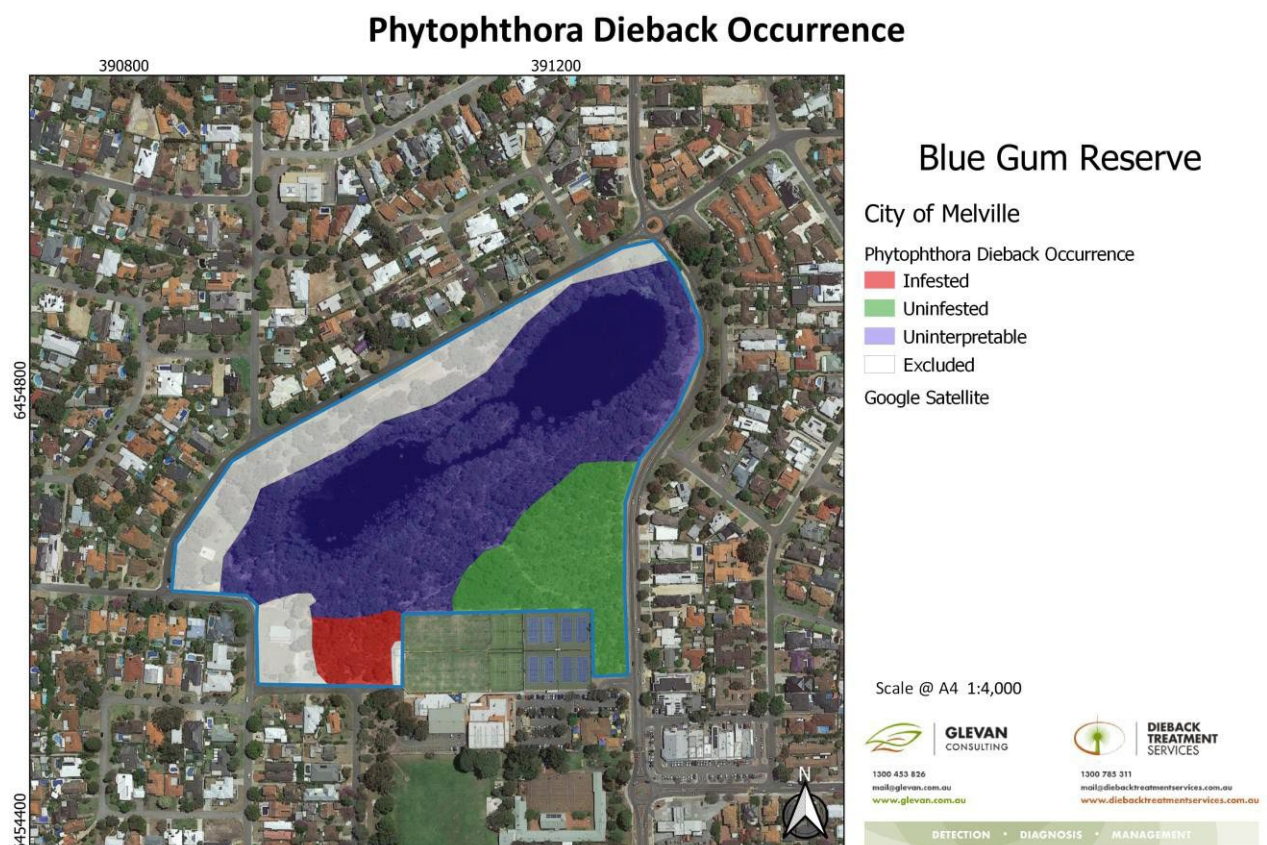
Figure 4: Phytophthora dieback occurrence (Source: Glevan Consulting).

3.7 Stormwater

Blue Gum Lake Reserve is part of the Bull Creek catchment area. Blue Gum Lake Reserve receives stormwater from the surrounding road, urban and garden catchments through nine drains (Map 18). Two of the drains that flow directly into the lake contain a revegetated deflective and sedimentation basin. The remaining drains flow directly into the lake with minimal sedimentation or nutrient stripping.

Water quality sampling is undertaken at the reserve on an annual basis by SERCUL in partnership with the Department of Water and Environmental Regulation (DWER) and the City. The 2022 sampling report provides a summary of and a comparison to the previous 14 years of data (2007-2021) (SERCUL, 2022). The key results from this report and how this compares to ANZECC guidelines (ANZECC and ARMCANZ 2000) are summarised in Table 27. For detailed results please refer to the SERCUL 2022 report.

Table 27: Water quality and summary of results for Blue Gum Lake Reserve

Water Quality Parameter	Substrate	Result	Summary of Results
Metals	Aluminum	0.09 mg/L	Exceeded the ANZECC 90% protection guideline
	Chromium	0.002 mg/L	Exceeded the ANZECC 95% protection guideline
	Copper	0.00105 mg/L	Exceeded the ANZECC 95% protection guideline
	Iron	1.6 mg/L	Exceeds ANZECC guideline
	Lead	0.0030 mg/L	Acceptable of the ANZECC 95% protection guideline
	Zinc	0.012 mg/L	Exceeded the ANZECC 90% protection guideline
Nutrients	Total nitrogen	2.1 mg/L	Exceeded the ANZECC trigger values
	Total phosphorus	0.24 mg/L	Exceeded the ANZECC trigger values
Physical	pH	6.895	Within the acceptable range of 6.5 to 8.0
	Dissolved oxygen	48.25%	Dissolved oxygen is low, and below the ANZECC acceptable range of 90 – 110 %
	Conductivity	0.748 mS/cm	Acceptable of the ANZECC range

The Water Quality Improvement Plan (Emerge Associates, 2023) report determined the following:

- pH predominantly reports below the acceptable lower range; however, experiences high variability in pH ranging from 3.41 pH to 9.44 pH with a median pH of 6.9
- dissolved oxygen has been reported below the acceptable lower range; however, in recent monitoring years dissolved oxygen has been increasing and reported within the acceptable range in October 2019 and August 2020. The data trend indicates a gradual decline in dissolved oxygen with median of 48.25% and moderate to high variability
- total nitrogen is variable and exceedances throughout monitoring. The median total nitrogen concentration is 2.1 mg/L and the data trend indicates a minor gradual increase in concentration over time
- soluble iron concentrations consistently reports above the trigger value, with a median of 1.6 mg/L and high variability in concentrations. The historic trendline does indicate that these exceedances are lowering

- soluble aluminium concentrations reports predominantly above the trigger value, with a median of
- 0.09 mg/L and low variability in concentrations. Overall, the historic trendline indicates that the soluble aluminium concentration is lowering.

The SERCUL 2022 report concluded that Blue Gum Lake Reserve is considered to have one of the poorest water qualities in the Bull Creek main drain catchment. These sites should be the focus of management responses to improve the quality of the sites. The recommendations provided by SERCUL to improve water quality in the lake are summarised below:

- continue restoration works on the foreshore of the lake with native species particularly with native sedges and wetland plants
- continue the removal and control of other invasive species, which contribute to the large loads of organic material to the lake and prevent the growth of native understorey species, and replacement of these with native species
- revegetate all drainage outlets with nutrient stripping plant species and rocky basins
- reticulation and fertiliser application practices of upstream Karoonda Park should be reviewed to ensure that a minimum of nutrient enriched runoff is entering the lake from this park
- investigate use of Phoslock (or similar) to control/remove phosphorus
- create a barrier between the foreshore and lawn verge to prevent encroachment of lawn grasses and weeds to facilitate a definite edge for more efficient park management
- continue to regularly inspect the premises of the Tennis Club as per the Memorandum of Understanding (MOU) between the City and the Blue Gum Park Tennis Club in regard to fertiliser use and the storage of fertiliser within the precinct
- given the particularly low pH of waters previously recorded at the site consider conducting an acid sulfate soil investigation at the lake to determine the extent of acid sulfate soils and consider options for mitigation
- consider speciation testing for aluminium, zinc, and copper to determine the labile proportion of these metal concentrations, as some of the metals present may be complexed with dissolved organic material
- macroinvertebrate sampling is recommended to provide an indication of trophic status and species richness in this lake of high conservation value.

Water quality sampling for the City was undertaken by Emerge Associates in 2022. The 2023 sampling report provides a summary of and a comparison to the historic water quality data collected. The key recommendations from this report are summarised in Table 28. The City is conducting internal water quality monitoring following the recommendations outlined in the Water Quality Improvement Plan provided by Emerge Associates.

Table 28: Recommendations outlined in the Water Quality Improvement Plan

Priority	Recommendation	Timeframe/duration
1	Inspect and if present remove excess sediments and gross pollutants at settling pond and any other discharge locations into the lake, drainage infrastructure, and immediately upstream at stormwater pits and gross pollutant traps.	Annually prior to first flush rainfall and/or when excessive sedimentation and/or gross pollutant accumulation is observed.
1	Assess and where present or problematic, manually remove aquatic weeds and/or algae. Manual removal to be considered in preference to herbicides/algicides.	Review aquatic weed cover biannually, and if required, undertake weed control twice a year in autumn and spring.

Priority	Recommendation	Timeframe/duration
1	Inspect and if present, undertake weed control at lake edges and revegetate with native species. Ensure drainage infrastructure and discharge locations into the wetland are not blocked by weeds and/or grass ingress.	Review weed cover bi-annually, and if required, undertake weed control twice a year in autumn and spring.
2	Review fertiliser application practices of nearby facilities/parks (e.g. Blue Gum Tennis club and Karoonda Park) that reticulate and fertilise large turfed areas to reduce nutrient rich runoff entering stormwater network, groundwater and waterways/waterbodies.	Annually prior to Spring before fertiliser applications commence.
2	Continue monitoring total phosphorus. If total phosphorus continues to report high concentrations, consider use of treatment methods for the control/removal of phosphorus in a wetland environment e.g. Phoslock.	Reassess at the end of 2023 monitoring program.
3	Continue redesigning the remaining discharge locations into the lake to incorporate nutrient stripping plant species and rocky bases at outlets to increase oxygenation.	Prior to summer 2024.
3	Install aerator to increase mixing in the water column to improve dissolved oxygen concentrations.	Review recommendation once discharge locations have been redesigned and no improvement in water quality is observed.
3	Assess the depth of the lake to determine the feasibility of dredging the lake to remove sediments and debris from the base. Increase lake depth to >2.5m if possible, to reduce light penetration and water temperatures.	Prior to autumn 2024.

Source: Emerge Associates, 2023.

Table 29: Stormwater Threat Indicator

Threat	Objective	Assessment of Success
Metals	Prevent - metals currently not exceeding guidelines (Chromium, Copper, Mercury, Lead and Zinc) not to exceed guidelines.	Unsuccessful
	Contain - concentration of metals currently exceeding guidelines (Aluminum and Iron) to be reduced.	Unsuccessful
Nutrients	Contain - aim to reduce the frequency of guideline exceedance for nitrogen and phosphorus concentrations.	Unsuccessful
Physical characteristics	Contain - aim to reduce the frequency of guideline exceedance for pH.	Unsuccessful
	Contain - Reduce frequency of dissolved oxygen recording saturations below acceptable range.	Unsuccessful

Threat	Objective	Assessment of Success
	Contain - reduce frequency of total suspended solids exceeding interim guidelines.	Successful

3.8 Reticulation

No reticulation is present in areas that may affect bushland, no sighting of excessive overspray was recorded to be impacting the bushland. The areas of reticulated grass in parkland are sufficiently buffered from bushland and wetland areas.

Table 30: Reticulation Threat Indicator

Threat	Objective	Assessment of Success
Reticulation	Prevent - continue to manage reticulation to prevent overspray / leakage from reticulation entering bushland or wetland.	Successful

3.9 Acid Sulfate Soils

Assessment of the Acid Sulfate Soils Risk Map, Swan Coastal Plain (DWER-055) (DWER, 2017) shows Blue Gum Lake has a high to moderate risk of having Acid Sulfate Soils. Potential acid sulfate soils have been identified around various locations around Blue Gum Lake in 2020 and 2021 (University of Notre Dame, 2021).

The listing of the area as high to moderate risk and recording of potential acid sulfate soils requires that potential soil disturbance is considered for all proposed works in the mapped area. The NAAMP identifies that disturbance of or exposure to oxygen of the Acid Sulfate Soils has potential to cause significant environmental impacts and could lead to listing of the area as a contaminated site. Any soil disturbing works or excavations planned for the area requires a specific Acid Sulfate Soil investigation and management plan to mitigate risks. It is recommended to undertake Acid Sulfate Soils testing within the reserve.

Table 31: Acid Sulfate Soils Threat Indicator

Threat	Objective	Assessment of Success
Acid Sulfate Soils	Prevent - Prevent physical disturbance of acid sulfate soils. Any soil disturbing activates should undertake a risk assessment prior to commencement.	Indeterminate

3.10 Climate Change

Climate change within the south-west of Western Australia is expected to increase occurrences and intensity of weather events, decrease annual rainfall, and increase temperatures. These changes are likely to increase likelihood of erosion during storm events and increased water stress on plants. Decreases in water levels lead to a shift in vegetation types and complexes which has the potential to alter the ecosystem structure and function, including the fauna species that the environment

supports. The decrease in rainfall and drop in water levels is recorded to have a higher impact on wetland environments, in which the plant species are dependent

on hydrological niche. Decreases in groundwater levels are likely impacted by decreasing rainfall, groundwater abstraction and borewater extraction. It is important to monitor the water levels at Blue Gum Lake Reserve and mitigate the reduction in water levels where possible to prevent the loss of ecosystem function and structure.

Table 32: Climate Change Threat Indicator

Threat	Objective	Assessment of Success
Climate Change	Manage - continue to manage climate change impacts.	Indeterminate

4 Implementation

The management objective and implementation strategies will be measured in relation to the Key Performance Indicators (KPI).

4.1 Key Performance Indicators (KPI)

Review of previous management objectives and an assessment of success was undertaken. Some objectives could not be assessed due to an unavailability of data to undertake an accurate assessment. A summary of the assessment of success of measurable indices for management objectives is provided in Table 33.

Table 33: Summary of Key Performance Indicators

Asset or Threat		Successful Indices	Unsuccessful Indices	Indeterminate or Un-assessable
Assets	Bush Forever Listing	1	0	0
	Ecological Linkages	1	0	0
	Ecological Communities	3	1	0
	Wetlands	1	0	0
	Heritage	1	0	0
	Community Interest	1	0	0
	Reference	0	0	1
	Native Flora	3	0	0
	Native Fauna	2	2	1
Threats	Physical Disturbance	3	1	0
	Fire	1	0	0
	Weeds	0	3	0
	Habitat Loss	1	1	0
	Feral Animals	3	1	0
	Diseases and Pathogens	1	0	0
	Stormwater	1	5	0
	Reticulation	1	0	0
	Acid Sulfate Soils	0	0	1
	Climate Change	0	0	1

4.1.1 Lagging Indicators

Lagging indicators are associated with changes and trends of assets. The tiered objects for assets and associated lagging indicators are indicated in Table 34. The implementation recommendations for each asset are described in Table 35.

Table 34: Tiered Objects for Assets and Associated Lagging Indicators

Objective	Lagging Indicator	Applicable When
Enhance	Increase in either: ■ extent ■ density ■ abundance	Assets can be enhanced for reasonable cost or where enhancement may reduce operational costs
Maintain	No decrease in: ■ extent ■ density ■ abundance	Asset can be maintained or when there is insufficient knowledge or resources currently available to enhance
Confirm	Decrease number of assets for which information is limited or none available	Potential to be present but currently unknown
Monitor	No measurable indicator	Assets that cannot be managed by action within the City or where asset is not considered critical

Table 35: Asset Management Objectives and Recommendations for 2024-2029

Section Reference	Asset	Sub head	Objective (Lagging Indicator)	Implementation Recommendation
2.1.1	Bush Forever Listing		Monitor - no change to Bush Forever Listing expected.	▪ No action required.
2.1.2	Ecological Linkages		Monitor - no change to Ecological linkages expected.	▪ No action required.
2.2.1	Ecological Communities	Vegetation type diversity	Maintain or Enhance - six vegetation types are currently described.	▪ Prevent the spread of dieback. ▪ Prevent the introduction of other diseases / pathogens. ▪ Continue weed management as outlined in the City's Environmental Weed Management Guideline. ▪ Prevent high intensity fires through fire fuel load reduction.
		Extent of native vegetation	Maintain or Enhance - expand area of native vegetation.	▪ Continue revegetation works, prioritising areas which are in a degraded or completely degraded condition.
		Condition of native vegetation	Maintain or Enhance - improve condition of native vegetation.	▪ Continue revegetation works and weed management across the reserve.
		Significant communities	Maintain or Enhance - improve condition of and expand extent of native vegetation type Banksia Woodlands. This vegetation type satisfies the criteria in terms of species composition and structural description to qualify as Banksia Woodland TEC.	▪ Continue revegetation works and weed management across the reserve focusing on good vegetation condition areas within the Banksia Woodland.
2.2.2	Wetlands	Conservation Category Wetland listing	Maintain or Enhance - environmental criteria leading to listing as Conservation Category.	▪ No action required.

Section Reference	Threats	Sub head	Objective (Leading Indicator)	Implementation Recommendation
3.4	Habitat Loss	Reserve wide habitat loss	Contain - no reduction in vegetation type diversity or extent, no reduction in fauna habitat type diversity or extent, no reduction in vegetation condition.	▪ Continue revegetation works and weed management.
		Loss of habitat for significant species (Banksia Woodland)	Contain - no further reduction in Banksia Woodland vegetation type.	▪ Continue revegetation works and weed management.
3.5	Feral Animals	Feral Cats	Manage - reduce numbers (within guidelines).	▪ Inform local residents regarding cat laws and promote responsible pet ownership. ▪ Monitor populations and control if necessary, following the City's Feral Animals Management Guidelines.
		Fox and Rabbits	Manage - exclude from area (prevent reintroduction).	▪ Monitor and undertake feral animal control if necessary, following the City's Feral Animals Management Guidelines.
		European Bee	Manage - reduce presence (within guidelines).	▪ Continue control and removal of European Bees following the City's Feral Animals Management Guidelines.
		Feral Waterfowl	Prevent - exclude from the area if more than four individuals observed.	▪ Monitor and undertake feral animal control if necessary, following the City's Feral Animals Management Guidelines.
3.6	Diseases and Pathogens		Contain - keep dieback infestation at current extent. Prevent introduction into uninfected vegetation.	▪ Monitor the vegetation, if there is the likelihood of any plant disease and pathogens undertake an assessment by an approved contractor.
3.7	Stormwater	Stormwater	Manage - ensure stormwater inflows into the lake are as clean as possible.	▪ Establish vegetation within the drains that will filter stormwater. ▪ Ensure that drains are not blocked by rubbish or weeds.

Section Reference	Threats	Sub head	Objective (Leading Indicator)	Implementation Recommendation
		Metals	Prevent and Contain - concentrations of metals to not exceed guidelines.	▪ Follow the management strategies outlined in the Water Quality Improvement Plan.
		Nutrients	Prevent and Contain - concentrations of metals to not exceed guidelines	▪ Reduce fertiliser use within the community, inform residents regarding the impacts and other options. ▪ Establish nutrient stripping vegetation within the drains that will filter stormwater. ▪ Follow the management strategies outlined in the Water Quality Improvement Plan.
		Physical characteristics	Prevent and Contain - concentrations of metals to not exceed guidelines.	▪ Establish vegetation within the drains that will filter stormwater ▪ Follow the management strategies outlined in the Water Quality Improvement Plan.
3.8	Reticulation		Manage - prevent overspray/leakage from reticulation entering bushland.	▪ Monitor and continue to manage.
3.9	Acid Sulfate Soils		Prevent - prevent physical disturbance of acid sulfate soils.	▪ Investigate presence of acid sulfate soils. ▪ Works within mapped area must be managed in line with *Treatment and Management of Soil and Water in Acid Sulfate Soil Landscape* guidelines (DWER, 2015).
3.10	Climate Change		Manage - continue to manage climate change impacts.	▪ Continue to monitor and manage climate change impact.

Maps

Hesford Av

Maldon Wy
Edgar Wy
Rogerson Rd
Gough Pl
Hepburn Wy
Bedwell Cr
Canning Av

Lakeside Tce
Shirley Av

Moolyeen Rd
Fry St
Parkside Av
Brian Av

6454886

6454758

Karoonda Rd
Karoonda Rd
Sicklemore St
Rountree Rd
Shadbolt St
Siddons Wy
Disney St

Regent Av

6454630

6454502

6454886
6454758
6454630
6454502

Map 1:
Site Location

Legend
Blue Gum Reserve Boundary

Client: City of Melville
Date: 08/04/2024
Created by: Z. Stoney
Image Source: Nearmap, 2024
Datum: GDA2020 / MGA zone 50
Scale: 1: 3200

0   50   100 m

N

Blue Gum Lake Reserve, City of Melville

Map 2:
Vegetation Type

Blue Gum Lake Reserve, City of Melville

Legend

BW		MrMtW	
CcOF		Open Water	
Cleared / Developed		Parkland	
ErW		Unsurveyed	
EW		Blue Gum Reserve Boundary	

Client: City of Melville
Date: 08/04/2024
Created by: Z. Stoney
Image Source: Nearmap, 2024
Datum: GDA2020 / MGA zone 50
Scale: 1: 3200

0   50   100 m

N

Map 3:
Vegetation Condition

Blue Gum Lake Reserve, City of Melville

Legend

■	Very Good	■	Cleared / Developed
■	Good	▨	Parkland
■	Degraded	■	Water
▨	Unsurveyed	▭	Blue Gum Reserve Boundary

Client: City of Melville
Date: 09/04/2024
Created by: Z. Stoney
Image Source: Nearmap, 2024
Datum: GDA2020 / MGA zone 50
Scale: 1: 3200

0   50   100 m

N

Map 4:
Vegetation Condition within the Banksia Woodland

Blue Gum Lake Reserve, City of Melville

Legend

- Degraded
- Good
- Very Good
- Blue Gum Reserve Boundary

Client:	City of Melville
Date:	27/06/2024
Created by:	Z. Stoney
Image Source:	Nearmap, 2024
Datum:	GDA2020 / MGA zone 50
Scale:	1: 3200

0   50   100 m

N

Map 5:
Fauna Habitat

Blue Gum Lake Reserve, City of Melville

Legend

- Potential Habitat Trees
- Potential Habitat Trees with Hollows
- Booragoon and Blue Gum Nestbox
- Banksia Woodland
- Eucalyptus Woodland
- Paperbark Woodland
- Cleared / Developed
- Island
- Parkland
- Water
- Blue Gum Reserve Boundary

Client: City of Melville
Date: 27/06/2024
Created by: Z. Stoney
Image Source: Nearmap, 2024
Datum: GDA2020 / MGA zone 50
Scale: 1: 3200

0   50   100 m

N
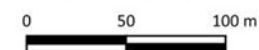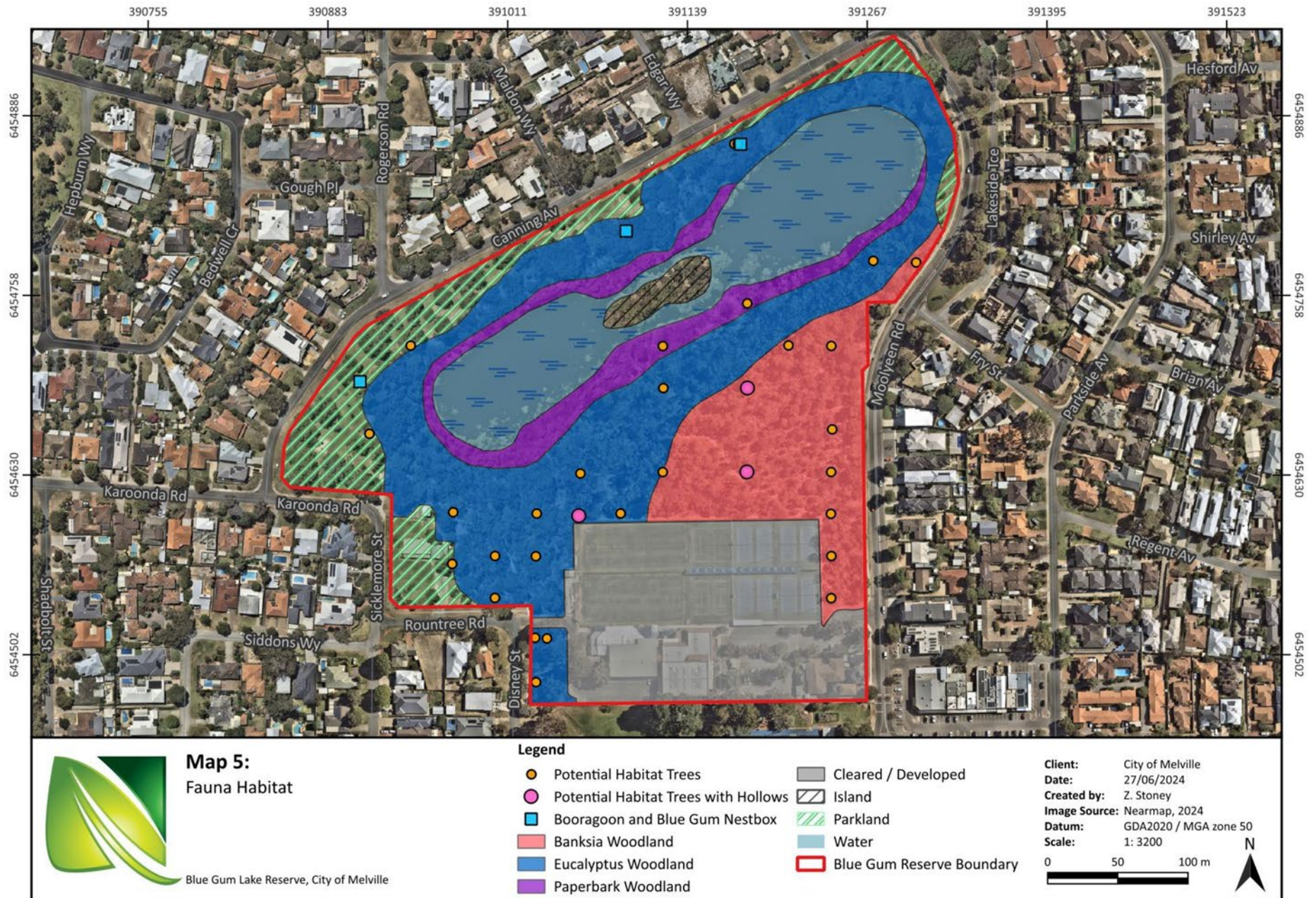
Map 6:
Physical Disturbances

Blue Gum Lake Reserve, City of Melville

Legend
— Informal tracks
● Rubbish
○ Unmarked Pathway
▭ Blue Gum Reserve Boundary

Client: City of Melville
Date: 27/06/2024
Created by: Z. Stoney
Image Source: Nearmap, 2024
Datum: GDA2020 / MGA zone 50
Scale: 1: 3200

0   50   100 m

N

Map 7:
Very High Weeds

Blue Gum Lake Reserve, City of Melville

Legend

- 🔵 Paspalum dilatatum (<5)
- 🟣 Schinus terebinthifolia (<5)
- 🟠 Ehrharta calycina (<5)
- 🟠 Ehrharta calycina (5-25)
- ▭ Blue Gum Reserve Boundary

Client: City of Melville
Date: 27/06/2024
Created by: Z. Stoney
Image Source: Nearmap, 2024
Datum: GDA2020 / MGA zone 50
Scale: 1: 3200

0   50   100 m

N

Map 8:
High Grass Weeds

Blue Gum Lake Reserve, City of Melville

Legend

○	Avena barbata (<5)
●	Avena barbata (5-25)
●	Briza maxima (<5)
●	Briza maxima (5-25)
●	Bromus diandrus (<5)

●	Cynodon dactylon (<5)
●	Cynodon dactylon (>25)
●	Cynodon dactylon (5-25)
●	Ehrharta longiflora (<5)
●	Ehrharta longiflora (5-25)

●	Hordeum leporinum (<5)
●	Lolium rigidum (<5)
●	Poa annua (<5)
▭	Blue Gum Reserve Boundary

Client: City of Melville
Date: 27/06/2024
Created by: Z. Stoney
Image Source: Nearmap, 2024
Datum: GDA2020 / MGA zone 50
Scale: 1: 3200

0   50   100 m

N

Map 9:
High Weeds

Blue Gum Lake Reserve, City of Melville

Legend

🔶 Brachychiton populneus (<5) 🟣 Solanum nigrum (5-25)

🔵 Homalanthus populifolius (<5) ⬛ Blue Gum Reserve Boundary

🟢 Agapanthus praecox (<5)

🔴 Freesia leichtlinii subsp. alba × leichtlinii subsp. leichtlinii (<5)

Client: City of Melville
Date: 27/06/2024
Created by: Z. Stoney
Image Source: Nearmap, 2024
Datum: GDA2020 / MGA zone 50
Scale: 1: 3200

0   50   100 m

N

Map 10:
Medium Weeds

Blue Gum Lake Reserve, City of Melville

Legend

- ⬤ Bacopa monnieri (<5)
- ⬤ Rumex crispus (<5)
- ⬤ Phytolacca octandra (5-25)
- ▭ Blue Gum Reserve Boundary

Map 11:
Low Weeds

Blue Gum Lake Reserve, City of Melville

Legend

🟣	Stenotaphrum secundatum (<5)	🟣	Polygonum aviculare (<5)
🟣	Trifolium campestre (<5)	🟡	Sonchus asper (<5)
🔵	Ursinia anthemoides (<5)	🔵	Sonchus oleraceus (<5)
🟢	Lotus subbiflorus (<5)	🔵	Sonchus oleraceus (5-25)
🔴	Medicago polymorpha (<5)	▭	Blue Gum Reserve Boundary
🟠	Oxalis pes-caprae (<5)		

Client:	City of Melville
Date:	27/06/2024
Created by:	Z. Stoney
Image Source:	Nearmap, 2024
Datum:	GDA2020 / MGA zone 50
Scale:	1: 3200

0   50   100 m

N

Map 12:
Low Weeds

Blue Gum Lake Reserve, City of Melville

Legend

- Euphorbia peplus (<5)
- Euphorbia terracina (<5)
- Euphorbia terracina (5-25)
- Fumaria capreolata (<5)
- Fumaria capreolata (5-25)
- Hypochaeris glabra (<5)
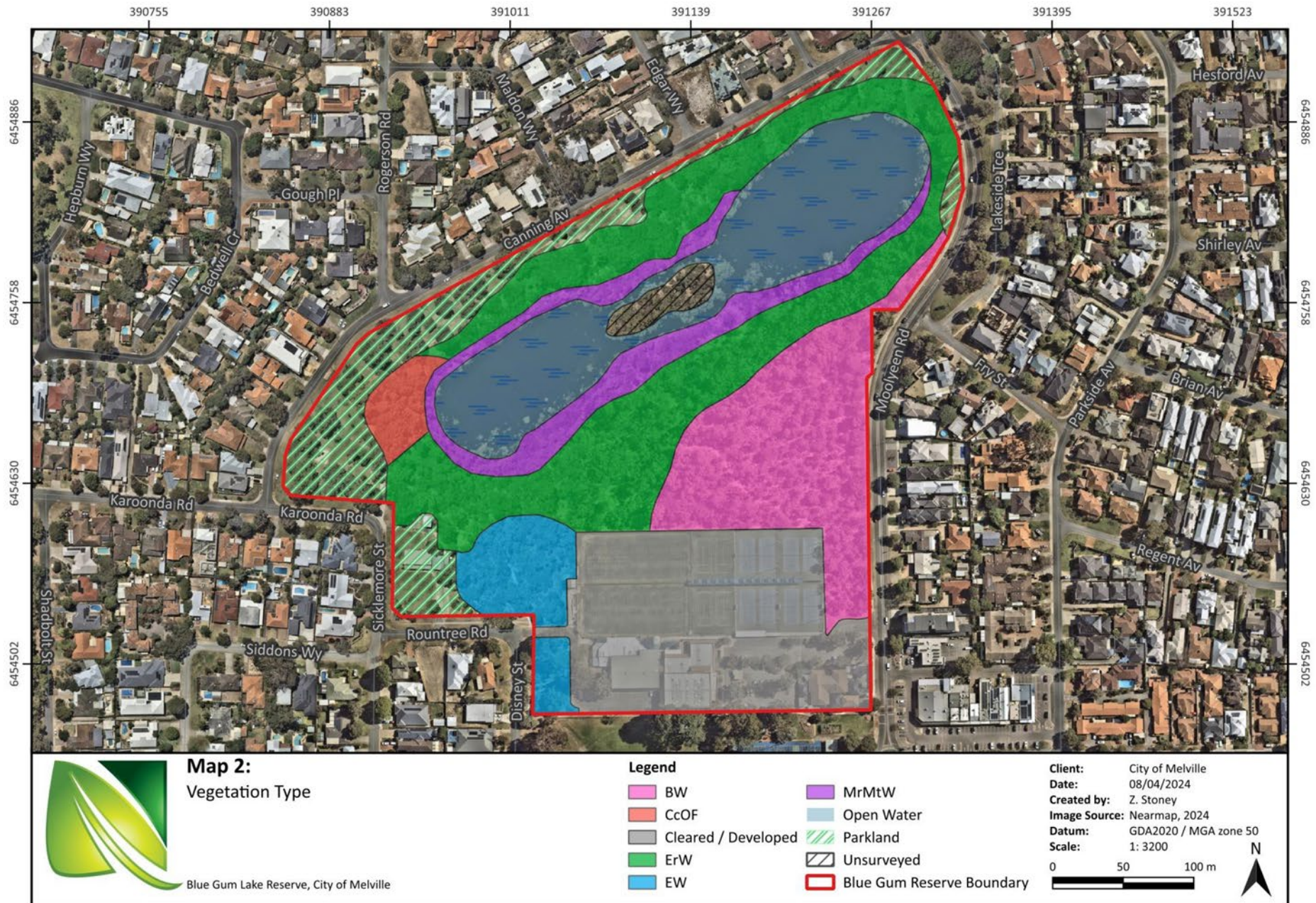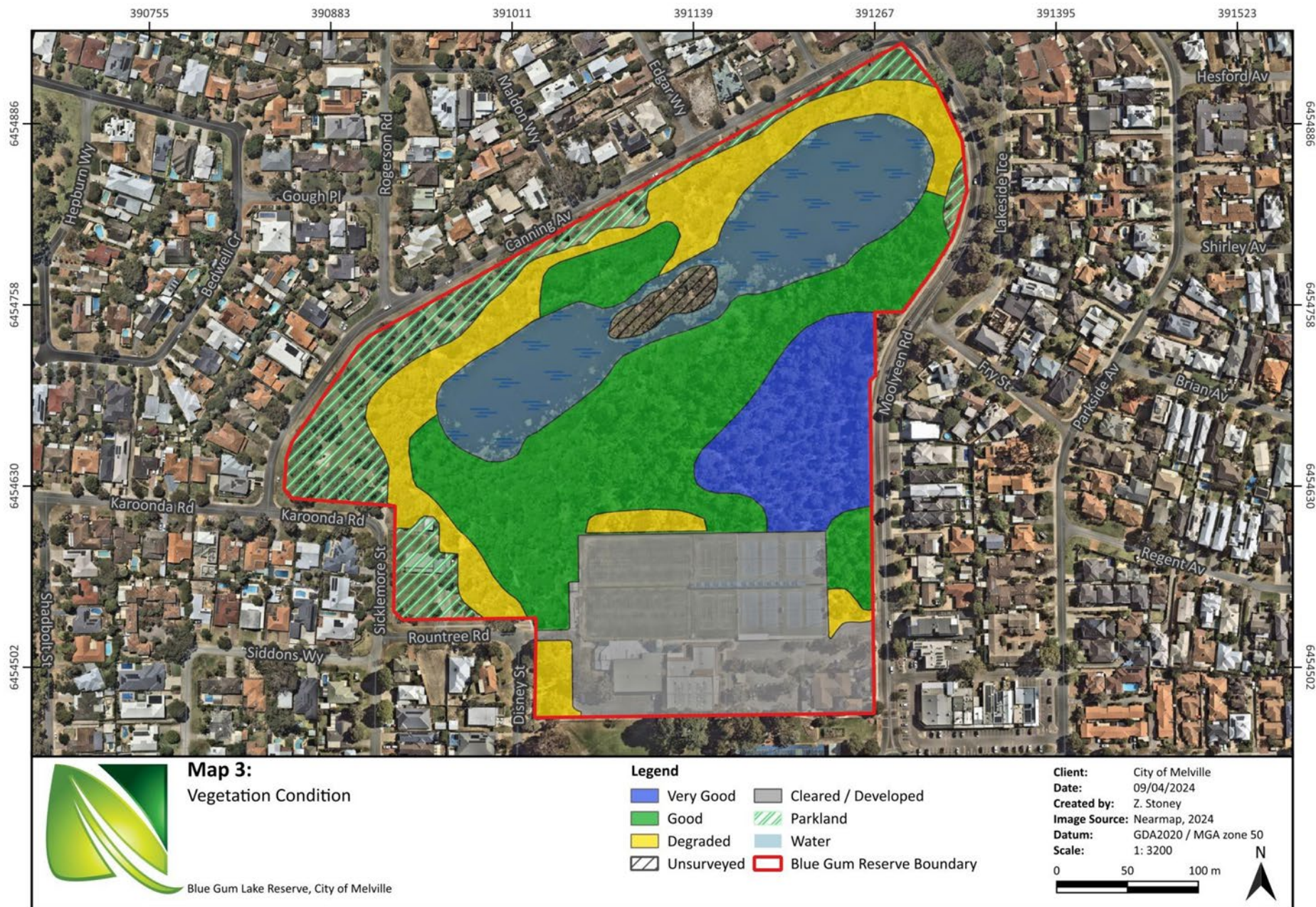- Hypochaeris radicata (<5)
- Lactuca serriola (<5)
- Blue Gum Reserve Boundary

Client: City of Melville
Date: 27/06/2024
Created by: Z. Stoney
Image Source: Nearmap, 2024
Datum: GDA2020 / MGA zone 50
Scale: 1: 3200

0   50   100 m

N

6454886

6454758

6454630

6454502

Hepburn Wy

Gough Pl

Bedwell Cr

Rogerson Rd

Maldon Wy

Edgar Wy

Canning Av

Hesford Av

Lakeside Tce

Shirley Av

Fry St

Parkside Av

Brian Av

Moolyeen Rd

Karoonda Rd

Karoonda Rd

Sicklemore St

Rountree Rd

Siddons Wy

Shadbolt St

Disney St

Regent Av

6454886

6454758

6454630

6454502

Map 13:
Low Weeds

Blue Gum Lake Reserve, City of Melville

Legend

⬤ Eclipta prostrata (<5)

⬤ Erigeron sumatrensis (<5)

▭ Blue Gum Reserve Boundary

Client: City of Melville
Date: 27/06/2024
Created by: Z. Stoney
Image Source: Nearmap, 2024
Datum: GDA2020 / MGA zone 50
Scale: 1: 3200

0   50   100 m

N

Map 14:
Combined Weed Density
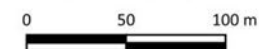
Blue Gum Lake Reserve, City of Melville

Legend

- ● <5
- ● 5-25
- ● >25
- ▭ Blue Gum Reserve Boundary

Client:	City of Melville
Date:	27/06/2024
Created by:	Z. Stoney
Image Source:	Nearmap, 2024
Datum:	GDA2020 / MGA zone 50
Scale:	1: 3200

0   50   100 m

N

Map 15:
Bare Ground

Legend
○ <5
● 5-25
● >25
▭ Blue Gum Reserve Boundary

Blue Gum Lake Reserve, City of Melville

Client: City of Melville
Date: 27/06/2024
Created by: Z. Stoney
Image Source: Nearmap, 2024
Datum: GDA2020 / MGA zone 50
Scale: 1: 3200

0   50   100 m
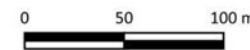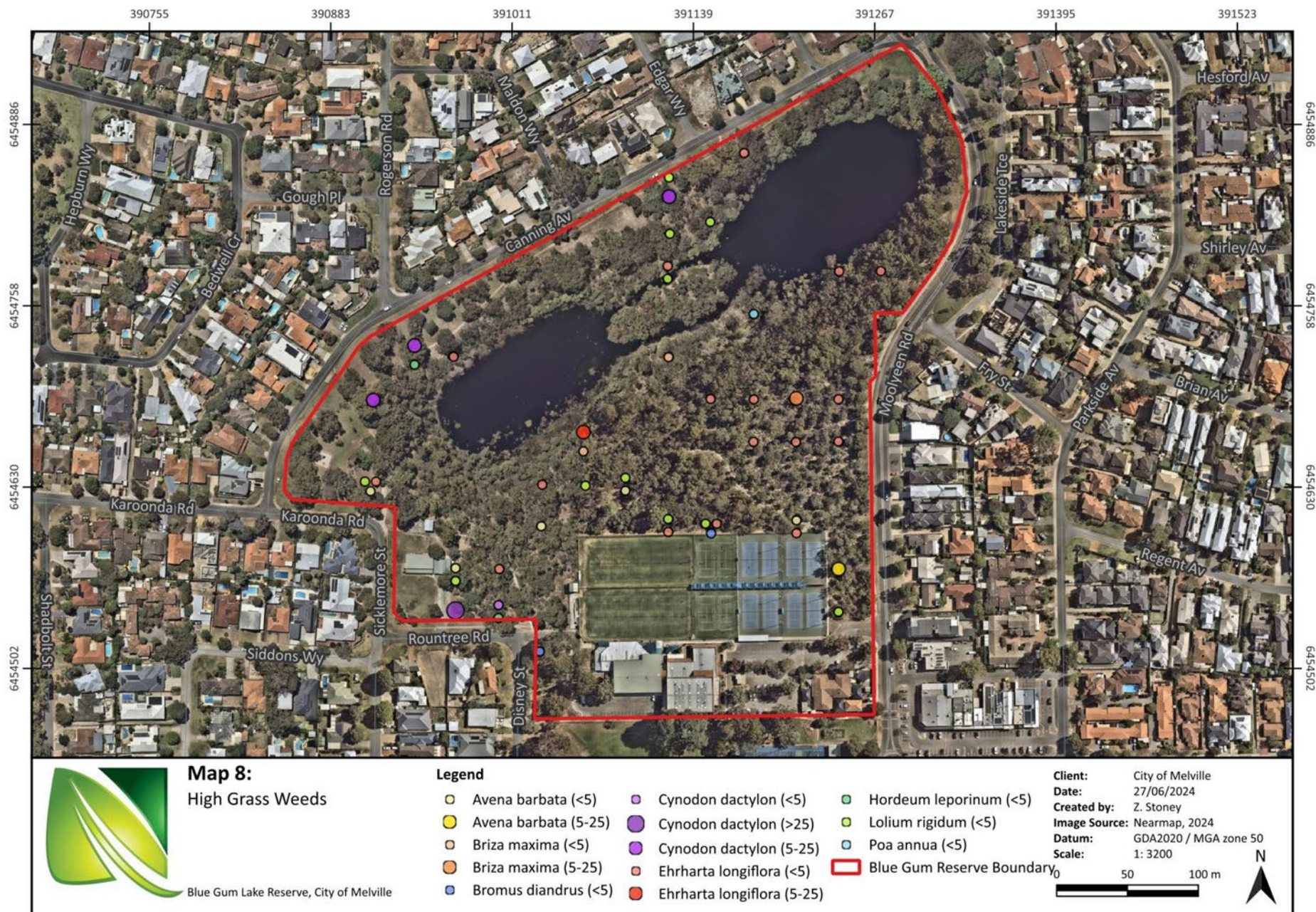
N
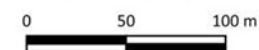
Map 16:
Priority Areas for Revegetation

Blue Gum Lake Reserve, City of Melville

Legend

- Proposed Revegetation Areas
- Blue Gum Reserve Boundary

Client:	City of Melville
Date:	27/06/2024
Created by:	Z. Stoney
Image Source:	Nearmap, 2024
Datum:	GDA2020 / MGA zone 50
Scale:	1: 3200

0   50   100 m

N
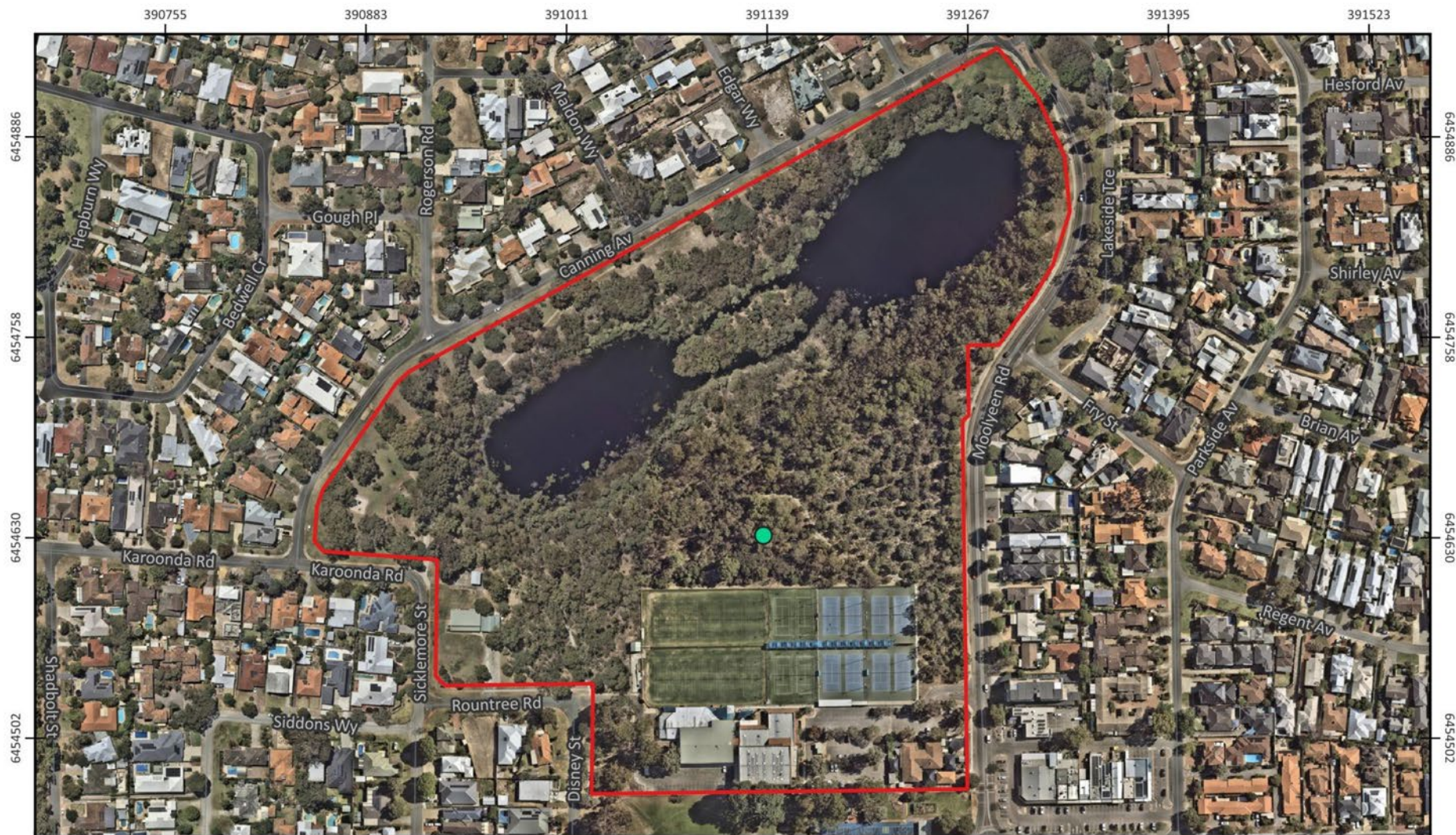
Map 17:
Location of European Bees

Blue Gum Lake Reserve, City of Melville

Legend

● European Beehive

☐ Blue Gum Reserve Boundary

Client: City of Melville
Date: 27/06/2024
Created by: Z. Stoney
Image Source: Nearmap, 2024
Datum: GDA2020 / MGA zone 50
Scale: 1: 3200

0   50   100 m

N

Map 18:
Location of Stormwater Drains

Blue Gum Lake Reserve, City of Melville

Legend

⬤ Stormwater Drains

▭ Blue Gum Reserve Boundary

Client: City of Melville
Date: 27/06/2024
Created by: Z. Stoney
Image Source: Nearmap, 2024
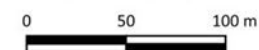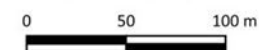**Datum:** GDA2020 / MGA zone 50
Scale: 1: 3200

0   50   100 m

N

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Appendix 1 Survey Methodology

Natural Area Consulting Management Services (Natural Area) was contracted by City of Melville to undertake a basic flora survey, a detailed fauna survey and weed mapping across Blue Gum Lake Reserve.

On-ground Flora Survey

The flora and vegetation survey was conducted in accordance with Technical Guidance-Flora and Vegetation Surveys for Environmental Impact Assessment (Environmental Protection Authority (EPA), 2016). Samples were collected, or photographs taken of unfamiliar species to enable later identification.

Natural Area environmental scientists undertook the survey between October 19 and 20, 2023, with key data recorded using Mappt software on a handheld tablet. Survey activities included:

- traversing the entirety of the site in grid format
- recording all species present, including native and invasive species
- recording the weed species and cover present at each grid point
- recording the percentage of bare ground
- marking locations of any conservation significant flora, declared pests (DP) and/or Weeds of National Significance (WoNS) identified
- recording vegetation type including dominant over, middle and understorey species and condition using the scale attributed to Keighery (Table 38)
- the use of GPS to map significant species and boundaries of differing vegetation type and condition
- recording evidence of disturbance, such as fire.

Vegetation Type

The vegetation type was determined using the structural classes described in NVIS Level V (Executive Steering Committee for Australian Vegetation Information (ESCAVI), 2003), recording dominant over, middle and understorey species.

Vegetation Condition

Vegetation condition was assessed using the rating scale attributed to Keighery in Technical Guidance-Flora and Vegetation Surveys for Environmental Impact Assessment (EPA, 2016) (Table 38). Table 38 provides a description of the rating scale.

Table 38: Vegetation condition ratings

Category		Description
1	Pristine	Pristine or nearly so, no obvious signs of disturbance or damage caused by human activities since European settlement.
2	Excellent	Vegetation structure intact, disturbance affecting individual species and weeds are non-aggressive species. Damage to trees caused by fire, the presence of non-aggressive weeds and occasional vehicle tracks.
3	Very Good	Vegetation structure altered, obvious signs of disturbance. Disturbance to vegetation structure caused by repeated fires, the presence of some more aggressive weeds, dieback, logging and grazing.

4	Good	Vegetation structure significantly altered by very obvious signs of multiple disturbances. Retains basic vegetation structure or ability to regenerate it. Disturbance to vegetation structure caused by very frequent fires, the presence of some very aggressive weeds, partial clearing, dieback and grazing.
5	Degraded	Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without intensive management. Disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds at high density, partial clearing, dieback and grazing.
6	Completely Degraded	The structure of the vegetation is no longer intact, and the area is completely or almost completely without native species. These areas are often described as 'parkland cleared' with the flora comprising weed or crop species with isolated native trees or shrubs.

Source: EPA, 2016

On-ground Fauna Survey

The fauna survey was conducted in accordance with a Detailed Fauna Survey as outlined in the Technical Guidance, Terrestrial vertebrate fauna surveys for environmental impact assessment (EPA, 2020). Natural Area environmental scientists undertook the survey between October 16 and 20, 2023, with survey activities including:

- trapping over five consecutive days (four nights) with trap-line, Elliott traps and camera traps (Table 39)
- setting up three trap-lines which included pitfalls and funnel traps along a drift fence with vegetation used to cover funnel traps and placed in pitfall buckets to provide protection from the elements (Figure 5)
- setting up eight Elliott traps with universal bait (oats and peanut butter), newspaper being placed inside for bedding and then traps were covered with a hessian bag or foliage to provide protection from the elements (Figure 5)
- setting up one motion activated camera trap
- all trap and trap line coordinates were recorded using a hand-help GPS and marked with flagging tape (GPS coordinates are provided in Table 40 and displayed in Map 19)
- checking traps daily within three hours of sunrise as per Department of Biodiversity, Conservation and Attractions (DBCA) licence conditions, along with recording and releasing captured species back into the site
- active searching included searching under logs, rocks and hand raking through leaf litter
- static bird census was undertaken during trapping events with five-minute census undertaken at each trap line location recording visual observations of birds and calls heard
- walking the site to record opportunistic sightings or signs of birds and larger mammals, including calls, tracks, diggings, and scats
- undertaking two nocturnal surveys recording fauna using a combination of thermal imaging, spotlighting and an acoustic recorder
- recording the outcomes of the trapping and observation activities.

Table 39: Total trap nights

Number of Traps	Number of Nights	Number of Trap nights
Six Funnels (Trapline)		24
Nine Pitfalls (Trapline)		36

Eight Elliots	Four	32
One Camera		4
		Total: 48

Figure 5: Trap line (left) and Elliot trap (right).

Weather Conditions

Local weather conditions can affect fauna activity, with low temperatures and rain likely to reduce mammals and reptile activity, which was the case in this survey. The trapping period experienced cool and cloudy mornings, temperatures during the trapping period ranged between 11.2 oC and 36.9 oC. Rainfall during the trapping period was recorded at 0 mm according to the Perth Airport Weather Station ID:009022 (Bureau of Meteorology, 2024).

Table 40: Fauna trapping locations provided as GPS Coordinates

ID	Type	Northing	Easting
E1	Elliot Trap	6454684	391221
E2	Elliot Trap	6454663	391238
E3	Elliot Trap	6454646	391037
E4	Elliot Trap	6454639	391025
E5	Elliot Trap	6454631	391147
E6	Elliot Trap	6454623	391144
E7	Elliot Trap	6454734	391161
E8	Elliot Trap	6454730	391149
TL1	Trap Line	6454678	391231
TL2	Trap Line	6454636	391030
TL3	Trap Line	6454737	391140
TC1	Camera Trap	6454664	391211

Map 19:
Trap Locations

Blue Gum Lake Reserve, City of Melville

Legend

- Elliott
- Trap Line
- Trail Camera
- Blue Gum Reserve Boundary

Client: City of Melville
Date: 02/07/2024
Created by: Z. Stoney
Image Source: Nearmap, 2024
Datum: GDA2020 / MGA zone 50
Scale: 1: 3200

0   50   100 m

N
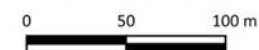
Appendix 2 Conservation Codes

Western Australia

Conservation Code	Name	Description
T	Threatened	Flora or fauna that is rare or likely to become extinct, ranked according to their level of threat using IUCN Red List criteria (Schedules 1-3 of the Wildlife Conservation (Specially Protected Fauna) Notice or the Wildlife Conservation (Rare Flora) Notice)
CR	Critically endangered	Species considered to be facing an extremely high risk of extinction within the wild in the immediate future
EN	Endangered	Species considered to be facing a very high risk of extinction in the wild in the near future
VU	Vulnerable	Species considered to be facing a high risk of extinction in the wild in the medium-term future
EX	Extinct Species	Species where 'there is no reasonable doubt that the last member of the species has died (Schedule 4 of the Wildlife Conservation (Specially Protected Fauna) Notice or the Wildlife Conservation (Rare Flora) Notice)
EW	Extinct in the Wild	Species that are known to only survive in cultivation, in captivity, or as a naturalised population well outside its past range; and it has not been recorded in its known or expected habitat at appropriate seasons anywhere in its past range, despite surveys over a timeframe appropriate to its life cycle and form
MI	Migratory Species	Fauna that periodically or occasionally visit Australia or an external Territory or the exclusive economic zone; or the species is subject of an international agreement that relates to the protection of migratory species and that binds the Commonwealth (Schedule 5 of the Wildlife Conservation (Specially Protected Fauna) Notice)
CD	Conservation Dependent	Species of special conservation interest (conservation dependent fauna), being species dependent on ongoing conservation intervention to prevent it becoming eligible for listing as threatened (Schedule 6 of the Wildlife Conservation (Specially Protected Fauna) Notice)
OS	Specially Protected	Fauna otherwise in need of special protection to ensure their conservation (Schedule 7 of the Wildlife Conservation (Specially Protected Fauna) Notice)
P	Priority Species	Possibly threatened species that do not meet survey criteria, or are otherwise data deficient, are added to the Priority Fauna or Priority Flora Lists under Priorities 1, 2 or 3. These three categories are ranked in order of priority for survey and evaluation of conservation status so that

Conservation Code	Name	Description
		consideration can be given to their declaration as threatened fauna or flora. Species that are adequately known, are rare but not threatened, or meet criteria for near threatened, or that have been recently removed from the threatened species or other specially protected fauna lists for other than taxonomic reasons, are placed in Priority 4. These species require regular monitoring.
P1	Priority One	Poorly known species – Species that are known from one or a few locations (generally five or less) which are potentially at risk. All occurrences are either very small or on lands not managed for conservation, such as road verges, urban areas, farmland, active mineral lease and under threat of habitat destruction or degradation.
2	Priority Two	Poorly known species – Species that are known from one or a few locations (generally five or less), some of which are on lands managed primarily for nature conservation, such as national parks, conservation parks, nature reserves, State forest, vacant Crown land, water reserves and similar.
3	Priority Three	Poorly known species – Species that are known from several locations, and the species does not appear to be under imminent threat, or from few but widespread locations with either large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat
4	Priority Four	Rare or near threatened and other species in need of monitoring.

(Source: Department of Biodiversity, Conservation and Attractions, 2020a)

Commonwealth

Category	Description
Critically Endangered	Species facing an extremely high risk of extinction in the wild in the immediate future
Endangered	Species facing a very high risk of extinction in the wild in the near future
Vulnerable	Species facing a high risk of extinction in the wild in the medium term

(Source: Department of Biodiversity, Conservation and Attractions, 2019)

Appendix 3 Species List (Flora)

Native flora species identified within the reserve are listed below by Family.

Family	Scientific Name	Common Name	2012 Management Plan	2019 Management Plan	2024 Management Plan
Amaranthaceae	*Alternanthera nodiflora*	Common Joyweed	X		
Anarthriaceae	*Lyginia barbata*		X	X	X
Anarthriaceae	*Lyginia imberbis*		X		X
Apiaceae	*Centella asiatica*	Centella	X	X	X
Apiaceae	*Daucus glochidiatus*	Australian Carrot		X	X
Apiaceae	*Xanthosia huegelii*		X	X	X
Apiaceae	*Platysace compressa*	Tapeworm Plant	X		
Araceae	*Lemna disperma*	Duckweed	X	X	X
Araliaceae	*Trachymene pilosa*	Native Parsnip	X	X	X
Asparagaceae	*Lomandra caespitosa*	Tufted Mat Rush	X		X
Asparagaceae	*Lomandra hermaphrodita*		X		X
Asparagaceae	*Lomandra preissii*		X	X	X
Asparagaceae	*Lomandra suaveolens*		X	X	X
Asparagaceae	*Thysanotus manglesianus*	Fringed Lily		X	X
Asparagaceae	*Laxmannia sp.*			X	
Asparagaceae	*Laxmannia squarrosa*	Paper Lily	X		X
Asparagaceae	*Sowerbaea laxiflora*	Purple Tassels	X	X	
Asparagaceae	*Thysanotus patersonii*	Paterson's Fringed Lily	X		

Family	Scientific Name	Common Name	2012 Management Plan	2019 Management Plan	2024 Management Plan
Asparagaceae	*Thysanotus sp.*			X	
Asteraceae	*Senecio sp.*			X	
Campanulaceae	*Lobelia tenuior*	Slender Lobelia	X		X
Campanulaceae	*Lobelia anceps*	Angled Lobelia	X		
Casuarinaceae	*Allocasuarina fraseriana*	Sheoak	X	X	X
Casuarinaceae	*Allocasuarina humilis*	Dwarf Sheoak	X	X	X
Casuarinaceae	*Casuarina obesa*	Swamp Sheoak	X		
Colchicaceae	*Burchardia congesta*	Milkmaids	X	X	X
Crassulaceae	*Crassula colorata*	Dense Stonecrop	X	X	X
Cyperaceae	*Ficinia nodosa*	Knotted Club Rush		X	X
Cyperaceae	*Isolepis congrua*			X	X
Cyperaceae	*Lepidosperma calcicola*				X
Cyperaceae	*Machaerina preissii*		X		
Cyperaceae	*Schoenus subfascicularis*		X	X	X
Cyperaceae	*Lepidosperma longitudinale*	Pithy Sword-sedge	X	X	X
Cyperaceae	*Lepidosperma pubisquameum*			X	X
Cyperaceae	*Machaerina articulata*	Jointed Rush	X	X	X
Cyperaceae	*Machaerina juncea*	Bare Twigrush	X	X	X
Cyperaceae	*Mesomelaena pseudostygia*		X	X	X
Cyperaceae	*Bolboschoenus caldwellii*	Marsh Club-rush	X		

Family	Scientific Name	Common Name	2012 Management Plan	2019 Management Plan	2024 Management Plan
Cyperaceae	*Lepidosperma angustatum*		X		
Cyperaceae	*Schoenoplectus tabernaemontani*	Lake Club-rush	X		
Cyperaceae	*Schoenus efoliatus*		X		
Cyperaceae	*Schoenus sp.*			X	
Dasypogonaceae	*Calectasia narragara*		X	X	X
Dasypogonaceae	*Dasypogon bromeliifolius*	Pineapple Bush	X	X	X
Dennstaedtiaceae	*Pteridium esculentum*	Bracken	X	X	
Dilleniaceae	*Hibbertia huegelii*		X		X
Dilleniaceae	*Hibbertia subvaginata*			X	X
Dilleniaceae	*Hibbertia hypericoides*	Yellow Buttercups	X	X	X
Dilleniaceae	*Hibbertia racemosa*	Stalked Guinea Flower	X		
Ericaceae	*Conostephium pendulum*	Pearl Flower	X	X	X
Ericaceae	*Styphelia propinqua*		X		X
Fabaceae	*Acacia cyclops*	Coastal Wattle			X
Fabaceae	*Acacia pulchella*	Prickely Moses	X	X	X
Fabaceae	*Acacia saligna*	Orange Wattle	X	X	X
Fabaceae	*Acacia willdenowiana*	Grass Wattle	X		X
Fabaceae	*Acacia stenoptera*	Narrow Winged Wattle	X	X	X
Fabaceae	*Bossiaea eriocarpa*	Common Brown Pea	X	X	X
Fabaceae	*Daviesia nudiflora*		X		X

Family	Scientific Name	Common Name	2012 Management Plan	2019 Management Plan	2024 Management Plan
Fabaceae	*Gompholobium tomentosum*	Hairy Yellow Pea	X	X	X
Fabaceae	*Hardenbergia comptoniana*	Native Wisteria	X	X	X
Fabaceae	*Hovea pungens*	Devil's Pins	X	X	X
Fabaceae	*Hovea trisperma*	Common Hovea	X	X	X
Fabaceae	*Jacksonia furcellata*	Grey Stinkwood	X	X	X
Fabaceae	*Jacksonia sternbergiana*	Stinkwood	X	X	X
Fabaceae	*Kennedia prostrata*	Scarlet Runner	X	X	X
Fabaceae	*Daviesia divaricata*	Marno	X	X	X
Fabaceae	*Daviesia physodes*		X		X
Fabaceae	*Daviesia triflora*		X	X	X
Fabaceae	*Gastrolobium ebracteolatum*		X		X
Fabaceae	*Viminaria juncea*	Swishbush	X	X	X
Fabaceae	*Acacia applanata*		X		
Fabaceae	*Acacia huegelii*	Huegel's Wattle	X		
Fabaceae	*Acacia lasiocarpa*	Panjang		X	
Fabaceae	*Daviesia angulata*			X	
Fabaceae	*Gastrolobium celsianum*			X	
Fabaceae	*Pterostylis sp.*		X		
Goodeniaceae	*Dampiera linearis*	Common Dampiera	X	X	X
Goodeniaceae	*Lechenaultia floribunda*	Free-flowering Leschenaultia	X		X

Family	Scientific Name	Common Name	2012 Management Plan	2019 Management Plan	2024 Management Plan
Goodeniaceae	*Scaevola canescens*	Grey Scaevola	X	X	X
Goodeniaceae	*Scaevola repens var. repens*		X	X	X
Haemodoraceae	*Anigozanthos flavidus*	Tall Kangaroo Paw	X	X	X
Haemodoraceae	*Conostylis aculeata*	Prickly Conostylis	X	X	X
Haemodoraceae	*Conostylis juncea*			X	X
Haemodoraceae	*Conostylis setigera*	Bristly Cottonhead	X	X	X
Haemodoraceae	*Haemodorum spicatum*	Bohn	X		
Haemodoraceae	*Phlebocarya ciliata*		X	X	X
Haemodoraceae	*Anigozanthos humilis*	Catspaw	X	X	X
Haemodoraceae	*Anigozanthos manglesii*	Mangles Kangaroo Paw	X		
Hemerocallidaceae	*Caesia occidentalis*				X
Hemerocallidaceae	*Dianella revoluta*	Blueberry Lily	X	X	X
Hemerocallidaceae	*Corynotheca micrantha*	Hexagon Zigzag Lily	X	X	X
Hemerocallidaceae	*Tricoryne elatior*	Yellow Autumn Lily	X		X
Hemerocallidaceae	*Tricoryne tenella*		X		
Iridaceae	*Patersonia occidentalis*	Purple Flag	X	X	X
Iridaceae	*Patersonia juncea*	Rush Leaved Patersonia	X		
Juncaceae	*Juncus kraussii subsp. australiensis*	Sea Rush		X	X
Juncaceae	*Juncus pallidus*	Pale Rush	X	X	X
Lamiaceae	*Hemiandra pungens*	Snakebush		X	X

Family	Scientific Name	Common Name	2012 Management Plan	2019 Management Plan	2024 Management Plan
Lauraceae	*Cassytha racemosa*	Dodder Laurel	X		
Lauraceae	*Cassytha sp.*			X	
Loranthaceae	*Nuytsia floribunda*	Christmas Tree	X		
Myrtaceae	*Agonis flexuosa*	Peppermint		X	X
Myrtaceae	*Astartea scoparia*	Common Astartea		X	X
Myrtaceae	*Calothamnus quadrifidus*	One-sided Bottlebrush	X	X	X
Myrtaceae	*Calytrix flavescens*	Summer Starflower	X		X
Myrtaceae	*Corymbia calophylla*	Marri	X	X	X
Myrtaceae	*Eucalyptus marginata subsp. marginata*	Jarrah	X	X	X
Myrtaceae	*Eucalyptus rudis*	Flooded Gum	X	X	X
Myrtaceae	*Hypocalymma angustifolium*	White Myrtle			X
Myrtaceae	*Hypocalymma robustum*	Swan River Myrtle	X	X	X
Myrtaceae	*Kunzea glabrescens*	Spearwood	X	X	X
Myrtaceae	*Melaleuca huegelii*	Chenille Honeymyrtle		X	X
Myrtaceae	*Melaleuca lateritia*	Robin Redbreast Bush			X
Myrtaceae	*Melaleuca preissiana*	Moonah	X	X	X
Myrtaceae	*Melaleuca rhaphiophylla*	Swamp Paperbark	X	X	X
Myrtaceae	*Melaleuca seriata*		X		X
Myrtaceae	*Melaleuca teretifolia*	Banbar	X	X	X
Myrtaceae	*Melaleuca viminalis*			X	X

Family	Scientific Name	Common Name	2012 Management Plan	2019 Management Plan	2024 Management Plan
Myrtaceae	*Regelia inops*				X
Myrtaceae	*Eremaea pauciflora*		X	X	X
Myrtaceae	*Eremaea purpurea*				X
Myrtaceae	*Eremaea sp.*			X	
Myrtaceae	*Eucalyptus sp.*			X	
Myrtaceae	*Astartea fascicularis*	Recherche Astartea	X		
Myrtaceae	*Callistemon sp.*		X		
Myrtaceae	*Melaleuca leucadendra*			X	
Myrtaceae	*Scholtzia teretifolia*			X	
Orchidaceae	*Caladenia reptans*	Little Pink Fairy Orchid		X	X
Orchidaceae	*Diuris corymbosa*			X	X
Orchidaceae	*Microtis media*	Tall Mignonette Orchid	X		X
Orchidaceae	*Caladenia flava*	Cowslip Orchid	X		
Poaceae	*Austrostipa compressa*		X		X
Poaceae	*Eragrostis (native)*		X		
Poaceae	*Amphipogon turbinatus*		X		
Poaceae	*Austrostipa elegantissima*		X		
Poaceae	*Austrostipa flavescens*		X		
Poaceae	*Neurachne alopecuroidea*	Foxtail Mulga Grass	X		
Poaceae	*Poa porphyroclados*		X		

Family	Scientific Name	Common Name	2012 Management Plan	2019 Management Plan	2024 Management Plan
Polygonaceae	*Persicaria decipiens*		X		
Proteaceae	*Adenanthos cygnorum*	Common Woollybush	X	X	X
Proteaceae	*Banksia attenuata*	Slender Banksia	X	X	X
Proteaceae	*Banksia ilicifolia*	Holly-leaved Banksia	X	X	X
Proteaceae	*Banksia littoralis*	Swamp Bnaksia	X	X	X
Proteaceae	*Banksia menziesii*	Firewood Banksia	X	X	X
Proteaceae	*Banksia prionotes*	Acorn Banksia			X
Proteaceae	*Banksia sp.*			X	
Proteaceae	*Grevillea crithmifolia*				X
Proteaceae	*Hakea prostrata*	Harsh Hakea	X	X	X
Proteaceae	*Hakea varia*	Variable-leaved Hakea	X	X	X
Proteaceae	*Petrophile linearis*	Pixie Mops	X	X	X
Proteaceae	*Petrophile macrostachya*		X	X	X
Proteaceae	*Stirlingia latifolia*	Blueboy	X	X	X
Proteaceae	*Synaphea spinulosa subsp. spinulosa*		X	X	X
Proteaceae	*Banksia grandis*	Bull Banksia	X	X	X
Proteaceae	*Hakea lissocarpha*	Honey Bush		X	
Proteaceae	*Persoonia saccata*	Snottygobble	X		
Ranunculaceae	*Clematis linearifolia*	Slender Clematis	X		
Restionaceae	*Desmocladus asper*				X

Family	Scientific Name	Common Name	2012 Management Plan	2019 Management Plan	2024 Management Plan
Restionaceae	*Hypolaena exsulca*		X	X	X
Restionaceae	*Lepidobolus preissianus*		X	X	X
Restionaceae	*Desmocladus flexuosus*		X	X	X
Restionaceae	*Restionaceae sp.*			X	
Rubiaceae	*Opercularia vaginata*	Dog Weed	X		X
Rutaceae	*Philotheca spicata*	Pepper and Salt	X	X	X
Santalaceae	*Exocarpos sparteus*	Broom Ballart	X		X
Santalaceae	*Leptomeria empetriformis*		X	X	X
Sapindaceae	*Dodonaea sp.*		X		
Stylidiaceae	*Stylidium brunonianum*	Pink Fountain Triggerplant	X		
Stylidiaceae	*Stylidium repens*	Matted Triggerplant	X		
Stylidiaceae	*Stylidium schoenoides*	Cow Kicks	X		
Thymelaeaceae	*Pimelea sulphurea*	Yellow Banjine	X	X	X
Thymelaeaceae	*Pimelea leucantha*		X		
Thymelaeaceae	*Pimelea rosea*	Rose Banjine	X	X	X
Typhaceae	*Typha domingensis*	Bulrush	X		
Typhaceae	*Typha orientalis*	Bulrush	X		
Violaceae	*Pigea calycina*	Wild Violet	X	X	X
Xanthorrhoeaceae	*Xanthorrhoea brunonis*		X		X
Xanthorrhoeaceae	*Xanthorrhoea gracilis*	Graceful Grass Tree		X	X

Family	Scientific Name	Common Name	2012 Management Plan	2019 Management Plan	2024 Management Plan
Xanthorrhoeaceae	*Xanthorrhoea preissii*	Grass tree	X	X	X
Zamiaceae	*Macrozamia fraseri*	Sandplain Zamia		X	X
Zamiaceae	*Macrozamia riedlei*	Zamia	X		

Appendix 4 Species List (Fauna)

Fauna species recorded across the reserve are listed below by family. Species highlighted in red are declared pests and those that are highlighted in green are conservation significant species.

Family	Species	Common Name	2012 Management Plan	2019 Management Plan	2019 Management Plan (Community)	2024 Management Plan	2024 Management Plan (eDNA)
Amphibian							
Limnodynastidae	*Heleioporus eyrei*	Moaning Frog		X		X	
Limnodynastidae	*Limnodynastes dorsalis*	Western Banjo Frog				X	X
Myobatrachidae	*Crinia glauerti*	Clicking Frog	X	X		X	
Myobatrachidae	*Crinia insignifera*	Squelching Froglet				X	
Myobatrachidae	*Pseudophryne guentheri*	Crawling Toadlet					
Pelodryadidae	*Litoria adelaidensis*	Slender Tree Frog				X	
Pelodryadidae	*Litoria moorei*	Motorbike Frog				X	
Bird							
Acanthizidae	*Acanthiza apicalis*	Inland Thornbill (Broad-tailed Thornbill)	X				
Acanthizidae	*Acanthiza chrysorrhoa*	Yellow-rumped Thornbill	X				
Acanthizidae	*Acanthiza inornata*	Western Thornbill	X		X		
Acanthizidae	*Gerygone fusca*	Western Gerygone	X	X	X		
Acanthizidae	*Smicrornis brevirostris*	Weebill	X	X	X		
Accipitridae	*Accipiter cirrocephalus*	Collared Sparrowhawk	X		X		
Accipitridae	*Accipiter fasciatus*	Brown Goshawk	X		X		

Family	Species	Common Name	2012 Management Plan	2019 Management Plan	2019 Management Plan (Community)	2024 Management Plan	2024 Management Plan (eDNA)
Accipitridae	*Elanus axillaris*	Black-shouldered Kite	X		X		
Accipitridae	*Haliastur sphenurus*	Whistling Kite	X		X		
Accipitridae	*Lophoictinia isura*	Square-tailed Kite			X		
Acrocephalidae	*Acrocephalus australis*	Australian Reed Warbler			X		
Alcedinidae	**Dacelo novaeguineae*	Laughing Kookaburra	X	X	X	X	
Alcedinidae	*Todiramphus sanctus*	Sacred Kingfisher	X		X		
Anatidae	**Anas platyrhynchos*	Mallard	X				
Anatidae	*Anas castanea*	Chestnut Teal	X				
Anatidae	*Anas gracilis*	Grey Teal	X	X	X		X
Anatidae	*Anas superciliosa*	Pacific Black Duck	X	X	X	X	
Anatidae	*Aythya australis*	Hardhead	X		X		
Anatidae	*Biziura lobata*	Musk Duck	X				
Anatidae	*Chenonetta jubata*	Australian Wood Duck	X		X	X	X
Anatidae	*Cygnus atratus*	Black Swan	X		X		
Anatidae	*Dendrocygna arcuata*	Wandering Whistling Duck (Chestnut Whistling Duck)	X				
Anatidae	*Malacorhynchus membranaceus*	Pink-eared Duck	X		X		
Anatidae	*Oxyura australis*	Blue-billed Duck	X		X	X	
Anatidae	*Spatula rhynchotis*	Australasian Shoveler	X				
Anatidae	*Tadorna tadornoides*	Australian Shelduck (Mountain Duck)	X		X		

Family	Species	Common Name	2012 Management Plan	2019 Management Plan	2019 Management Plan (Community)	2024 Management Plan	2024 Management Plan (eDNA)
Anhingidae	*Anhinga novaehollandiae*	Australasian Darter	X		X		
Ardeidae	*Ardea alba*	Great Egret (Eastern Great Egret)	X				
Ardeidae	*Ardea intermedia*	Intermediate Egret			X		
Ardeidae	*Ardea pacifica*	White-necked Heron	X		X		
Ardeidae	*Egretta garzetta*	Little Egret	X		X		
Ardeidae	*Egretta novaehollandiae*	White-faced Heron	X		X		
Ardeidae	*Nycticorax caledonicus*	Nankeen Night Heron (Rufous Night Heron)	X		X		
Artamidae	*Cracticus nigrogularis*	Pied Butcherbird				X	
Artamidae	*Cracticus torquatus*	Grey Butcherbird	X	X	X		
Artamidae	*Gymnorhina tibicen*	Australian Magpie	X			X	
Cacatuidae	**Cacatua tenuirostris*	Eastern Long-billed Corella	X		X		
Cacatuidae	*Cacatua pastinator*	Western Long-billed Corella			X		
Cacatuidae	*Cacatua sanguinea*	Little Corella	X		X	X	
Cacatuidae	*Calyptorhynchus banksii naso*	Forest Red-tailed Black Cockatoo	X		X	X	
Cacatuidae	*Eolophus roseicapilla*	Galah	X	X	X	X	
Cacatuidae	*Zanda latirostris*	Carnaby's Cockatoo	X		X		
Campephagidae	*Coracina novaehollandiae*	Black-faced Cuckooshrike	X	X	X		
Campephagidae	*Lalage tricolor*	White-winged Triller	X				
Charadriidae	*Elseyornis melanops*	Black-fronted Dotterel	X		X		

Family	Species	Common Name	2012 Management Plan	2019 Management Plan	2019 Management Plan (Community)	2024 Management Plan	2024 Management Plan (eDNA)
Charadriidae	*Erythrogonys cinctus*	Red-kneed Dotterel	X				
Columbidae	**Columba livia*	Domestic Pigeon (Rock Dove)	X				
Columbidae	**Spilopelia chinensis*	Spotted Turtle Dove	X	X	X	X	
Columbidae	**Spilopelia senegalensis*	Laughing Turtle Dove	X		X	X	
Columbidae	*Phaps chalcoptera*	Common Bronzewing	X				
Corvidae	*Corvus coronoides*	Australian Raven	X	X	X	X	X
Cuculidae	*Cacomantis flabelliformis*	Fan-tailed Cuckoo	X				
Cuculidae	*Chalcites lucidus*	Shining Bronze Cuckoo	X				
Cuculidae	*Heteroscenes pallidus*	Pallid Cuckoo	X				
Dicaeidae	*Dicaeum hirundinaceum*	Mistletoebird	X		X		
Falconidae	*Falco cenchroides*	Australian Kestrel (Nankeen Kestrel)	X		X		
Falconidae	*Falco longipennis*	Australian Hobby	X		X		
Hirundinidae	*Cheramoeca leucosterna*	White-backed Swallow	X				
Hirundinidae	*Hirundo neoxena*	Welcome Swallow	X	X	X		
Hirundinidae	*Petrochelidon nigricans*	Tree Martin	X		X		
Laridae	*Chroicocephalus novaehollandiae*	Silver Gull	X				
Maluridae	*Malurus splendens*	Splendid Fairywren	X		X		
Meliphagidae	*Acanthorhynchus superciliosus*	Western Spinebill	X				

Family	Species	Common Name	2012 Management Plan	2019 Management Plan	2019 Management Plan (Community)	2024 Management Plan	2024 Management Plan (eDNA)
Meliphagidae	*Anthochaera carunculata*	Red Wattlebird	X	X	X	X	
Meliphagidae	*Anthochaera lunulata*	Western Little Wattlebird	X				X
Meliphagidae	*Gavicalis virescens*	Singing Honeyeater	X	X	X		
Meliphagidae	*Lichmera indistincta*	Brown Honeyeater	X	X	X	X	
Meliphagidae	*Manorina flavigula*	Yellow-throated Miner	X				
Meliphagidae	*Phylidonyris niger*	White-cheeked Honeyeater	X		X		
Meliphagidae	*Phylidonyris novaehollandiae*	New Holland Honeyeater	X	X	X	X	
Meropidae	*Merops ornatus*	Rainbow Bee-eater	X		X		
Monarchidae	*Grallina cyanoleuca*	Magpie-lark	X	X	X	X	
Neosittidae	*Daphoenositta chrysoptera*	Varied Sittella	X				
Pachycephalidae	*Pachycephala rufiventris*	Rufous Whistler	X	X	X		
Pandionidae	*Pandion haliaetus*	Osprey	X				
Pardalotidae	*Pardalotus punctatus*	Spotted Pardalote	X		X		
Pardalotidae	*Pardalotus striatus*	Striated Pardalote	X		X		
Pelecanidae	*Pelecanus conspicillatus*	Australian Pelican	X		X		
Phalacrocoracidae	*Microcarbo melanoleucos*	Little Pied Cormorant	X	X	X	X	X
Phalacrocoracidae	*Phalacrocorax carbo*	Great Cormorant	X				
Phalacrocoracidae	*Phalacrocorax sulcirostris*	Little Black Cormorant	X	X	X		

Family	Species	Common Name	2012 Management Plan	2019 Management Plan	2019 Management Plan (Community)	2024 Management Plan	2024 Management Plan (eDNA)
Phalacrocoracidae	*Phalacrocorax varius*	Pied Cormorant (Australian Pied Cormorant)	X				
Podargidae	*Podargus strigoides*	Tawny Frogmouth	X				
Podicipedidae	*Podiceps cristatus*	Great Crested Grebe	X				
Podicipedidae	*Poliocephalus poliocephalus*	Hoary-headed Grebe	X		X		
Podicipedidae	*Tachybaptus novaehollandiae*	Australasian Grebe (Black-throated Grebe)	X	X	X		X
Psittaculidae	**Trichoglossus moluccanus*	Rainbow Lorikeet	X	X	X	X	
Psittaculidae	*Barnardius zonarius*	Australian Ringneck	X		X	X	
Psittaculidae	*Purpureicephalus spurius*	Red-capped Parrot	X		X		
Rallidae	*Fulica atra*	Eurasian Coot	X	X	X	X	X
Rallidae	*Gallinula tenebrosa*	Dusky Moorhen	X		X		X
Rallidae	*Hypotaenidia philippensis*	Buff-banded Rail	X				
Rallidae	*Porphyrio melanotus*	Australasian Swamphen	X	X	X	X	
Rallidae	*Porzana fluminea*	Australian Spotted Crake (Australian Crake)	X				
Rallidae	*Zapornia pusilla*	Baillon's Crake	X				
Rallidae	*Zapornia tabuensis*	Spotless Crake	X				
Recurvirostridae	*Cladorhynchus leucocephalus*	Banded Stilt			X		
Recurvirostridae	*Himantopus himantopus*	Black-winged Stilt	X		X		
Recurvirostridae	*Recurvirostra novaehollandiae*	Red-necked Avocet	X		X		

Family	Species	Common Name	2012 Management Plan	2019 Management Plan	2019 Management Plan (Community)	2024 Management Plan	2024 Management Plan (eDNA)
Rhipiduridae	*Rhipidura albiscapa*	Grey Fantail	X		X		
Rhipiduridae	*Rhipidura leucophrys*	Willie Wagtail	X	X	X	X	
Scolopacidae	*Actitis hypoleucos*	Common Sandpiper	X				
Scolopacidae	*Tringa glareola*	Wood Sandpiper			X		
Scolopacidae	*Tringa nebularia*	Common Greenshank	X		X		
Strigidae	*Ninox connivens*	Barking Owl	X				
Strigidae	*Ninox novaeseelandiae*		X				
Threskiornithidae	*Platalea flavipes*	Yellow-billed Spoonbill	X				
Threskiornithidae	*Plegadis falcinellus*	Glossy Ibis			X		
Threskiornithidae	*Threskiornis molucca*	Australian White Ibis	X	X	X	X	
Threskiornithidae	*Threskiornis spinicollis*	Straw-necked Ibis	X		X		
Tytonidae	*Tyto alba*		X				
Tytonidae	*Tyto alba lateralis*			X	X		
Fish							
Poeciliidae	*Gambusia holbrooki*	Eastern mosquitofish					X
Invertebrate							
Blattidae	Blattidae sp.	Australian Native Cockroach				X	
Carabidae	*Scaraphites silenus*					X	
Julidae	*Ommatoiulus moreletii*	Portuguese Millipede				X	

Family	Species	Common Name	2012 Management Plan	2019 Management Plan	2019 Management Plan (Community)	2024 Management Plan	2024 Management Plan (eDNA)
Mammal							
Canidae	*Vulpes vulpes*	Red Fox	X				
Felidae	*Felis catus*	Cat	X	X			
Leporidae	*Oryctolagus cuniculus*	Rabbit	X				
Molossidae	*Austronomus australis*	White-striped Freetail Bat		X		X	
Muridae	*Mus musculus*	House Mouse		X			
Murids	*Rattus rattus*	Rat		X		X	X
Vespertilionidae	*Chalinolobus gouldii*	Gould's Wattled Bat		X			
Vespertilionidae	*Vespadelus regulus*	Southern Forest Bat		X			
Reptile							
Chelidae	*Chelodina oblonga*	Oblong Turtle	X	X		X	
Pygopodidae	*Aprasia repens*			X			
Scincidae	*Acritoscincus trilineatus*	Western Three-lined Skink				X	
Scincidae	*Cryptoblepharus buchananii*	Buchanan's Snake-eyed Skink		X		X	
Scincidae	*Cryptoblepharus virgatus*	Fence Skink	X				
Scincidae	*Ctenotus australis*	Western Limestone Ctenotus		X		X	
Scincidae	*Ctenotus fallens*		X				
Scincidae	*Hemiergis quadrilineata*	Two-toed Earless Skink		X		X	
Scincidae	*Lerista lineata*	Perth Lined Skink		X		X	

Family	Species	Common Name	2012 Management Plan	2019 Management Plan	2019 Management Plan (Community)	2024 Management Plan	2024 Management Plan (eDNA)
Scincidae	*Menetia greyii*	Common Dwarf Skink		X		X	
Scincidae	*Morethia lineoocellata*		X	X			
Scincidae	*Morethia obscura*	Shrubland Morethia Skink				X	
Scincidae	*Tiliqua rugosa rugosa*	Bobtail	X	X		X	

Appendix 5 Species List (Weeds)

Weed species recorded across the reserve are listed below by family. Species highlighted in red are declared pests and / or WoNS.

Family	Scientific Name	Common Name	2012 Management Plan	2019 Management Plan	2024 Management Plan
Agapanthaceae	*Agapanthus praecox*				X
Aizoaceae	*Carpobrotus edulis*	Hottentot Fig	X		
Alliaceae	*Allium triquetrum*	Three-cornered Garlic		X	
Anacardiaceae	*Schinus terebinthifolia*		X	X	X
Asparagaceae	*Lachenalia reflexa*		X	X	
Asteraceae	*Eclipta prostrata*			X	X
Asteraceae	*Erigeron sumatrensis*		X		X
Asteraceae	*Hypochaeris glabra*	Smooth Cats-ear	X	X	X
Asteraceae	*Hypochaeris radicata*	Flat Weed			X
Asteraceae	*Lactuca serriola*	Prickly Lettuce	X	X	X
Asteraceae	*Sonchus asper*	Rough Sowthistle			X
Asteraceae	*Sonchus oleraceus*	Common Sowthistle	X	X	X
Asteraceae	*Ursinia anthemoides*		X	X	X
Asteraceae	*Arctotheca calendula*	Cape Weed		X	
Asteraceae	*Erigeron bonariensis*			X	
Asteraceae	*Osteospermum ecklonis*		X	X	
Asteraceae	*Urospermum picroides*	False Hawkbit	X		

Family	Scientific Name	Common Name	2012 Management Plan	2019 Management Plan	2024 Management Plan
Asteraceae	*Vellereophyton dealbatum	White Cudweed	X		
Brassicaceae	*Raphanus raphanistrum	Wild Radish	X		
Caryophyllaceae	*Petrorhagia dubia			X	
Caryophyllaceae	*Polycarpon tetraphyllum	Fourleaf Allseed	X		
Caryophyllaceae	*Silene gallica	French Catchfly	X	X	
Casuarinaceae	*Casuarina cunninghamiana		X	X	
Cyperaceae	*Ficinia marginata	Coarse Club Rush		X	X
Cyperaceae	*Cyperus eragrostis	Umbrella Sedge	X		
Cyperaceae	*Cyperus polystachyos	Bunchy Sedge		X	
Cyperaceae	*Cyperus rotundus	Nut Grass	X		
Cyperaceae	*Cyperus tenuiflorus	Scaly Sedge	X		
Euphorbiaceae	*Euphorbia peplus	Petty Spurge		X	X
Euphorbiaceae	*Euphorbia terracina	Geraldton Carnation Weed	X	X	X
Euphorbiaceae	*Homalanthus populifolius				X
Fabaceae	*Lotus subbiflorus				X
Fabaceae	*Medicago polymorpha	Burr Medic	X	X	X
Fabaceae	*Trifolium campestre	Hop Clover	X		X
Fabaceae	*Acacia iteaphylla			X	
Fabaceae	*Acacia longifolia		X	X	
Fabaceae	*Acacia podalyriifolia		X	X	

Family	Scientific Name	Common Name	2012 Management Plan	2019 Management Plan	2024 Management Plan
Fabaceae	*Lupinus cosentinii*		X	X	
Fabaceae	*Trifolium dubium*	Suckling Clover		X	
Fabaceae	*Vicia sativa*	Common Vetch		X	
Geraniaceae	*Erodium moschatum*	Musky Crowfoot		X	
Geraniaceae	*Pelargonium capitatum*	Rose Pelargonium	X		
Iridaceae	*Freesia leichtlinii subsp. alba × leichtlinii subsp. leichtlinii*		X	X	X
Iridaceae	*Ferraria crispa*	Black Flag	X	X	
Iridaceae	*Gladiolus caryophyllaceus*	Wild Gladiolus	X	X	
Iridaceae	*Romulea rosea*	Guildford Grass	X	X	
Malvaceae	*Brachychiton populneus*	Kurrajong		X	X
Malvaceae	*Malva parviflora*	Marshmallow	X	X	
Myrtaceae	#Melaleuca nesophila	Mindiyed	X	X	
Myrtaceae	#Melaleuca viminalis				X
Myrtaceae	*Melaleuca quinquenervia*		X	X	
Myrtaceae	#Eucalyptus conferruminata	Bald Island Marlock	X		
Myrtaceae	#Eucalyptus erythrocorys	Illyarrie	X		
Myrtaceae	*Chamelaucium uncinatum*	Geraldton Wax	X	X	
Myrtaceae	*Eucalyptus botryoides*		X	X	
Myrtaceae	*Eucalyptus citriodora*		X		
Myrtaceae	*Eucalyptus sp. planted (suspect E. grandis)*		X	X	

Family	Scientific Name	Common Name	2012 Management Plan	2019 Management Plan	2024 Management Plan
Oleaceae	*Olea europaea	Olive	X	X	
Orchidaceae	*Disa bracteata	South African Orchid	X	X	
Oxalidaceae	*Oxalis pes-caprae	Soursob		X	X
Papaveraceae	*Fumaria capreolata	Whiteflower Fumitory	X	X	X
Phytolaccaceae	*Phytolacca octandra	Red Ink Plant			X
Plantaginaceae	*Bacopa monnieri				X
Plantaginaceae	*Plantago lanceolata	Ribwort Plantain		X	
Platanaceae	*Platanus ×hispanica			X	
Poaceae	*Avena barbata	Bearded Oat	X	X	X
Poaceae	*Briza maxima	Blowfly Grass	X	X	X
Poaceae	*Bromus diandrus	Great Brome	X	X	X
Poaceae	*Cynodon dactylon	Couch	X	X	X
Poaceae	*Ehrharta calycina	Perennial Veldt Grass	X	X	X
Poaceae	*Ehrharta longiflora	Annual Veldt Grass	X	X	X
Poaceae	*Hordeum leporinum	Barley Grass			X
Poaceae	*Lolium rigidum	Wimmera Ryegrass	X	X	X
Poaceae	*Paspalum dilatatum		X	X	X
Poaceae	*Poa annua	Winter Grass			X
Poaceae	*Stenotaphrum secundatum	Buffalo Grass	X		X
Poaceae	*Aira cupaniana	Silvery Hairgrass	X	X	

Family	Scientific Name	Common Name	2012 Management Plan	2019 Management Plan	2024 Management Plan
Poaceae	*Briza minor*	Shivery Grass	X		
Poaceae	*Cenchrus clandestinus*	Kikuyu Grass	X	X	
Poaceae	*Cortaderia selloana*	Pampas Grass	X		
Poaceae	*Digitaria sanguinalis*	Crab Grass	X		
Poaceae	*Eragrostis curvula*	African Lovegrass	X		
Poaceae	*Lagurus ovatus*	Hare's Tail Grass	X		
Poaceae	*Lolium sp.*			X	
Poaceae	*Polypogon monspeliensis*	Annual Beardgrass	X		
Polygalaceae	*Polygala chaemaebuxus var. grandiflora*		X		
Polygalaceae	*Polygala myrtifolia*	Myrtleleaf Milkwort		X	
Polygonaceae	*Polygonum aviculare*	Wireweed			X
Polygonaceae	*Rumex crispus*	Curled Dock	X		X
Polygonaceae	*Persicaria decipiens*		X		
Primulaceae	*Lysimachia arvensis*	Pimpernel		X	
Salicaceae	*Populus nigra*			X	
Salicaceae	*Salix babylonica*		X		
Salviniaceae	*Azolla rubra*		X		
Solanaceae	*Solanum nigrum*	Black Berry Nightshade	X	X	X
Tropaeolaceae	*Tropaeolum majus*	Garden Nasturtium	X	X	
Violaceae	*Viola sp.*		X		