City of Melville

City of Melville

South-Eastern Reserves Strategic Management Plan

2021-2026

Executive Summary

The South-Eastern Reserves Strategic Management Plan updates the previous management plans, *South-Eastern Reserves (Uninfested) Strategic Management Plan 2017-2020* and *South-Eastern Reserves Strategic Management Plan 2015-2020.*

The South- Eastern Reserves incorporate eleven reserves which cover approximately 38.4 ha. The eleven reserves include:

- Beasley Park
- Bill Brown Park
- Douglas Freeman Park
- Dudley Hartree Park
- John Connell Reserve.
- Peter Bosci Park
- Peter Ellis Reserve
- Phillip Jane Park
- PJ Hanley Park
- Robert Weir Park
- William Hall Park.

Assets in terms of flora, fauna, ecological communities and fauna habitat were recorded during the 2021 survey.

A total of ten vegetation types were identified during the 2021 survey, including:

- *Banksia* spp. Open Woodland
- *Banksia* spp. Woodland
- *Banksia* spp. and *Melaleuca preissiana* Open Woodland
- *Allocasuarina fraseriana* (Sheoak) and *Banksia* spp. Woodland
- *Melaleuca preissiana* Open Woodland
- *Corymbia calophylla* (Marri) and *Banksia* spp. Open Woodland
- *Eucalyptus marginata* (Jarrah) Open Woodland
- *Eucalyptus todtiana* (Pricklybark) and *Banksia* spp. Open Woodland
- *Corymbia calophylla* (Marri), *Banksia* spp. and *Allocasuarina fraseriana* (Sheoak) Open Woodland
- *Corymbia calophylla* (Marri) and *Banksia menziesii* (Firewood Banksia) Open Woodland.

A total of 335 flora species were present across the South-Eastern Reserves, 58.5% being native species. No threatened or priority species were recorded during the 2021 survey. Four ‘at-risk’ species identified by the City were recorded:

- *Platysace filiformis* (Dudley Hartree, John Connell, and Beasley Park)
- *Anigozanthos flavidus* (Robert Weir and William Hall)
- *Caesia micrantha (*Peter Bosci, Phillip Jane, and Robert Weir)
- *Wahlenbergia preissii* (John Connell).

One threatened ecological community, *Banksia Woodlands of the Swan Coastal Plain* is present within John Connell Reserve. This ecological community is listed as endangered under the *Environmental Protection and Biodiversity Conservation Act 1999* (Cwlth).

The South-Eastern Reserves provide habitat for a range of fauna species, including:

- eight mammals, six which are introduced and one priority
- sixteen birds, two introduced
- seven reptiles, all native species

- 19 invertebrates
- eight fauna ‘at-risk’ as determined by the City.

Several threats are present within the eleven reserves, these include:

- physical disturbance e.g., vandalism, dumping of rubbish, informal paths
- unplanned fires
- a total of 125 weeds, with four species are identified as significant (declared pests and/or Weeds of National Significance)
- presence of habitat loss (bare ground and weed coverage)
- a total of ten feral fauna species
- potential presence of dieback
- impacts from climate change

Management strategies have been developed for 2022-2027 including Key Performance Indicators for the South-Eastern Reserves. The main management includes:

- undertake weed control of Very High and High impact weeds
- revegetate areas proposed in Figures 13-19 to enhance vegetation condition and reduce habitat loss
- continue to monitor and report any increase in threats in the reserves and undertake management in accordance with the NAAMP
- continue to monitor assets for decline in health or damage and repair or manage in accordance with the NAAMP.

Acknowledgements

Natural Area Consulting Management Services would like to acknowledge the contribution of the following people during the preparation of this strategic management plan:

- Kellie Fowler, Environmental Officer (City of Melville)

Table of Contents

1 Introduction

The City of Melville (the City) commissioned Natural Area Consulting Management Services (Natural Area) to update the Management Plan for the eleven South Eastern Reserves, in accordance with the City of Melville's Natural Areas Asset Management Plan (NAAMP, 2019). Natural Area carried out flora, vegetation and fauna surveys within the South-Eastern Reserves to provide updated flora and fauna inventory lists to those initially outlined in the NAAMP. Management strategies outlined in this management plan should be considered in conjunction with the City's Natural Areas Asset Management Plan (NAAMP 2019).

1.1 Background

The South-Eastern Reserves are located in the suburb of Leeming within the City of Melville, approximately 14 km south of Perth's Central Business District (Figures 1-2). These reserves cover approximately 38.4 ha and consist of a total of 11 reserves including:

- Beasley Park
- Bill Brown Park
- Douglas Freeman Park
- Dudley Hartree Park
- John Connell Reserve
- Peter Bosci Park
- Peter Ellis Reserve
- Phillip Jane Park
- PJ Hanley Park
- Robert Weir Park
- William Hall Park.

The South-Eastern Reserves Strategic Management Plan 2021-2026 updates the *South-Eastern Reserves (Uninfested) Strategic Management Plan 2017-2020* (2017) and the *South- Eastern Reserves Strategic Management Plan 2015 -2020* (2015) (Woodgis) and provides a new five-year management plan for 2021 to 2026.

1.2 Objectives

The objectives of this management plan are to provide flexible management strategies for each particular reserve and their specific risks in accordance with the City's NAAMP. The aim of this management plan is to continue to maintain and enhance the various ecological functions and values with the South-Eastern Reserves. These include:

- identification of threatening processes outlined within the NAAMP that occurs within the bushland areas
- identification of assets
- identification of reserve- specific threatening processes over time
- provide clear reserve management key performance indicators and recommendations to reduce negative impacts associated with the various threatening processes
- provide a plan to improve degraded areas with the reserve and maintain other areas.

1.3 Scope

Natural Area carried out the following works:

- basic flora survey to record any at-risk species, vegetation types and vegetation condition
- point infestation and density mapping of all weed species
- detailed fauna survey including Elliot and funnel trapping over a five-day period and installation of camera traps
- mapping locations of disturbance
- mapping locations of existing tracks and paths (formal and informal) within the reserves
- mapping location of habitat trees
- assessing key threatening processes with each reserve
- producing management recommendations for South-Eastern Reserves of City of Melville.

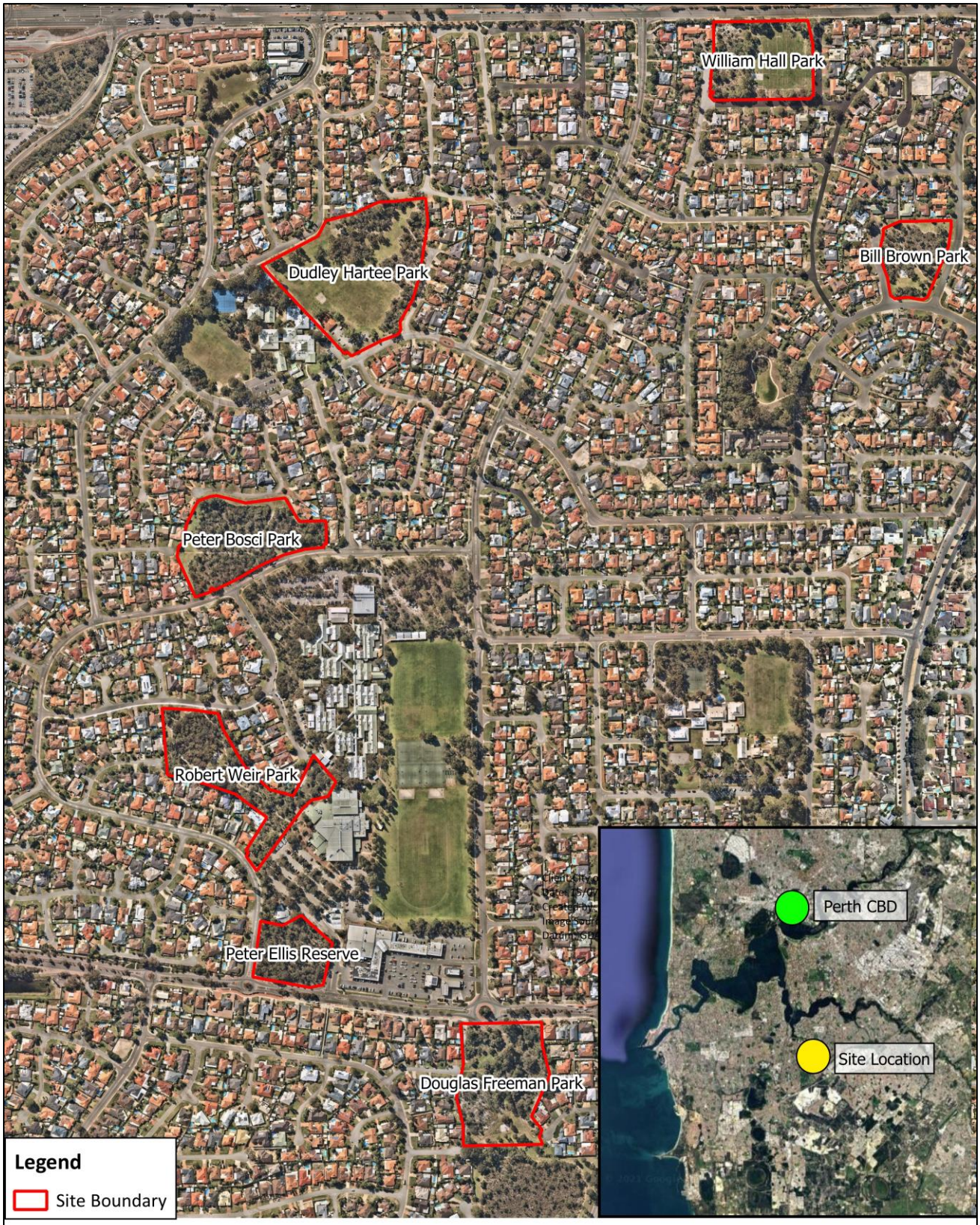

Figure 1:
Site Locations
South Eastern Reserves, City of Melville

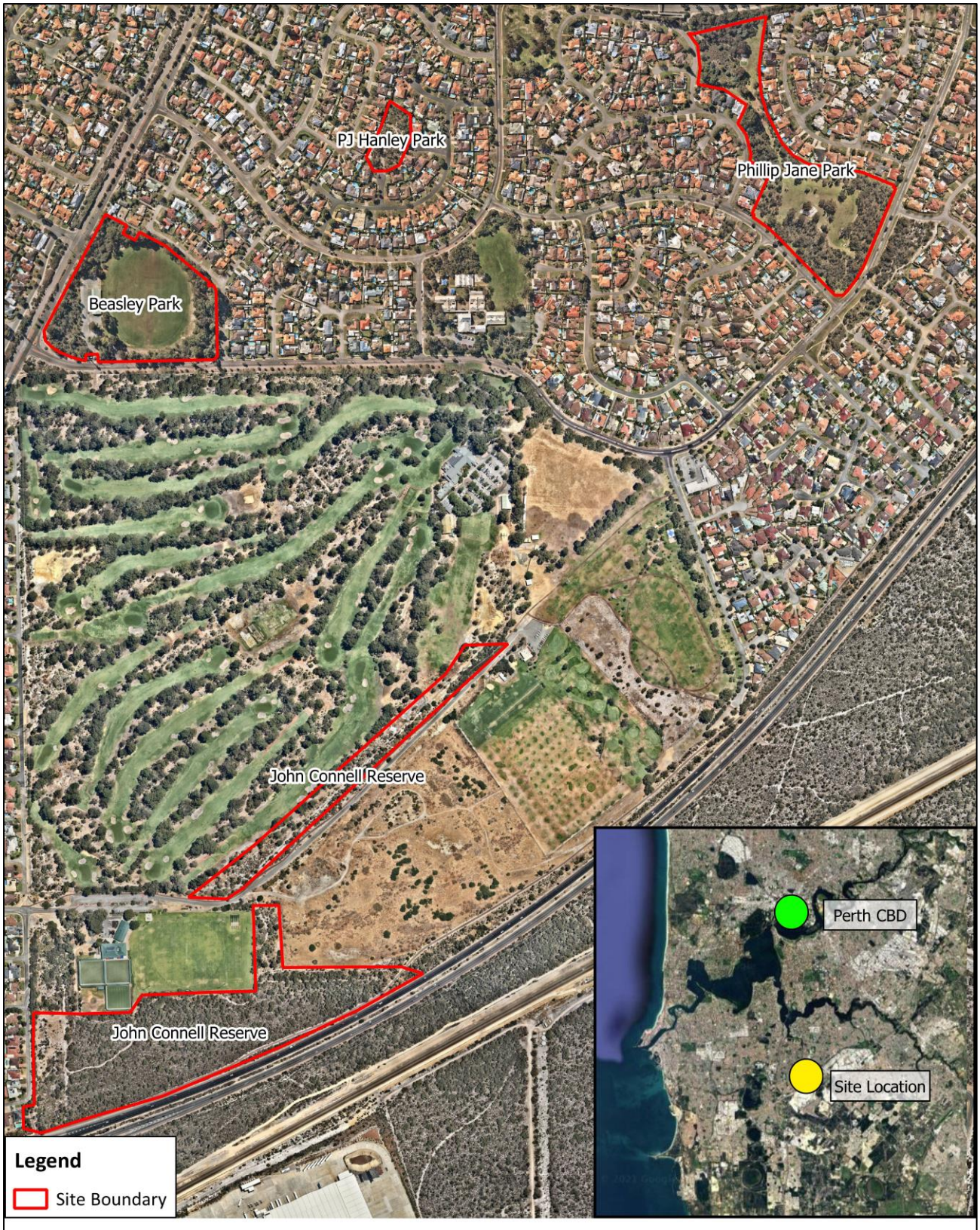

Figure 2:
Site Locations
South Eastern Reserves, City of Melville

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Client: City of Melville
Date: March 2022
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Datum: GDA 94

2 Assets

2.1 Reserve Rating

The City of Melville's NAAMP (2019) developed a framework for on-going reserve management considering factors such as the species present, vegetation types and community value to assign ratings for the City's numerous reserves, 1 (highest) to 5 (lowest). This allows the prioritisation and management of higher rated reserves to help maintain their value. The 11 South Eastern Reserves are rated between 3 and 5, with John Connell Reserve being unrated (Table 1).

Table 1: South-eastern Reserves within City of Melville Reserve Ratings

Name	Rating	Number	Total Area (ha)
Beasley Park	4	Lot 500 (R 34366)	5.53
Bill Brown Park	3	Lot 2563 (R 35952)	1.02
Douglas Freeman Park	4	Lot 2874 (R40400)	2.29
Dudley Hartree Park	4	Lot 2823 & 2873 (R 40269)	3.67
John Connell Reserve	N/A	Lot 753 (R24826)	12.65
Peter Bosci Park	3	Lot 2830 & 4114 (R 39357)	2.12
Peter Ellis Reserve	3	Lot 2927 (R 37527)	1.2
Phillip Jane Park	3	Lot 608 & 599 (R 40611)	5.68
PJ Hanley Park	4	Lot 562 (R 38048)	0.6
Robert Weir Park	3	Lot 2927 (R 37527)	1.93
William Hall Park	5	Lot 2547 (R 35533)	1.82

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, 2000). No Bush Forever Sites were listed within any of the 11 South Eastern reserves.

2.1.2 Ecological Linkages

Ecological Linkages provide refuge to fauna to move between natural bushland areas, therefore potentially increasing the size of available fauna habitat and genetic diversity of fauna species present throughout the reserves. Ecological linkages can also increase the effective size and maintain genetic diversity of flora populations between isolated bushland remnants via pollinator dispersal, such as birds and flying invertebrates.

Beasley Park, Robert Weir, Dudley Hartree and Peter Ellis were identified as high value linkage as they form part of the Regional Greenway linkages throughout Perth (NAAMP, 2019). Robert Weir, Peter Ellis and Dudley Hartree specifically provide local linkages to the Quenda Wetland. Jon Connell provides part of a local linkage across to Ken Hurst Park. The other seven reserves are all individually isolated from larger surrounding bush pockets.

2.2 Sites Assets

This section discusses the environmental, heritage and social assets of the South-Eastern Reserves.

2.2.1 Ecological Communities

2.2.1.1 Vegetation Complex

The 11 South Eastern Reserves are all situated within the Bassendean Complex-Central and South (DBCA 2021). This complex is described as Jarrah-Sheoak-Banksia woodlands situated on sand dunes to low lying woodlands of *Melaleuca* spp. (Heddle, Loneragan and Havel, 1980). Dominant species include *Banksia* spp., *Melaleuca preissiana, Kunzea vestita, Hypocalymma angustifolium, Adenanthos obovatus,* and *Verticordia* spp. The pre-European extent of this vegetation complex remaining is:

- 26.87% within the Swan Coastal Plain
- 7.82% within the City of Melville (Government of Western Australia, 2019).

2.2.1.2 Vegetation Types

Ecological communities are biological assemblages of flora and fauna found in particular landscapes. They are mainly described based on the dominant plant structures and assemblages present. In this strategic management plan, ecological communities are described based on the flora assemblages present at each of the reverses.

Protected Matters Search Tool (PMST) indicated for the potential of three threatened ecological communities (TEC) to occur between a 5 km radius of the 11 reserves. These include:

- Banksia Woodlands of the Swan Coastal Plain ecological community
- Subtropical and Temperate Coastal Saltmarsh
- Tuart (*Eucalyptus gomphocephala)* Woodlands and Forests of the Swan Coastal Plain ecological community.

One threatened ecological community was found within John Connell Reserve, Banksia Woodlands of the Swan Coastal Plain (Natural Area, 2020). The remaining ten reserves during the 2021 survey are not classed as threatened or priority ecological communities. The only TEC likely to occur in the remaining ten reserves is the Banksia Woodlands of the Swan Coastal Plain ecological community. This ecological community is listed as endangered under the *Environmental Protection and Biodiversity Conservation Act 1999* (Cth). However, none of the reserves meet the criteria to be defined as a Banksia Woodlands TEC. According to the *Approved Conservation Advice for the Banksia Woodlands of the Swan Coastal Plain ecological community* (Department of Environment and Energy, 2016) all reserves meet the key diagnostic criteria of soil types, floristic structure and communities. However, do not meet the vegetation condition of each patch and/or the minimum size threshold to be defined as a Banksia Woodlands TEC.

A total of 10 vegetation types were identified in 2021 by Natural Area (Table 2 & Figure 3 to 8). Five reserves (PJ Hanley, Phillip Jane, Bill Brown, Robert Weir and William Hall) and their vegetation types vary slightly from the previous management plan, whilst the remaining six are consistent with the previous management plans. Variations of vegetation types over time are due to the difference in judgement of assessor in the field, and vegetation within the site having matured over time and become dominant.

Figure 3:
Vegetation Type
John Connell Reserve, Leeming
South Eastern Reserves

Client:City of Melville
Date: March 2022
Created by: K.Grant
Image Source: Nearmap, 2022
Datum: GDA 94

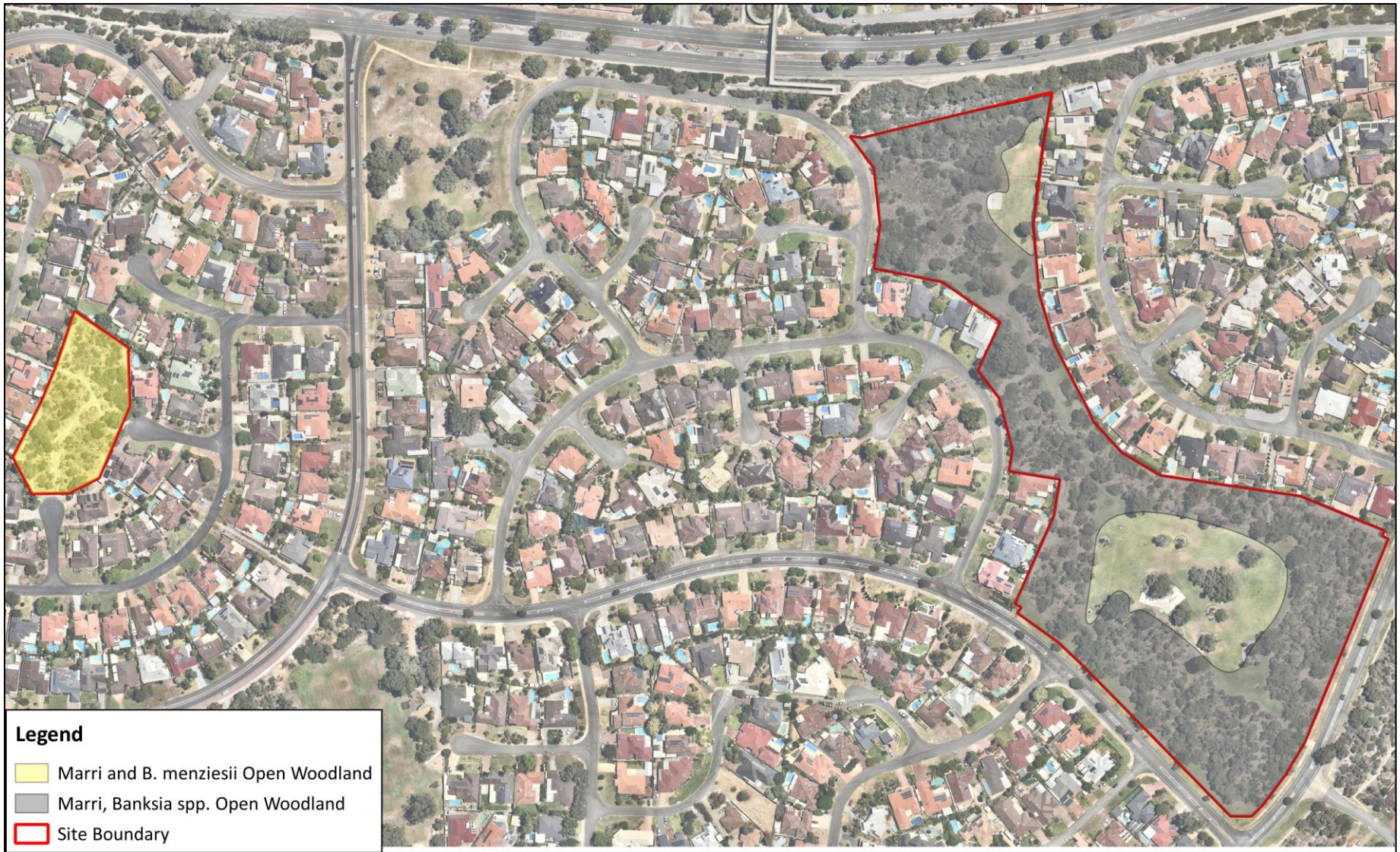

Figure 4:
Vegetation Type
PJ Hanley Park and Phillip Jane, Leeming
South Eastern Reserves

Client:City of Melville
Date: March 2022
Created by: K.Grant
Image Source: Nearmap, 2022
Datum: GDA 94

Figure 5:
Vegetation Type
Bill Brown Park and Beasley Park
South Eastern Reserves

Client:City of Melville
Date: March 2022
Created by: K.Grant
Image Source: Nearmap, 2022
Datum: GDA 94

Figure 6:
Vegetation Types
Dudley Hartree and William Hall Park
South Eastern Reserves

Client:City of Melville
Date: March 2022
Created by: K.Grant
Image Source: Nearmap, 2022
Datum: GDA 94

Figure 7:
Vegetation Type
Peter Bosci and Rob Weir Park,
Leeming

Client:City of Melville
Date: March 2022
Created by: K.Grant
Image Source: Nearmap, 2022
Datum: GDA 94

Figure 8:
Vegetation Type
Peter Ellis Reserve and Douglas
Freeman Park, Leeming

Client:City of Melville
Date: March 2022
Created by: K.Grant
Image Source: Nearmap, 2022
Datum: GDA 94

Table 2: Vegetation types present in with the South-Eastern Reserves

City of Melville (2017)	Natural Area (2021)
Beasley Park	
Banksia attenuata and *Banksia menziesii* Woodland	*Banksia* spp. Open Woodland
Bill Brown Park	
Banksia attenuata and *Banksia menziesii* Woodland	*Allocasuarina fraseriana* (Sheoak) and *Banksia* spp. Woodland
Melaleuca preissiana woodland	
Douglas Freeman Park	
Melaleuca preissiana woodland	*Melaleuca preissiana* Open Woodland
Banksia attenuata and *Banksia menziesii* Woodland	*Banksia* spp. Open Woodland
Dudley Hartree Park	
No data	*Corymbia calophylla* (Marri) and Banksia spp. Open Woodland
	Eucalyptus marginata (Jarrah) Open Woodland
John Connell Reserve (Natural Area, 2020)	
Banksia spp. Woodland	*Banksia* spp. Woodland
Peter Bosci Park	
Banksia attenuata and *Banksia menziesii* Woodland	*Banksia* spp. and *Melaleuca preissiana* Open Woodland
Melaleuca preissiana woodland	
Peter Ellis Reserve	
Banksia attenuata and *Banksia menziesii* Woodland	*Banksia* spp. Open Woodland
Melaleuca preissiana woodland	
Phillip Jane Park	
Melaleuca preissiana woodland	*Corymbia calophylla* (Marri) and *Banksia* spp. Open Woodland
Banksia attenuata and *Banksia menziesii* Woodland	
Melaleuca thymoides Shrubland	
PJ Hanley	
Banksia attenuata and *Banksia menziesii* Woodland	*Corymbia calophylla* (Marri) and *Banksia menziesii* (Firewood Banksia) Open Woodland
Robert Weir Park	
Banksia attenuata and *Banksia menziesii* Woodland	*Eucalyptus todtiana (*Pricklybark) and *Banksia* spp. Open Woodland
Melaleuca preissiana woodland	
William Hall Park	
Banksia attenuata and *Banksia menziesii* Woodland	*Corymbia calophylla* (Marri), *Banksia* spp. and *Allocasuarina fraseriana* (Sheoak) *Open Woodland*

2.2.2 Fauna Habitat

Each reserve serves as an important habitat and refuge for native fauna. Significant Habitat trees are defined as having a diameter at breast height (DBH) greater than 500 mm. Notable fauna habitat trees, nests, hollows, and bat boxes have been recorded (Table 3) and (Figure 9-12).

Table 3: Habitat Trees with DBH >500 mm

Species	Alive	Dead	Total
Beasley Park			
Corymbia citriodora	1	0	1
Eucalyptus camaldulensis	2	0	2
Eucalyptus grandis	6	0	6
Subtotal	**9**	**0**	**9**
Douglas Freeman Park			
Eucalyptus camaldulensis	2	0	2
Eucalyptus marginata	2 (1 tree with a potential cockatoo hollow)	0	2
Melaleuca preissiana	1	0	1
Subtotal	**5**	**0**	**5**
Dudley Hartree Park			
Corymbia calophylla	1	0	1
Eucalyptus marginata	3	0	3
Eucalyptus sp.	0	1 (1 tree with a potential cockatoo hollow)	1
Subtotal	**4**	**1**	**5**
John Connell Reserve			
Eucalyptus todtiana	4 (1 tree with a small hollow)	0	4
Melaleuca preissiana	1	0	1
Subtotal	**5**	**0**	**5**
Peter Bosci Park			
Melaleuca preissiana	2	0	2
Subtotal	**2**	**0**	**2**
Phillip Jane Park			
Eucalyptus grandis	1	0	1
Eucalyptus marginata	2	0	2
Subtotal	**3**	**0**	**3**

Species	Alive	Dead	Total
PJ Hanley Park			
Dead Tree	0	3 (1 Magpie nest recorded)	3
Subtotal	**0**	**3**	**3**
Robert Weir Park			
Corymbia calophylla	1	0	1
Eucalyptus botryoides	2	0	2
Eucalyptus grandis	1	0	1
Eucalyptus marginata	0	1 (1 tree with a potential cockatoo hollow)	1
Subtotal	**4**	**1**	**5**
William Hall Park			
Eucalyptus camaldulensis	1	0	1
Subtotal	**1**	**0**	**1**
Total No. of Habitat Trees across South-Eastern Reserves			**38**

The density of habitat trees (<500 mm DBH) per hectare in the South-Eastern Reserves is compared in the fauna habitat sites indices, Table 4. The density of habitat trees in the South-Eastern Reserves cannot be compared due additional reserves being added since 2014 and therefore an increase in reserve sizing (ha). However, a decrease in habitat tree has occurred since 2014.

Table 4: Fauna Habitat Sites Indices

Values	Habitat Sites	Trees / Hectare 2005	Trees / Hectare 2014	Trees / Hectare 2021	Assets 2005-2021
Medium Very Large Trees	Live Native Tree	No Data	10	1	Not assessable due several additional reserves being added since 2014.
	Dead Tree		1	0.2	

Figure 9:
Fauna Habitat
Peter Bosci, Robert Weir Park, Peter Ellis Reserve and Douglas Freeman Park

Figure 10:
Fauna Habitat
Dudley Hartree, William Hall and Bill Brown Park

Client: City of Melville
Date: March 2022
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Image Source: Nearmap 2022
Datum: GDA 94

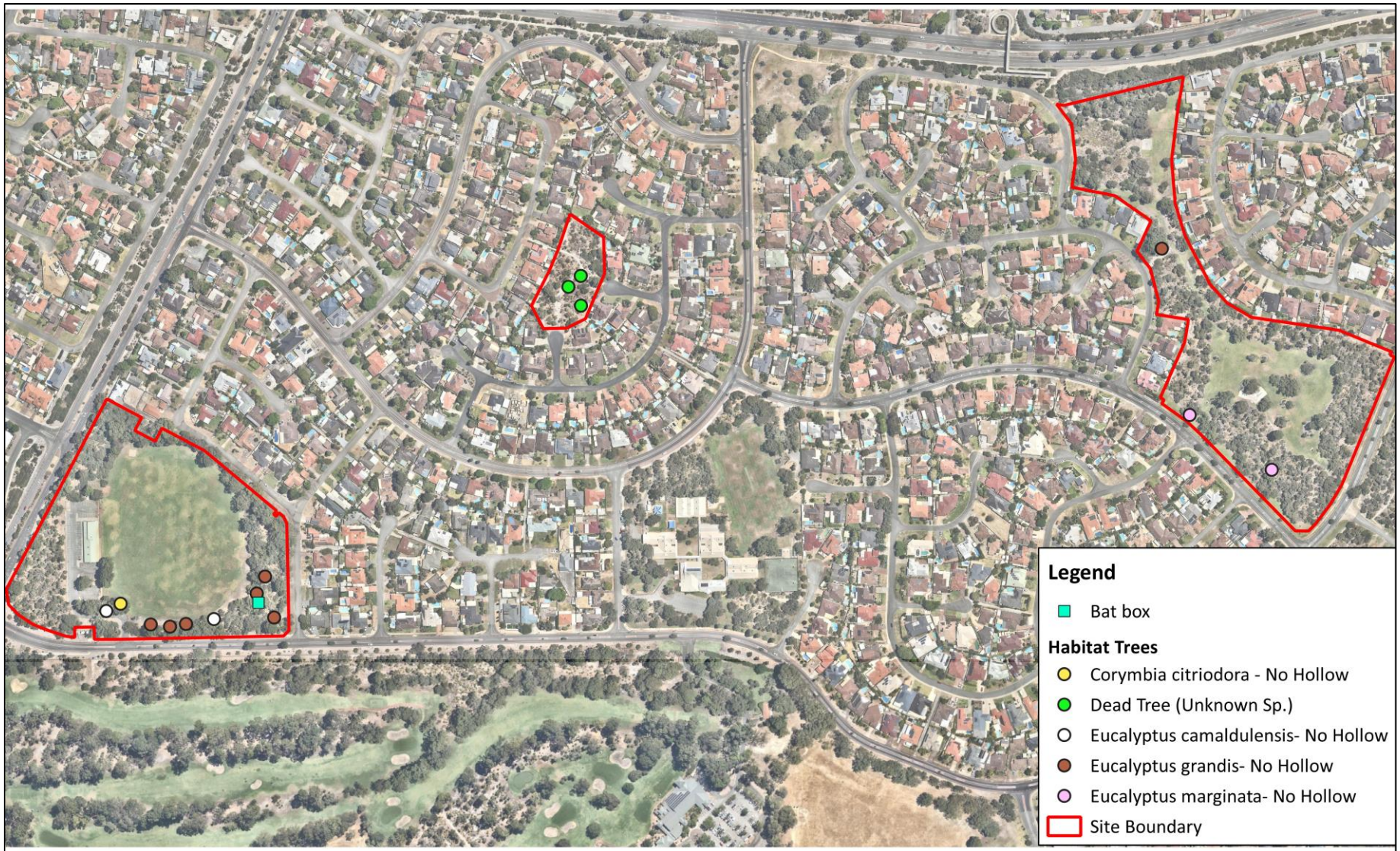

Figure 11:
Fauna Habitat
Beasley, PJ Hanley and Phillip Jane Park

Client: City of Melville
Date: March 2022
Created by: K.Grant
Image Source: Nearmap 2022
Datum: GDA 94

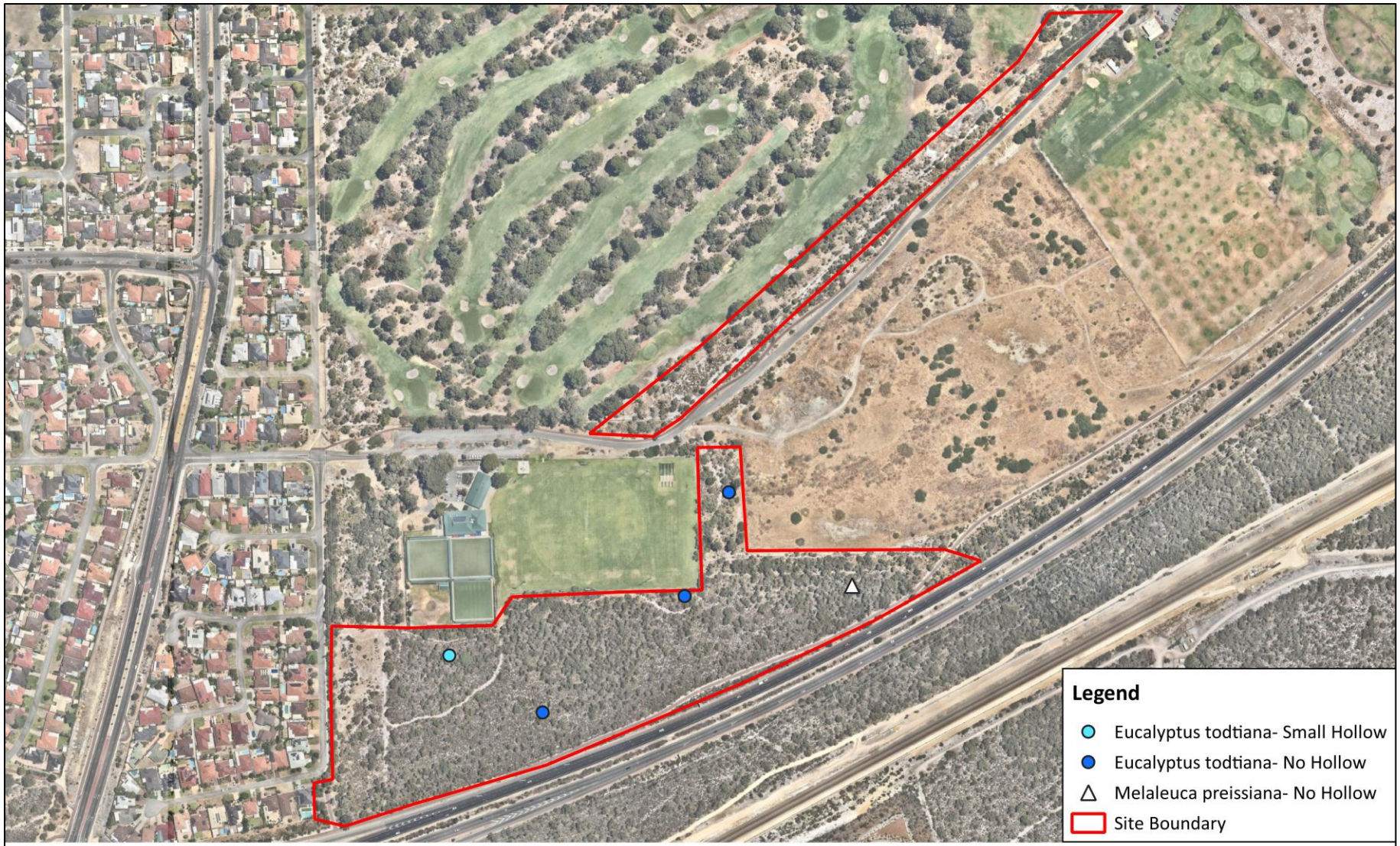

Figure 12:

Fauna Habitat
John Connell Reserve, Leeming

Client: City of Melville
Date: March 2022
Created by: K.Grant
Image Source: Nearmap 2022
Datum: GDA 94

2.2.3 Wetland

Wetlands are landscapes that experience permanent, seasonal or intermittent inundation by water (DBCA, 2018). According to the Perth Ground Water Map (Department of Water and Environmental Regulation, 2022), the depth to groundwater within the South-Eastern Reserves range from:

- 4.0 to 6.0 m within Beasley Park
- 4.0 m within Bill Brown Park
- 3.0 to 6.0 m within Douglas Freeman Park
- 3.0 to 9.0 m within Dudley Hartree Park
- 4.0 to 10.0 within John Connell Reserve
- 3.0 to 4.0 m within Peter Bosci Park
- 4.0 to 5.0 m within Peter Ellis Reserve
- 2.0 to 6.0 within Phillip Jane Park
- 9.0 to 15.0 within PJ Hanley Park
- 4.0 to 5.0 m within Robert Weir Park
- 3.0 to 4.0 m within William Hall Park.

No Geomorphic Wetlands were found within any of the 11 South-Eastern Reserves (DBCA, 2022). The closest wetland is located within Ken Hurst approximately 1 km to the east of the reserves. This wetland is classified as a conservation category dampland.

2.2.4 Heritage

The following registers and databases were accessed, and no heritage sites were identified within any of the South-Eastern Reserves. Registers and databases included:

- Australian National Heritage List (DAWE, 2022)
- Aboriginal Heritage Inquiry System (DPLH, 2022)
- WA Heritage Register (Government of Western Australia, 2022)
- City of Melville Heritage Register (City of Melville, 2019b).

2.2.5 Community Interest

Ten South-Eastern Reserves are zoned as a Public Open Space while John Connell Reserve is zoned as Parks and Recreation under the *City of Melville Local Planning Scheme No.6*. Ten of the South-Eastern reserves are accessible to the public and are mostly utilized for passive recreation such as walking, children's playgrounds and dog exercise. Peter Ellis Reserve is inaccessible to the public as the entire perimeter is fenced. Several reserves (Beasley Park, Dudley Hartree Park and William Hall Park) have large open spaces (ovals) for sporting activities along with sporting facilities. Formal pathways, recommended revegetation, and infill areas (previously revegetated) are shown in Figure 13 and 19. It is recommended that at certain reserves containing high weed loads revegetation only occurs post weed management to ensure survival of plantings.

Local community groups, schools and the general public regularly participate in natural area management activities including revegetation, rubbish removal and opportunistically reporting priority species recorded within the reserves. Community interest is important as it engages the community in decision making processes and helps to raise awareness and knowledge on local environmental issues. John Connell Reserve would need to have revegetation activities occur, minimise weed infestation, limit the use of 'goat' tracks by people and rubbish removal to occur to consider the northern portion, east of the sporting and recreational side to raise this area to the level of condition of the other portions of the reserve.

Multiple Environmental Friends Groups (NAAMP, 2019) have been founded in the South-Eastern Reserves; these include:

- Friends of Bill Brown
- Friends of Peter Bosci Reserve
- Friends of PJ Hanley Park
- Greening Leeming
- Friends of William Hall Park.

2.2.6 Reference Sites

John Connell quadrats were established in 2020 for the Threatened Ecological Community Assessment. This reference site location of the three quadrats is shown in Figure 14. No other reference sites for the South-Eastern Reserves have been established.

Figure 13:
Community Interest (Potential Revegetation Sites)
Phillip Jane Park, Leeming

Figure 14:
Community Interest (Potential Revegetation Sites)
John Connell Reserve, Leeming

Figure 15:
Community Interest (Potential Revegetation Sites)
PJ Hanley Park, Leeming

Figure 16:
Community Interest (Potential Revegetation Sites)
Beasley Park, Leeming

Client:City of Melville
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Created by: K.Grant
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Datum: GDA 94

Figure 17:
Community Interest (Potential Revegetation Sites)
Dudley Hartree and William Hall Park

Client:City of Melville
Date: March 2022
Created by: K.Grant
Image Source: Nearmap, 2022
Datum: GDA 94

Figure 18:
Community Interest (Potential Revegetation Sites)
Peter Bosci and Peter Weir Park, Leeming

Client:City of Melville
Date: March 2022
Created by: K.Grant
Image Source: Nearmap, 2022
Datum: GDA 94

0 100 200 m

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Figure 19:
Community Interest (Potential Revegetation Sites)
Peter Ellis Reserve and Douglas Freeman Park,
Leeming

Client:City of Melville
Date: March 2022
Created by: K.Grant
Image Source: Nearmap, 2022
Datum: GDA 94

2.3 Species

Native flora, fauna and weed species were identified during the 2021 survey of the South-Eastern Reserves. A compiled flora species list is shown in Appendix 3 and a fauna species list in Appendix 4.

2.3.1 Native Flora

A total of 335 flora species from 76 families were recorded within the South-Eastern Reserves. Of the species recorded 196 (58.5%) are native, 125 (37.3%) are introduced (weeds) and 14 (4.18%). dubious or not naturally occurring in the local area. No threatened or priority species were recorded during the survey. The families Asteraceae (daises), Fabaceae (peas), Myrtaceae (myrtle) and Poaceae (grasses) were the most species rich, observing between 23 and 47 species.

Using the City of Melville's 'At-Risk' species list, four species listed in Table 5 were identified across the South-Eastern Reserves. Examples of the native flora species are shown Figure 20, with a complete flora list in Appendix 3.

Table 5: 'At-Risk' (high priority) flora species

At-risk Species	Previous Year	2021	Assets 2021
Caladenia huegelii	2004	Not found	Assumed locally extinct, not recorded since 2004.
Hensmania turbinata	2016	John Connell	Species maintained, however not recorded as a 'at-risk' species.
Melaleuca thymoides	2016	Present but not counted (John Connell, Dudley Hartree, Douglas Freeman, Peter Ellis, Phillip Jane, Robert Weir)	Species maintained, however not recorded as a 'at-risk' species.
Beaufortia elegans	2014	Present but not counted (John Connell)	Species maintained, however not recorded as a 'at-risk' species.
Platysace filiformis	No data	Dudley Hartree, John Connell, Beasley Park	New record-confirmed present
Anigozanthos flavidus	No data	Robert Weir, William Hall	New record-confirmed present
Caesia micrantha	1999 (Robert Weir)	Peter Bosci, Phillip Jane, Robert Weir	Species maintained
Wahlenbergia preissii	2014 (Phillip Jane) and 1999 (Robert Weir)	John Connell	Species maintained

Source: Woodgis (2015, 2017)

Banksia menziesii (Firewood Banksia)

Caladenia arenicola

Hibbertia racemosa (Stalked Guinea Flower)

Anigozanthos manglesii (Mangles Kangaroo Paw)

Caladenia flava subsp. *flava*

Calectasia narragara

Boronia crenulata (Aniseed Boronia)

Thelymitra vulgaris

Banksia grandis (Bull Banksia)

Figure 20: Examples of native flora species observed within the South-Eastern Reserves

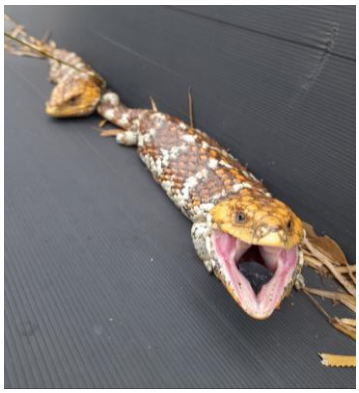
2.3.2 Fauna

A total of 50 fauna species from four species group were observed across the South-Eastern Reserves. Thirty-nine (78%) considered native fauna while ten (20%) are considered non-native (invasive) fauna. Domestic dogs were recorded throughout the survey. Eight fauna species found throughout the surveys were classed as at-risk species by the City. Examples of species observed are showing in Figure 21 with a complete species list in Appendix 4.

All fauna surveys including trapping events, night stalks and motion activated camera trapping was conducted between the 12th to the 29th October 2021.

Fauna observed within the South-Eastern Reserves included:

- 16 birds
- seven reptiles
- 19 invertebrates
- eight mammals (including one volant mammal).



Bobtail (*Tiliqua rugosa rugosa*)

Red Wattlebird (*Anthochaera carunculata)*

Morethia lineoocellata

Tawny Frogmouth (*Podargus strigoides)*

Quenda (*Isoodon fusciventer)*

Galah (*Eolophus roseiacapilla)*

Figure 21: Examples of native fauna species observed within the South-Eastern Reserves.

2.3.2.1 Mammals

During the 2021 survey, seven mammals were recorded throughout the South-Eastern Reserves not including volant mammals. The Quenda (*Isoodon fusciventer)* was the only native mammal found, while the other species included feral animals and the Domestic Dog (*Canis lupus familiaris*). The Quenda is the only priority species recorded within in the South-Eastern Reserves, it occurred in several reserves including Phillip Jane Park, John Connell Reserve, Bill Brown Park and Beasley Park. The Quenda is listed as a Priority 4 species under the *Biodiversity Conservation Act 2016* (WA).

The City's NAAMP (2019) identified eight 'at-risk' mammal species, of which have been recorded within the South-Eastern Reserves in 2021 (Table 6). The remaining species have not been recorded.

Table 6: At Risk Mammal Species Indices

Species Values	Mammals	Previously Recorded	Presence 2021	Assets
Very High	Southern Brown Bandicoot/Quenda-P4 (*Isoodon fusciventer)*	2014 (Phillip Jane Park)	Confirmed (Bill Brown, Beasley Park, Phillip Jane, and John Connell Reserve)	Species maintained

Source: Woodgis (2015, 2017)

2.3.2.2 Bats

One species of Bat, *Chalinolobus morio* (Chocolate Wattled Bat) was recorded through the Echo Meter audio recordings during the 2021 survey. It was recorded in John Connell Reserve. This species is listed as an 'at-risk' species by the City. Bat Indices are provided in Table 7.

Table 7: At Risk Bats Species Indices

Species Values	Bats	Previously Recorded	Presence 2021	Assets
Medium	Southern Forest Bat *Vespadelus regulus*	2014	Not recorded	Not assessable, not recorded
	Chocolate Wattled Bat *Chalinolobus morio*	No data	Presence in John Connell Reserve	New species recorded

Source: Woodgis (2015, 2017)

2.3.2.3 Birds

A total of 16 bird species from 12 families were observed within the South-Eastern Reserves. Two of these are considered introduced species, the Rainbow Lorikeet and Laughing Dove. Four bird species are classified as 'at-risk' by the City (Table 8).

Two conservation significant species were observed. The Carnaby's Cockatoo (*Calyptorhynchus latirostris*) listed as endangered under the *EPBC Act 1999* (Cwlth) and the Forest Red-tailed Black Cockatoo (*Calyptorhynchus banksii naso)* listed as vulnerable. Both species are listed as threatened under the *Biodiversity Conservation Act 2016* (WA).

Table 8: At Risk Bird Species Indices

Species Values	Birds	Previously Recorded	Presence 2021	Assets
Very High	Carnaby's Cockatoo- T/EN *Calyptorhynchus latirostris*	2017	Confirmed (Beasley Park)	Species maintained
	Red-tailed Black Cockatoo-VU/EN *Calyptorhynchus banksii naso*	2014	Confirmed (Beasley Park)	Species maintained
Low	Western Wattlebird *Anthochaera lunulata*	2014	Not recorded	Not assessable, not recorded

Species Values	Birds	Previously Recorded	Presence 2021	Assets
	Striated Pardalote *Pardalotus striatus*	2014	Not recorded	Not assessable, not recorded
	New Holland Honeyeater *Phylidonyris novaehollandiae*	2017	Confirmed (Beasley Park, Phillip Jane, PJ Hanley and John Connell Reserve)	Species maintained
	Red-capped Parrot *Purpureicephalus spurius*	2014	Confirmed (Phillip Jane Park)	Species maintained

Source: Woodgis (2015, 2017)

2.3.2.4 Reptiles

A total of seven reptile species from three families were observed across the South-Eastern Reserve. These were recorded through the events of trapping and night stalks throughout the reserves. Of these two are classified as 'at risk' by the City (Table 9).

Table 9: At Risk Reptile Species Indices

Species Values	Reptiles	Previously Recorded	Presence 2021	Assets
High	South-West Cool Skink *Acritoscincus trilineatus*	2014 (Bill Brown)	Not recorded	Not assessable, not recorded
Low	Long-tailed Ctenotus *Ctenotus australis*	2014 (Beasley Park)	Not recorded	Not assessable, not recorded
	Bobtail T*iliqua rugosa rugosa*	2014	Confirmed	Species maintained but not listed as 'at risk'.
	Marbled Gecko *Christinus marmoratus*	2017	Confirmed (Dudley Hartree)	Species maintained
	Burton's Legless Lizard *Lialis burtonis*	Not recorded	Confirmed (John Connell)	New record-confirmed present

Source: Woodgis (2015, 2017)

2.3.2.5 Invertebrates

Invertebrates observed within the South-Eastern Reserve are listed in Appendix 4. A total of 19 species were recorded, three of which are introduced species. Introduced species included the Cabbage White Butterfly, European Honey Bee and Portuguese Millipede.

There are no previous records/surveys of invertebrates that have occurred in the South-Eastern Reserves for the City of Melville.

3 Threats

Threats present within the South-Eastern reserves include:

- physical disturbance
- fire
- introduced weed species
- habitat loss
- introduced (feral) animals
- diseases and pathogens
- stormwater
- reticulation
- acid sulphate soils
- climate change.

3.1 Physical Disturbance

Physical disturbances relate to man-made disturbance such informal tracks, trampling of vegetation, dumping of garden waste and rubbish and the illegal removal of vegetation. Examples of physical disturbances are shown in Figure 22 with locations provided in Appendix 2 and assessed further in Table 10.

Physical disturbances found through the South-Eastern Reserves include:

- rubbish dumping
- treehouse cubby
- unauthorized misuse of reserve (planting garden plants in the reserve)
- informal tracks.

Table 10: Physical Disturbance Indices

Impact	Physical Disturbance	Disturbance 2005-2014	Disturbances 2015-2021	Threats
High Potential to substantially change ecosystem structure, composition, or function	Clearing for utilities	Minimal	No data	Assumed unchanged
Medium Potential to moderately change ecosystem structure, composition or function	Trampling (informal paths)	1200 m2 (in 2014 most trampling active in Peter Bosci, Robert Weir, Peter Ellis Park)	PJ- 188.6 m2 B- 210.8 m2 BB- 13.2 m2 PE- 78.7m2 RW- 57.7 m2 DH- 177 m2 PJH- 92.8 m2 JC- 1,217 m2 Combined- 2035.8 m2	Change not assessable, not comparable
	Sediment/Erosion	120 m2	No data	Change not assessable

Impact	Physical Disturbance	Disturbance 2005-2014	Disturbances 2015-2021	Threats
	Rubbish Dumping	54 times per year	Rubbish dumping observed in John Connell, PJ Hanley, Philip Jane, Peter Ellis, Douglas Freeman. Refer to Appendix 2.	Assumed unchanged
	Tree Poisoning, Illegal Clearing, Firewood Collection	0	None observed	Assumed unchanged
	Vandalism	19 times per year	None observed	Contained (Decrease)

PJ= Phillip Jane Park, PJH= PJ Hanley Park, B= Beasley Park, BB= Bill Brown Park, DH= Dudley Hartree Park, RW= Robert Weir Park, PE= Peter Ellis Reserve, and JC= John Connell Reserve.

Rubbish dumping

Rubbish dumping

Incorrect use of reserve (PJ Hanley), trees planted wihtout authorisation.

Informal track

Dumping of Pool Water into Phillip Jane Park

Personal Garden with PJ Hanley Park

Figure 22: Examples of physical disturbance observed within the South-Eastern Reserves

3.2 Fire

No signs of fire were observed in the 2021 survey. No records of bushfires occur within the South-Eastern Reserves according to the DBCA Fire History dataset (DBCA 2022a). However, recent small patches of burnt vegetation were noticed throughout Robert Weir, Peter Ellis and Douglas Freeman Reserve. Refer to Appendix 2 for Fire Disturbances. Table 11 displays the Fire Indices for the South-Eastern Reserves.

Fire records between 2005 to 2014 are shown in Figure 23. Noted additional reserves have been added to the South-Eastern Reserves since 2014.

Table 11: Fire Indices

Impacts	Fires	Extent of fires 2005-2014	Extent of fires 2015-2021	Threats
High Potential for local extinctions of ground dwelling species	Large Fires	0 ha	No recent fires observed	Threat prevented
High Potential for local extinctions of trees and shrubs that regenerate only from seed stored in the plant	Repeat Fires	0.1 ha		
Medium Potential for moderate impact of ground dwelling species	Small spot fires, unauthorized campfires or bonfires	No data		

Figure 23: Fires 2005 to 2014

3.3 Weeds

A total of 125 introduced (weed) species from 48 families were identified in the spring 2021 survey. Weed species were then categorised based on the City of Melville categories Very High, High, Medium and Low (Table 12).

A total of four significant weed species present were recorded, these include weeds of national significance (WoNS) and declared pest (DP).

- Bridal Creeper (*Asparagus asparagoides*) (WoNS, DP)
- *Asparagus aethiopicus* (WoNS, DP)
- Paterson's Curse (*Echium plantagineum*) (WoNS, DP)
- Arum Lily (*Zantedeschia aethiopica*) (DP).

Environmental weeds in Western Australia are assigned various management requirements based of characteristics of invasiveness, ecological impact, distribution and ability to spread. At the Commonwealth level, plants are listed as weeds of national significance (WoNS) by the Australian Government based on industry, environmental and socioeconomic impacts as well as invasiveness and their potential to spread.

At a state level, certain high priority weeds are listed as declared pests. These are listed on the Western Australian Organism List under the *Biosecurity and Agriculture Management Act 2007* (WA). This listing requires control by the landowner or manager. Both WoNS and DP should be prioritised for removal/management to limit their spread and impact across the reserves.

Table 13 shows the individual weed species and groups rated as Very High and High within the South-Eastern Reserves. Density weed maps of these Very High and High species are provided in Appendix 1. Examples of weeds are shown in Figure 24. All other priority weeds (medium and low) were recorded and listed in Appendix 3.

Table 12: Number of Weed Species in each Impact Category

Impact	Number of Species
Very High	9
High	52
Medium	25
Low	39
Total	125

**Asparagus aethiopicus*

*Black Berry Nightshade (*Solanum nigrum*)

*Rose Pelargonium (*Pelargonium capitatum*)

*Paterson's Curse (*Echium plantagineum*)

**Acacia podalyriifolia*

*Coast Teatree (*Leptospermum laevigatum*)

Figure 24: Examples of introduced flora species

Table 13: Weed Indices, combined South-Eastern Reserves

Impact	Species or Group		2014	2021	Threats
Very High	*Asparagus aethiopicus*		9%	4%	Decreased
	Bridal Creeper (*Asparagus asparagoides)*		0%	2%	Increased
	Pampas Grass (*Cortaderia selloana)*		0%	<1%	Increased
	Paterson's Curse (*Echium plantagineum)*		1%	<1%	Population maintained
	Perennial Veldt Grass (*Ehrharta calycina)*		54%	76%	Increased
	African Lovegrass (*Eragrostis curvula)*		54%	3%	Decreased
	Lachenalia reflexa		1%	<1%	Population maintained
	Schinus terebinthifolia		3%	8%	Increased
	Arum Lily (*Zantedeschia aethiopica)*		0%	6%	Increased
High	Clumping Geophytes		46%	100%	Increased
	Perennial Running Grasses		1%	17%	Increased
	Perennial Clumping Grasses		-	70%	Unassessable
	Annual Clumping Grasses		<1%	100%	Increased
	Woody Weeds		56%	84%	Increased
Medium	Perennial Weeds		30%	100%	Increased
Low	Annual Weeds		96%	100%	Increased

Table 14: Bill Brown

Species	Common Names	Priority	Count	Area >20 Grid Points	Area >2 ha	Area> 50% of Reserve	Assessment
Ehrharta calycina	Perennial Veldt Grass	Very High	6	N	N	N	Localised
Clumping Geophytes *Gladiolus caryophyllaceus*	Wild Gladiolus	High	3	N	N	N	Localised
Perennial Running Grasses *Cynodon dactylon*	Couch	High	1	N	N	N	Localised
Annual Clumping Grasses *Avena barbata* *Briza maxima* *Ehrharta longiflora*	Bearded Oat Blowfly Grass Annual Veldt Grass	High	16	N	N	N	Localised

Table 15: Phillip Jane

Species	Common Names	Priority	Count	Area >20 Grid Points	Area >2 ha	Area> 50% of Reserve	Assessment
Echium plantagineum	Paterson's Curse	Very High	2	N	N	N	Localised
Ehrharta calycina	Perennial Veldt Grass	Very High	25	Y	0.196125	N	Widespread
Schinus terebinthifolia		Very High	3	N	N	N	Localised
Clumping Geophytes *Gladiolus caryophyllaceus* *Oxalis glabra* *Watsonia meriana*	Wild Gladiolus Bulbil Watsonia	High	31	Y	0.243195	N	Widespread
Annual Clumping Grasses *Avena barbata* *Briza maxima* *Briza minor* *Bromus catharticus*	Bearded Oat Blowfly Grass Shivery Grass Prairie Grass	High	35	Y	0.274575	N	Widespread

Species	Common Names	Priority	Count	Area >20 Grid Points	Area >2 ha	Area> 50% of Reserve	Assessment
Woody Weeds *Ricinocarpos glaucus* *Acacia iteaphylla* *Callistemon citrinus* *Chamelaucium uncinatum* *Ficus elastica* *Melaleuca quinquenervia* *Metrosideros excelsa* *Morus alba* *Nerium oleander* *Schinus terebinthifolia* *Washingtonia filifera*	Geraldton Wax	High	50	Y	0.39225	N	Widespread

Table 16: Beasley Park

Species	Common Names	Priority	Count	Area >20 Grid Points	Area >2 ha	Area> 50% of Reserve	Assessment
Asparagus aethiopicus	Asparagus Fern	Very High	1	N	N	N	Localised
Ehrharta calycina	Perennial Veldt Grass	Very High	10	N	N	N	Localised
Schinus terebinthifolia		Very High	9	N	N	N	Localised
Clumping Geophytes *Gladiolus caryophyllaceus* *Oxalis glabra* *Watsonia meriana*	Wild Gladiolus Bulbil Watsonia	High	17	N	N	N	Localised
Perennial Running Grasses *Cynodon dactylon*	Couch	High	1	N	N	N	Localised

Species	Common Names	Priority	Count	Area >20 Grid Points	Area >2 ha	Area> 50% of Reserve	Assessment
Annual Clumping Grasses *Avena barbata* *Briza maxima* *Bromus catharticus* *Ehrharta longiflora* *Poa annua*	 Bearded Oat Blowfly Grass Prairie Grass Annual Veldt Grass Winter Grass	High	26	Y	0.20397	N	Widespread
Woody Weeds *Acacia iteaphylla* *Acacia longifolia* *Acacia podalyriifolia* *Callistemon citrinus* *Chamelaucium uncinatum* *Leptospermum laevigatum* *Melaleuca quinquenervia* *Olea europaea* *Robinia pseudoacacia* *Schinus terebinthifolia* *Washingtonia filifera*	 Geraldton Wax Coast Teatree	High	47	Y	0.368715	Y	Widespread

Table 17: Peter Bosci

Species	Common Names	Priority	Count	Area >20 Grid Points	Area >2 ha	Area> 50% of Reserve	Assessment
Ehrharta calycina	Perennial Veldt Grass	Very High	16	N	N	N	Localised
Clumping Geophytes *Gladiolus caryophyllaceus* *Oxalis purpurea*	Wild Gladiolus Largeflower Wood Sorrel	High	19	N	N	N	Localised
Perennial Running Grasses *Cynodon dactylon* *Cenchrus clandestinus*	 Couch Kikuyu Grass	High	6	N	N	N	Localised
Annual Clumping Grasses *Avena barbata* *Briza maxima* *Bromus catharticus* *Ehrharta longiflora* *Lolium rigidum* *Poa annua*	 Bearded Oat Blowfly Grass Prairie Grass Annual Veldt Grass Wimmera Ryegrass Winter Grass	High	33	Y	0.258885	N	Widespread
Woody Weeds *Acacia iteaphylla* *Acacia longifolia* *Callitris pyramidalis* *Chamelaucium uncinatum* *Olea europaea* *Washingtonia filifera*	 Swamp Cypress Geraldton Wax Olive	High	15	N	N	N	Localised

Table 18: Robert Weir

Species	Common Names	Priority	Count	Area >20 Grid Points	Area >2 ha	Area> 50% of Reserve	Assessment
Asparagus aethiopicus	Asparagus Fern	Very High	2	N	N	N	Localised
Ehrharta calycina	Perennial Veldt Grass	Very High	7	N	N	N	Localised
Schinus terebinthifolia		Very High	1	N	N	N	Localised
Clumping Geophytes *Gladiolus caryophyllaceus* *Oxalis pes-caprae*	Wild Gladiolus Soursob	High	13	N	N	N	Localised
Perennial Running Grasses *Cynodon dactylon* *Cenchrus clandestinus*	 Couch Kikuyu Grass	High	3	N	N	N	Localised
Annual Clumping Grasses *Avena barbata* *Briza maxima* *Bromus catharticus* *Bromus diandrus* *Ehrharta longiflora*	 Bearded Oat Blowfly Grass Prairie Grass Great Brome Annual Veldt Grass	High	23	Y	0.180435	N	Widespread
Woody Weeds *Acacia iteaphylla* *Chamelaucium uncinatum* *Ficus elastica* *Melaleuca nesophila* *Olea europaea* *Schinus terebinthifolia*	 Geraldton Wax Mindiyed Olive	High	13	N	N	N	Localised

Table 19: Douglas Freeman Park

Species	Common Names	Priority	Count	Area >20 Grid Points	Area >2 ha	Area> 50% of Reserve	Assessment
Ehrharta calycina	Perennial Veldt Grass	Very High	15	N	N	N	Widespread
Lachenalia reflexa		Very High	1	N	N	N	Localised
Schinus terebinthifolia		Very High	2	N	N	N	Localised
Clumping Geophytes *Gladiolus caryophyllaceus* *Orobanche minor* *Oxalis glabra* *Oxalis purpurea*	Wild Gladiolus Lesser Broomrape Largeflower Wood Sorrell	High	20	Y	0.1569	N	Widespread
Annual Clumping Grasses *Avena barbata* *Briza maxima* *Briza minor* *Bromus catharticus* *Ehrharta longiflora* *Lolium rigidum*	Bearded Oat Blowfly Grass Shivery Grass Prairie Grass Annual Veldt Grass Wimmera Ryegrass	High	38	Y	0.29811	N	Widespread
Woody Weeds *Duranta erecta* *Schinus terebinthifolia* *Washingtonia filifera*		High	6	N	N	N	Localised

Table 20: PJ Hanley

Species	Common Names	Priority	Count	Area >20 Grid Points	Area >2 ha	Area> 50% of Reserve	Assessment
Ehrharta calycina	Perennial Veldt Grass	Very High	5	N	N	N	Localised
Eragrostis curvula	African Lovegrass	Very High	1	N	N	N	Localised
Clumping Geophytes *Gladiolus caryophyllaceus* *Watsonia meriana*	Wild Gladiolus Bubil Watsonia	High	5	N	N	N	Localised
Annual Clumping Grasses *Avena barbata* *Briza maxima* *Bromus catharticus*	Bearded Oat Blowfly Grass Prairie Grass	High	10	N	N	N	Localised
Woody Weeds *Acacia iteaphylla* *Callistemon citrinus* *Chamelaucium uncinatum*	Geraldton Wax	High	9	N	N	N	Localised

Table 21: William Hall

Species	Common Names	Priority	Count	Area >20 Grid Points	Area >2 ha	Area> 50% of Reserve	Assessment
Ehrharta calycina	Perennial Veldt Grass	Very High	6	N	N	N	Widespread
Schinus terebinthifolia		Very High	1	N	N	N	Localised
Clumping Geophytes *Freesia alba* x *leichtlinii* *Gladiolus caryophyllaceus* *Orobanche minor*	Wild Gladiolus Lesser Broomrape	High	7	N	N	N	Localised

Species	Common Names	Priority	Count	Area >20 Grid Points	Area >2 ha	Area> 50% of Reserve	Assessment
Annual Clumping Grasses *Avena barbata* *Briza maxima* *Bromus diandrus* *Ehrharta longiflora*	Bearded Oat Blowfly Grass Great Brome Annual Veldt Grass	High	12	N	N	N	Localised
Woody Weeds *Ricinus communis* *Schinus terebinthifolia*	Castor Oil Plant	High	2	N	N	N	Localised

Table 22: Dudley Hartree Park

Species	Common Names	Priority	Count	Area >20 Grid Points	Area >2 ha	Area> 50% of Reserve	Assessment
Asparagus aethiopicus	Asparagus Fern	Very High	3	N	N	N	Localised
Ehrharta calycina	Perennial Veldt Grass	Very High	7	N	N	N	Localised
Eragrostis curvula	African Lovegrass	Very High	1	N	N	N	Localised
Clumping Geophytes *Gladiolus caryophyllaceus*	Wild Gladiolus	High	10	N	N	N	Localised
Perennial Running Grasses *Cenchrus clandestinus* *Cynodon dactylon*	Kikuyu Grass Couch	Very High	2	N	N	N	Localised
Annual Clumping Grasses *Avena barbata* *Briza maxima* *Bromus catharticus* *Ehrharta longiflora* *Poa annua*	Bearded Oat Blowfly Grass Prairie Grass Annual Veldt Grass Winter Grass	High	27	Y	0.211814	N	Widespread

Species	Common Names	Priority	Count	Area >20 Grid Points	Area >2 ha	Area> 50% of Reserve	Assessment
Woody Weeds *Acacia longifolia* *Chamelaucium uncinatum*	Geraldton Wax	High	4	N	N	N	Localised

Table 23: Peter Ellis Reserve

Species	Common Names	Priority	Count	Area >20 Grid Points	Area >2 ha	Area> 50% of Reserve	Assessment
Ehrharta calycina	Perennial Veldt Grass	Very High	1	N	N	N	Localised
Zantedeschia aethiopica	Arum Lily	Very High	3	N	N	N	Localised
Clumping Geophytes *Freesia alba* x *leichtlinii* *Gladiolus caryophyllaceus*	Wild Gladiolus	High	10	N	N	N	Localised
Annual Clumping Grasses *Avena barbata* *Briza maxima* *Ehrharta longiflora*	Bearded Oat Blowfly Grass Annual Veldt Grass	High	12	N	N	N	Localised
Woody Weeds *Ficus carica*	Common Fig	High	1	N	N	N	Localised

Table 24: John Connell Reserve

Species	Common Names	Priority	Count	Area >20 Grid Points	Area >2 ha	Area> 50% of Reserve	Assessment
Asparagus asparagoides	Bridal Creeper	Very High	14	N	N	N	Localised
Cortaderia selloana	Pampas Grass	Very High	3	N	N	N	Localised
Ehrharta calycina	Perennial Veldt Grass	Very High	95	Y	0.745275	N	Widespread
Eragrostis curvula	African Lovegrass	Very High	2	N	N	N	Localised
Schinus terebinthifolia		Very High	1	N	N	N	Localised
Zantedeschia aethiopica	Arum Lily	Very High	2	N	N	N	Localised
Clumping Geophytes *Gladiolus caryophyllaceus* *Oxalis pes-caprae*	 Wild Gladiolus Soursob	High	100	Y	0.7845	N	Widespread
Perennial Running Grasses *Stenotaphrum secundatum* *Cynodon dactylon*	 Buffalo Grass Couch	High	5	N	N	N	Localised
Perennial Clumping Grasses		Very High	100	Y	0.7845	N	Widespread
Annual Clumping Grasses *Aira cupaniana* *Avena barbata* *Briza maxima* *Briza minor* *Bromus catharticus* *Bromus diandrus* *Ehrharta longiflora* *Lagurus ovatus* *Lolium rigidum*	 Silvery Hairgrass Bearded Oat Blowfly Grass Shivery Grass Prairie Grass Great Brome Annual Veldt Grass Hare's Tail Grass Wimmera Ryegrass	High	140	Y	1.0982	N	Widespread

Species	Common Names	Priority	Count	Area >20 Grid Points	Area >2 ha	Area> 50% of Reserve	Assessment
Woody Weeds *Acacia iteaphylla* *Acacia longifolia* *Callitris pyramidalis* *Chamelaucium uncinatum* *Ficus carica* *Leptospermum laevigatum* *Schinus terebinthifolia*	Swamp Cypress Geraldton Wax Common Fig Coast Teatree	High	30	Y	0.23535	N	Localised

3.4 Habitat Loss

Habitat loss can be assessed through the assessment of bare ground and weed coverage. The percentage of bare ground per reserve is provided in Figures 25-30 and Table 25. Percentage of weed cover per reserve is shown in Table 26 below.

Overall habitat loss is summarized in Table 27, this has occurred by assessing the percentage cover of high percentage of weed coverage and bare ground (more than 25%). Weed cover was recorded as >25% at all except two of the reserves, which were Peter Bosci and Peter Ellis. Beasley Park had the highest cover of weeds with 66.7% of the reserve recording >25% weed coverage.

It is recommended that areas with >25% bare ground and/or weed cover be targeted for future revegetation and herbicide works. Bare ground was mapped as a percentage where 0% was no bare ground visible and >25% was an classification of high bare ground cover. Bare ground of >25% for most reserves exceeded 30% of the site except for John Connell and PJ Hanley, which were 14.4 and 16.7 respectively. The highest coverage of >25% bare ground was at Peter Ellis with 66.7% of the site.

Habitat Loss was unable to be assessed over the years as bare ground and weed cover was calculated for each management area and not each reserve. It is recommended for future surveys to assess bare ground and weed coverage per reserve to identify changes in habitat loss.

Table 25: Bare Ground over 2021

Category	Bill Brown (%)	Phillip Jane (%)	Beasley (%)	Peter Bosci (%)	Robert Weir (%)	Douglas Freeman (%)	PJ Hanley (%)	William Hall (%)	Dudley Hartree (%)	Peter Ellis (%)	John Connell (%)	All Sites (%)
0%	0	0	0	4.5	9.5	0	0	0	5.9	0	0	1.4
<5%	22.2	12.2	14.3	13.6	19	30	0	25	11.8	11.1	57.7	32.3
5-25%	44.4	51.2	28.6	40.9	33.3	10	83.3	12.5	23.5	22.2	27.9	32.3
>25%	33.3	36.6	57.1	40.9	38.1	60	16.7	62.5	58.8	66.7	14.4	34
Total	100	100	100	100	100	100	100	100	100	100	100	100

Table 26: Weed Cover 2021

Category	Bill Brown (%)	Phillip Jane (%)	Beasley (%)	Peter Bosci (%)	Robert Weir (%)	Douglas Freeman (%)	PJ Hanley (%)	William Hall (%)	Dudley Hartree (%)	Peter Ellis (%)	John Connell (%)	All Sites (%)
<5%	11.1	16.7	14.3	47.6	52.6	15	16.7	0	62.5	88.9	23	27.9
5-25%	77.8	45.2	19	52.4	42.1	40	66.7	71.4	12.5	11.1	40.7	40.6
>25%	11.1	38.1	66.7	0	5.3	45	16.7	28.6	25	0	36.3	31.4
Total	100	100	100	100	100	100	100	100	100	100	100	100

Table 27: Habitat Loss Indices

Impact	Habitat Loss	Reserve	% of Reserve 2005	% of Reserve 2014/2016	% of Reserve 2021	Threat
Medium Process of moderate ecosystem function modification reduced natural regeneration increased fire or erosion risk	Weed Cover >25%	Bill Brown	No data	44	11.1	Weed Cover has increased in Phillip Jane, and Beasley Park. Change not assessable in Dudley Hartree and John Connell.
		Phillip Jane		20	38.1	
		Beasley		19	66.7	
		Peter Bosci		10	0	
		Robert Weir		32	5.3	
		Douglas Freeman		60	45	
		Peter Ellis		22	0	
		PJ Hanley		77% (2016)	16.7	
		William Hall			28.6	
		Dudley Hartree		No data	25	
		John Connell			36.3	
Low Process of low ecosystem function modification reduced natural regeneration increased fire or erosion risk	Bare Ground >25%	Bill Brown	No data	0	33.3	Bare Ground has increased in majority of reserves. Change not assessable on Dudley Hartree and John Connell.
		Phillip Jane		2	36.6	
		Beasley		0	57.1	
		Peter Bosci		0	40.9	
		Robert Weir		0	38.1	
		Douglas Freeman		0	60	
		Peter Ellis		0	66.7	

Impact	Habitat Loss	Reserve	% of Reserve 2005	% of Reserve 2014/2016	% of Reserve 2021	Threat
		PJ Hanley		67	16.7	
		William Hall		29	62.5	
		Dudley Hartree		No data	58.8	
		John Connell			14.4	

Source: Woodgis (2014 and 2016)

Figure 25:
Habitat Loss- Bare Ground
John Connell Reserve, Leeming
South Eastern Reserves

Client:City of Melville
Date: March 2022
Created by: K.Grant
Image Source: Nearmap, 2022
Datum: GDA 94

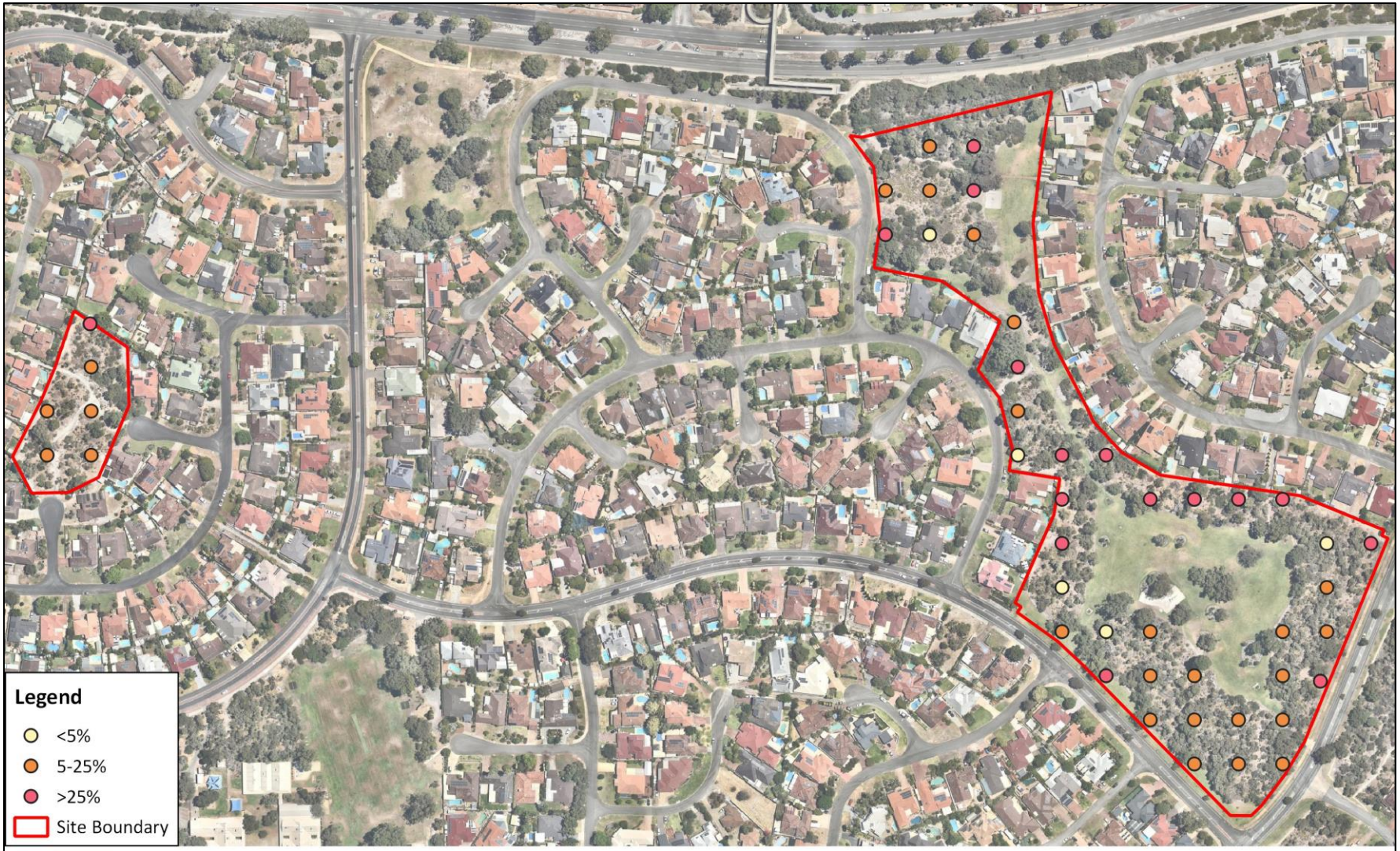


Figure 26:

Habitat Loss- Bare Ground
PJ Hanley Park and Phillip Jane, Leeming
South Eastern Reserves

Client:City of Melville
Date: March 2022
Created by: K.Grant
Image Source: Nearmap, 2022
Datum: GDA 94

Figure 27:
Habitat Loss- Bare Ground
Bill Brown Park and Beasley Park,
Leeming

Client:City of Melville
Date: March 2022
Created by: K.Grant
Image Source: Nearmap, 2022
Datum: GDA 94

Figure 28:
Habitat Loss- Bare Ground
Dudley Hartree and William Hall Park
South Eastern Reserves

Client:City of Melville
Date: March 2022
Created by: K.Grant
Image Source: Nearmap, 2022
Datum: GDA 94

Figure 29:
Habitat Loss- Bare Ground
Peter Bosci and Peter Weir Park,
Leeming

Client:City of Melville
Date: March 2022
Created by: K.Grant
Image Source: Nearmap, 2022
Datum: GDA 94

Figure 30:
Habitat Loss- Bare Ground
Peter Ellis Reserve and Douglas
Freeman Park, Leeming

Client:City of Melville
Date: March 2022
Created by: K.Grant
Image Source: Nearmap, 2022
Datum: GDA 94

3.5 Feral Animals

Feral fauna impacts native fauna and flora through increased predation/herbivory, competition for resources (food and shelter) and the increased potential of spreading diseases. Ten feral species were recorded during the 2021 survey. These were observed at all the South-Eastern Reserves, except for Bill Brown Park. They were observed through direct sightings, trapping events and on trail cameras. Three feral species are classed as declared pests under the *Biosecurity and Agriculture Management Act 2007* (WA), including the Rabbit (*Oryctolagus cuniculus*), Rainbow Lorikeet (*Trichoglossus haematodus)* and the Red Fox (*Vulpes vulpes*). The feral fauna indices are listed in Table 28 and examples of feral fauna are shown in Figure 31.

*Cat (*Felis catus)*

*Rainbow Lorikeet (*Trichoglossus haematodus)*

*Red Fox (*Vulpes vulpes)*

Figure 31: Examples of feral fauna species observed within the South-Eastern Reserves. *Denotes introduced fauna species.

Table 28: Feral Fauna Indices

Feral Animal		**Status 2005**	**Status 2014**	**Status 2021**
Mammal	Black Rat (*Rattus rattus*)	Assumed Present	Assumed Present	Confirmed
	Brown Rat (*Rattus norvegicus*)			
	Cat (*Felis catus*)			
	House Mouse (*Mus musculus*)			
	Rabbit (*Oryctolagus cuniculus*)	Confirmed	Not Present	
	Red Fox (*Vulpes vulpes*)	No Data		
Bird	Laughing Dove (*Streptopelia senegalensis*)		No Data	
	Rainbow Lorikeet (*Trichoglossus haematodus*)	Assumed Present	Confirmed	
	Spotted Dove (*Streptopelia chinensis*)			No Data
Invertebrates	European Honeybee (*Apis mellifera*)			Confirmed
	Cabbage White Butterfly (*Pieris rapae*)	No Data	No Data	
	Portuguese Millipede (*Ommatoiulus moreleti*)			

Source: Waters (2014 and 2016)

3.6 Diseases and Pathogens

Vegetation can be affected by pathogens and diseases, which can cause poor health and potentially death of individual plants. A common plant pathogen found within the Perth Region and within the City of Melville is Dieback (*Phytophthora cinnamomi*). This has been found is several South- Eastern Reserves including Phillip Jane, Beasley Park, Bill Brown, Peter Bosci, Robert Weir, Peter Ellis, Douglas Freeman, PJ Hanley and William Hall (Waters, 2014). The fungus *Armillaria luteobubalina* commonly known as Honey Fungus is also common in the Perth region but is absent within the City of Melville. Indices are provided in Table 29. Dieback Maps which have been provided by the City are located in Appendix 5.

Table 29: Diseases and Pathogens Indices

Impact	Diseases and Pathogens	Extent 2005	Extent 2014	Extent 2021	Threat
Very High Key Threatening Process under the EPBC Act 1999	*Phytophthora cinnamomic* Dieback	No Data	Fully infested in Robert Weir, Peter Bosci, Peter Ellis, Douglas Freeman, Bill Brown, Dudley Hartree. Parts of PJ Hanley and William Hall.	Assumed present-	Assumed present due to death of susceptible death. Require further investigation, continue mapping and treatment on 3 yearly cycle to manage plant deaths.
Medium Native species capable of moderate modification of structure and composition of flora by killing multiple species	*Armillaria luteobubalina* Honey Fungus		Assumed Absent	Assumed Absent	Assumed Prevented

3.7 Stormwater

No storm water is re-routed into any of the South -Eastern Reserves. No observed impacts from stormwater were recorded during Natural Area's 2021 surveys.

3.8 Reticulation

Reticulation is not present within the bushland of each South-Eastern reserve. Reticulation is present in the lawn adjacent to the bushland of the following reserves: Bill Brown Park, William Hall Park, Douglas Freeman Park, Phillip Jane Park, Beasley

Park Dudley Hartree Park, and Robert Weir. The indices for the reticulation are listed in Table 30. If an occurrence of excessive drift or leaking is observed, it is to be recorded and rectified with the City within 5 working days of observation.

Table 30: Reticulation Indices

Impact	Water Source	Occurrences 1995-2004	Occurrences 2005-2014	Occurrences 2015-2021	Threat
Low Alternation of Surface Water Flows	Overspray or leakage from reticulation adjacent to the reserve	No data	No data	No data	Assumed Contained

3.9 Acid Sulfate Soils

Acid sulfate soils are naturally occurring soils that contain iron sulphides, primarily in the form of pyrite materials, formed under waterlogged conditions in fresh and saline wetlands around Western Australia. If left unexposed to air they do not pose a significant risk to humans or the surrounding environment. However, if exposed to air sulphuric acid is formed and this can lead to the release of heavy metals into the surrounding environment (DER, 2015). Acid sulfate soils can occur when the soils are disturbed, where

- excavations for drainage maintenance or infrastructure construction are dug below the minimum level of the watertable
- groundwater extraction results in oxidation of soils previously permanently saturated by lowering the minimum level of the watertable.

Maintenance activities that require excavations or groundwater extractions are to be managed so that acid sulphate soil reactions do not occur. If this is done those activities will not be recorded as an occurrence of the threat. A review of the DWER acid sulfate risk map indicated that all eleven South-Eastern Reserves have a low to moderate risk of acid sulfate soils occurring. No previous records of acid sulfate soils occurring from excavations or groundwater has been recorded (DWER, 2022a). No obvious signs of acid sulfate soils were noted within the reserves during the 2021 survey as shown in Table 31 of indices.

Table 31: Acid Sulfate Soil Indices

Impact	Potential Initiation of ASS Reactions	Occurrences 1995-2004	Occurrences 2005-2014	Occurrences 2015-2021	Threat
Very High An occurrence could result in the reserve being as a contaminated site under the Contaminated Sites Act 2003	Excavations below the minimum level of the water table.	No data	No data	No data	Assumed Prevented
	Groundwater extraction resulting in lowering of minimum level water table				

3.10 Climate Change

Climate change within the south-west of Western Australia is expected to cause more intense and frequent weather events. These changes are likely to increase the potential for erosion during storm events and associated strong winds causing potential disturbances (fallen trees). Increased water stress on plants due to current rising temperatures and decreasing annual rainfall. Water stress has the potential to lead to changes in vegetation type and complexes which can potentially affect fauna assemblages. As the reserve are all dryland bushland areas water stress is a slightly lower concern than in areas where wetlands are present. The presence of shallow groundwater bores for some sites on which is used for irrigation of surrounding parkland and ovals may be affected by climate change which can result in lowering of the water table. These bores in the future may become unusable of may require increasing of their depth.

4 Implementation

4.1 Management Strategies

The management objectives and implementation of strategies for 2022- 2026 will be measured in KPIs discussed in the NAAMP (City of Melville, 2019).

4.1.1 Key Performance Indicators (KP1s)

Leading indicators and trends indicate (for the life of a reserve management plan) (Table 32):

- whether guidelines and procedures are being affective in meeting objectives of preventing, eliminating, containing, and managing impacts from threats; and
- provide a feedback mechanism as to whether guidelines and procedures need to be modified.

4.1.2 Leading Indicators

Leading indicators are associated with changes in the density/ abundance/ extent/ occurrences of threats (Table 31). The levels of acceptable changes are determined in the framework established in the NAAMP as summarized in Table 33 and 34.

Table 32: Application of leading indicators

Objective	Leading indicators	Acceptable When
Prevent	Prevent ▪ introduction to or occurrence of	▪ Treat absents from reserve ▪ Unplanned introduction possible
Eliminate	Reduce ▪ rate of density/abundance/extent ▪ eventual complete removal (short term may only reduce numbers or prevent seed set on site)	▪ Large discrepancy between current and potential impact ▪ Potential impact high ▪ Elimination feasible
Contain	Stop, restrict, or reduce ▪ rate of spread or ▪ frequency of occurrence	▪ Moderate discrepancy between and potential impact ▪ Potential but not current impact high ▪ Elimination feasible
Manage	Limit ▪ negative impacts on assets	▪ Small discrepancy between current and potential impact ▪ Threat “naturalised” or near maximum extent ▪ No information on density/abundance/extent
Confirm	Identify ▪ number of threats for which their presence/extent is uncertain	▪ Historic but no records in reserves and/or ▪ Presence/extent uncertain in reserve
None	Not applicable	▪ Threat absent from reserve

Objective	Leading indicators	Acceptable When
		▪ Only planned introduction possible

Table 33: Objectives for Weed species in the South-Eastern Reserves

Objective	Impact	Weed Species/ Group	2021 Extent	Comment
Prevent	**Very High**	▪ Lantana (*Lantana camara)* ▪ Tamarisk *(Tamarix aphylla)* ▪ Blackberry (*Rubus laudatus)* ▪ One Leaf Cape Tulip (*Moraea flaccida)* ▪ Golden Dodder (*Cuscuta campestris)* ▪ Madeira Vine (*Anredera cordifolia)*	0	Not present on site
	High	▪ Giant Grasses	0	Not present on site
Eliminate	**Very High**	▪ Bridal Creeper (*Asparagus asparagoides)* ▪ Asparagus Fern (*Asparagus aethiopicus)* ▪ Pampas Grass (*Cortaderia selloana)* ▪ Paterson's Curse (*Echium plantagineum)* ▪ African Lovegrass (*Eragrostis curvula)* ▪ Soldiers (*Lachenalia reflex)* ▪ Brazilian Pepper (*Schinus terebinthifolia)* ▪ Arum Lily (*Zantedeschia aethiopica)*	▪ 2% ▪ 4% ▪ <1% ▪ <1% ▪ 3% ▪ <1% ▪ 8% ▪ 6%	▪ Localised John Connell ▪ Localised Beasley, Dudley Hartree, Robert Weir ▪ Localised John Connell ▪ Localised Phillip Jane ▪ Localised PJ Hanley, John Connell, and Dudley Hartree ▪ Localised Douglas Freeman ▪ Localised DF, RW, WH, JC, PJ, B ▪ Localised Peter Ellis and John Connell
	High	▪ Clumping Geophytes ▪ Perennial Running Grasses ▪ Annual Clumping Grasses ▪ Woody Weedy	▪ 100% ▪ 17% ▪ 100% ▪ 84%	▪ Localised BB, B, PB, RW, PJH, WH, DH, PE & Widespread PJ, DF, JC ▪ Localised JC, DH, RW, PB, B, BB ▪ Localised BB, PB, PJH, WH, PE & Widespread PJ, B, RW, DF, DH, JC ▪ Localised PB, RW, DF, WH, DH, PE, JC & Widespread PJ, B, PJH,
Contain	**Very High**	▪ Perennial Clumping Grasses	▪ 76%	▪ Widespread JC, PJ, DF, WH & Localised BB, B, PB, RW, PJ, DH, PE
Manage	**Medium**	▪ All other perennial weeds	▪ 100%	▪ Widespread all reserves usually in area with open understory
	Low	▪ All other annual weeds	▪ 100%	▪ Widespread all reserves usually in area with open understory

PJ= Phillip Jane Park, PJH= PJ Hanley Park, B= Beasley Park, BB= Bill Brown Park, WH= William Hall Park, DH= Dudley Hartree Park, PB= Peter Bosci Park, RW= Robert Weir Park, PE= Peter Ellis Reserve, DF= Douglas Freeman Park and JC= John Connell Reserve.

Table 34: Objective for all other threats in the South-Eastern Reserves

Objective	Impact	Threat	Comment
Prevent	**Very High**	Acid Sulphate Soils	These should not occur as no excavation or groundwater extraction is proposed
		Diseases and Pathogens (*Armillaria luteobubalina*)	Assumed absent – never recorded in the South-Eastern Reserves. Apply appropriate hygiene standards for on-ground works to prevent introduction.
	High	Fires (large)	Prevent large fires that burn more than one third of the reserves, work in consultation with the Department Fire and Emergency Services to limit fires and maintain fire breaks.
Eliminate	**Very High**	Feral Animals (Foxes)	Present – remove population, and any subsequent incursions before they permanently establish Implement controls outlined in City's Feral Animal Management Guidelines
		Feral Animals (Rabbits)	
Contain	**Very High**	Habitat Loss	Limit fragmentation (e.g., multiple paths and tracks). Areas with weeds and bare ground >25% prioritise for revegetation and management.
	High	Fire (repeat)	Limit fires burning in the same location within the bushland in consultation with Department of Fire and Emergency Services.
	Medium	Physical Disturbance	Present within the reserve. Limit public access by maintaining existing paths and fencing. Present in the form of rubbish dumping (couch). Report disturbance through regular maintenance inspections to determine locations of dumped rubbish and to identify breaches in fencing and implement controls in accordance with the NAAMP.
Manage	**Very High**	Feral Animals (Cats)	Likely ongoing presence – difficult to prevent, eliminate or contain. Implement controls outlined in the City's Feral Animal Management Guidelines
		Diseases and Pathogens (Dieback)	Present and therefore difficult to prevent, eliminate and contain, as boundary of Dieback unknown as signs were observed of potential Dieback outside of mapped areas. Dieback mapping and treatment is conducted across all South-Eastern Reserves on a 3 yearly basis to indicate presence throughout the reserves.
		Climate Change	Consideration should be given to the wider context of climate change and impacts that may occur over time. Reference sites could be installed in the areas within that contain groundwater dependent species, such as *Melaleuca preissiana*. Management can include: ▪ undertaking weed control to minimise competition for water with native plants ▪ planting and enhancement of native vegetation cover within the reserves particularly where large-scale deaths occur, and potentially substituting species that are declining in the area with more adaptable species that can fill the same niche. Records should be taken of changes over time to assist with knowledge and understanding of ongoing processes. Monitor irrigation bore levels to determine if there is any affect of water levels due to climate change.

Objective	Impact	Threat	Comment
	Medium	Feral Animals (Rainbow Lorikeet)	Declared Pest- Implement controls outlined in the City's Feral Animal Management Guidelines
None	**Low**	Stormwater	No stormwater to be diverted into the South-Eastern Reserves
		Reticulation	Not present or required within the natural bushlands of the South-Eastern Reserves. However, monitor for incidence of overspray or leaks from reticulation into native bushlands.

4.1.3 Lagging Indicators

Lagging indicators and trends in assets, indicate whether strategic goals of maintaining assets are being met. The levels of acceptable change are discussed in the NAAMP and are summarized in Table 35 and applied to the South- Eastern Reserves in Table 36 and 37.

Table 35: Tiered Goals for assets and associated lagging indicators

Goal	Lagging Indicator	Application When
Enhance	Increase in either: ▪ extent ▪ density ▪ number ▪ occurrence	Assets can be enhanced when: ▪ occurs in only one reserve and/ or ▪ at risk of local extinction and/ or ▪ minimal cost (e.g., incorporated in revegetation program) and/ or ▪ reduces operational costs (e.g., reduced requirements for on-going for threat management)
Maintain	No decrease in either: ▪ extent ▪ density ▪ number ▪ occurrences	Assets can be maintained when: ▪ asset occurs in a number of reserves and / or ▪ not a risk of local extinction and/or ▪ occurs in only one reserve but insufficient knowledge/resources to enhance
Confirm	Decrease in: ▪ number of assets for which their presence is uncertain	Assets significant when: ▪ historic but no recent records in reserve and/or ▪ potentially to be in reserve based on habitat and/or proximity to other records
Monitor	No indices for management effectiveness	Assets that cannot be maintained by action within City of Melville boundaries for which no quantifiable indices exist when: ▪ reserved are not critical component of habitat (e.g., highly mobile/ wide roaming and/or infrequent/irregular visitors to the City of Melville) ▪ there is risk of local extinction from processes that cannot be mitigated by the City of Melville (e.g., climate change, some pathogens)

Table 36: Goals for species

Goal	Priority	Asset	No. of Reserves (NAAMP)	Comments
Maintain Species	**Very High**	Red-tailed Black Cockatoo (*Calyptorhynchus banksii naso)*	1	Vulnerable migratory species, utilising the site for foraging. Maintain food sources including *Corymbia calophylla* and Eucalypts
		Carnaby's Cockatoo (*Calyptorhynchus latirostris*)	5	Endangered migratory species, utilising the site for foraging. Maintain food sources including *Banksia* spp. *Hakea* spp. and Eucalypts
		Southern Brown Bandicoot / Quenda (*Isoodon fusciventer*)	2	Priority 4. Present within Bill Brown, Beasley, Phillip Jane, and John Connell. Actively breeding, young observed. Maintain the population through maintenance of habitat, feral and weed control.
	High	Peppermint (*Agonis flexuosa*)	12	Observed in Beasley Park, Douglas Freeman, Phillip Jane, Dudley Hartree, William Hall and Robert Weir. Maintain the population through maintenance of habitat and weed control.
		Cutleaf Hibbertia *(Hibbertia cuneiformis)*	1	Observed in John Connell, Beasley, Bill Brown, Peter Bosci and Robert Weir. Maintain the population through maintenance of habitat and weed control.
		Bridal Rainbow *(Drosera macrantha)*	3	Observed in John Connell. Maintain the population through maintenance of habitat and weed control.
		Pale Grass-lily *(Caesia micrantha)*	4	Observed in Peter Bosci, Phillip Jane, and Robert Weir. Maintain the population through maintenance of habitat and weed control.
		Hensmania turbinata	1	Observed in John Connell. Maintain the population through maintenance of habitat and weed control.
	Medium	Chocolate Wattled Bat (*Chalinolobus morio)*	1	Observed in John Connell. Maintain this population through maintenance of habitat, healthy canopy, and mature trees.
		Burtons Legless Lizard (*Lialis burtonis*)	2	Observed in John Connell. Maintain this species through the maintenance of habitat particularly understory, leaf litter and habitat logs.
		Red-capped Parrot (*Purpureicephalus spurius*)	10	Observed in Phillip Jane. Maintain this population through maintenance of habitat, including the presence of mature trees to provide nesting habitat.

Goal	Priority	Asset	No. of Reserves (NAAMP)	Comments
	Low	New Holland Honeyeater (*Phylidonyris novaehollandiae)*	5	Observed in Beasley, Phillip Jane, John Connell and PJ Hanley. Maintain this population through maintenance of habitat, including the presence of mature trees and large shrubs to provide nesting habitat.
		Galah (*Eolophus roseicapilla)*	9	Observed in PJ Hanley. Maintain this population through maintenance of habitat, including the presence of mature trees to provide nesting habitat.
		Marbled Gecko (*Christinus marmoratus)*	4	Observed in Dudley Hartree. Maintain this species through the maintenance of habitat particularly understory, leaf litter and habitat logs.
	At-risk	*Anigozanthos flavidus*	1	Maintain the population through maintenance of habitat and weed control. If possible, source tubestock of these species (some cannot be grown) to be utilised in revegetation works where they occur.
		Caesia micrantha	8	
		Wahlenbergia preissii	1	
		Platysace filiformis	1	
Confirm	**Very High**	Three-lined Skink *Acritoscincus trilineatus*	3	Maintain habitat through revegetation, weed control and disease management to enhance habit for these species. Further investigation required. Education programs in universities, schools and local community groups to assist in surveys and reporting potential sightings of these species. Target searches for, Grand Spider Orchid (*Caladenia huegelii)* at John Connell Reserve particularly in early Spring to determine presence within the reserve.
		Southern Forest Bat *Vespadelus regulus*	1	
		Grand Spider Orchid (*Caladenia huegelii)*	3	

Table 37: Goals for Site

Goal	Priority	Asset	Comments
Enhance	**Medium**	Proposed Revegetation Sites	▪ revegetate areas proposed in Figures 13-19, in accordance with the standard of rehabilitation in the NAAMP and following City Guidelines ▪ where tubestock is available, prioritise 'at risk' species and food sources of black cockatoos (Department of Environment and Conservation, 2011) ▪ revegetation should focus on species in which will increase habitat trees for the future ▪ weed control should be undertaken prior to revegetation efforts for reserves with widespread weed across the site (Philip Jane, Beasley Park, Peter Bosci, Robert Weir, Douglas Freeman, Dudley Hartree and Peter Ellis Park). ▪ reserves with high proportion of bare ground should be prioritised for revegetation as well as control fast colonising weeds. All south-eastern reserves have recorded over 30% coverage for >25% bare ground except John Connell and PJ Hanley. ▪ Increase engagement with surrounding schools, TAFE and university in revegetation activities, promote community planting days
Maintain	**Very High**	Ecological Communities	▪ maintain sites through weed control, revegetation, feral animal management and general reserve management (e.g., rubbish removal, fence maintenance) to manage threats within the reserve. ▪ rehabilitation within specific areas using appropriate species for the vegetation type present
	High	Regional Ecological Linkage	▪ ecological linkages can be maintained through the maintenance of ecological communities and enhancement of these communities through proposed rehabilitation, also through avoiding clearing and fragmentation of the reserves.
		Habitat Trees	▪ habitat trees to be protected by the management of threats such as fire and disease and enhancement of these communities via proposed rehabilitation. ▪ where safe, maintain dead habitat trees. ▪ large proportion of habitat trees within PJ Hanley contain dead stags as such, they should be retained if possible until new habitat trees can be established.
	Medium	Community Interest Sites (bat and bird boxes)	▪ additional bat boxes installed across the South- Eastern reserves, John Connell Reserve would be an ideal location ▪ continued monitoring of assets during the City's current inspection and

			▪ maintenance works, any damage or repair requirements noted to be reported ▪ investigate the use of citizen science applications (e.g., FrogID, iNaturalist) to engage the wide community and provide monitoring and educational opportunities
		Revegetation Sites	▪ maintain revegetation sites via infill planting, weed control and watering as required to complete the revegetation to the standard outlined in the NAAMP.
Monitor	**Low**	All assets	▪ monitoring of all assets should occur in accordance with the City's policies and guidelines outlined un the NAAMP.

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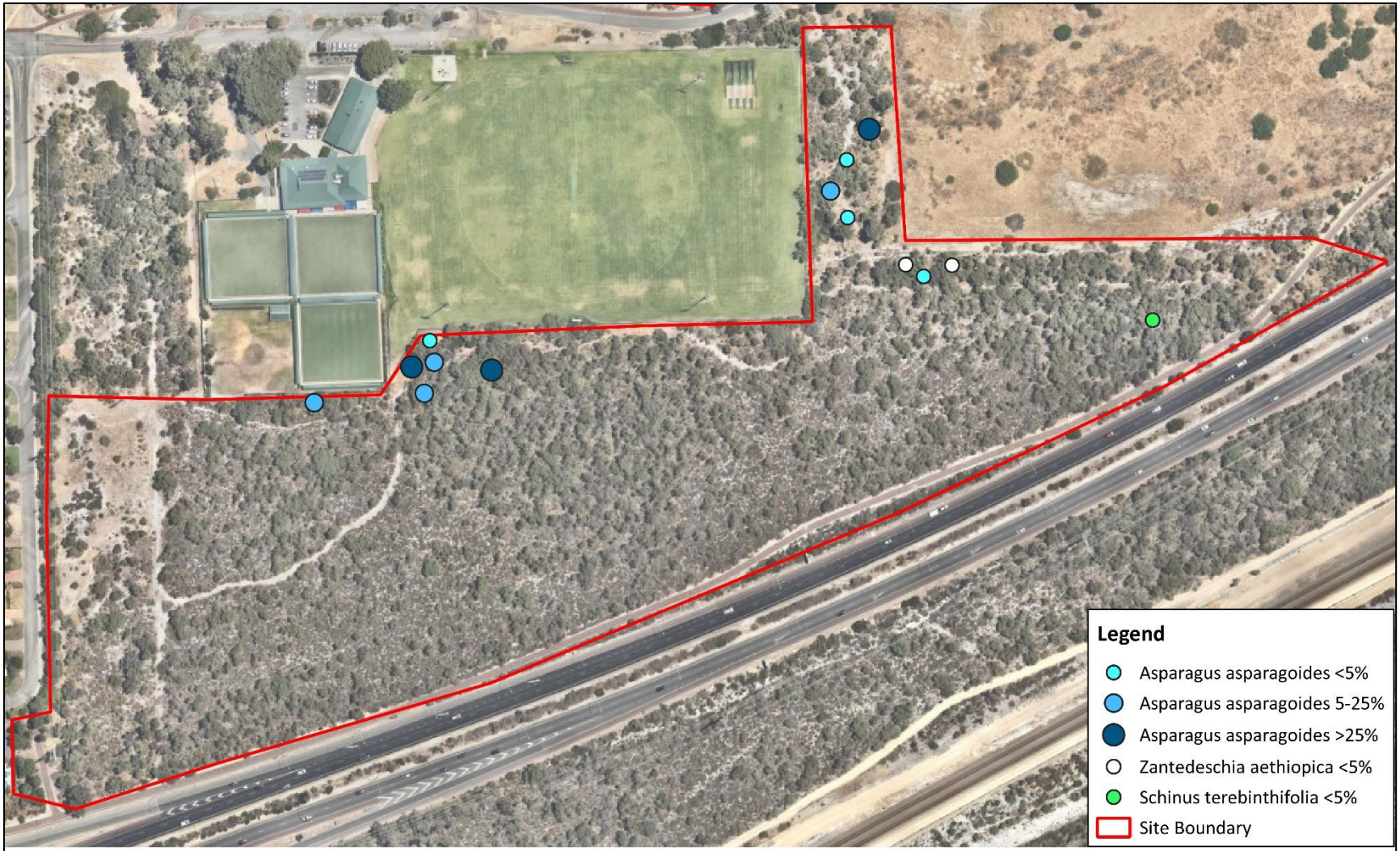
Weed Maps


Legend
Asparagus asparagoides <5%
Asparagus asparagoides 5-25%
Asparagus asparagoides >25%
Zantedeschia aethiopica <5%
Schinus terebinthifolia <5%
Site Boundary
Very High Impact Weeds
John Connell Reserve, Leeming
South Eastern Reserves
Client:City of Melville
Date: March 2022
Created by: K.Grant
Image Source: Nearmap, 2022
Datum: GDA 94
0
100
200 m
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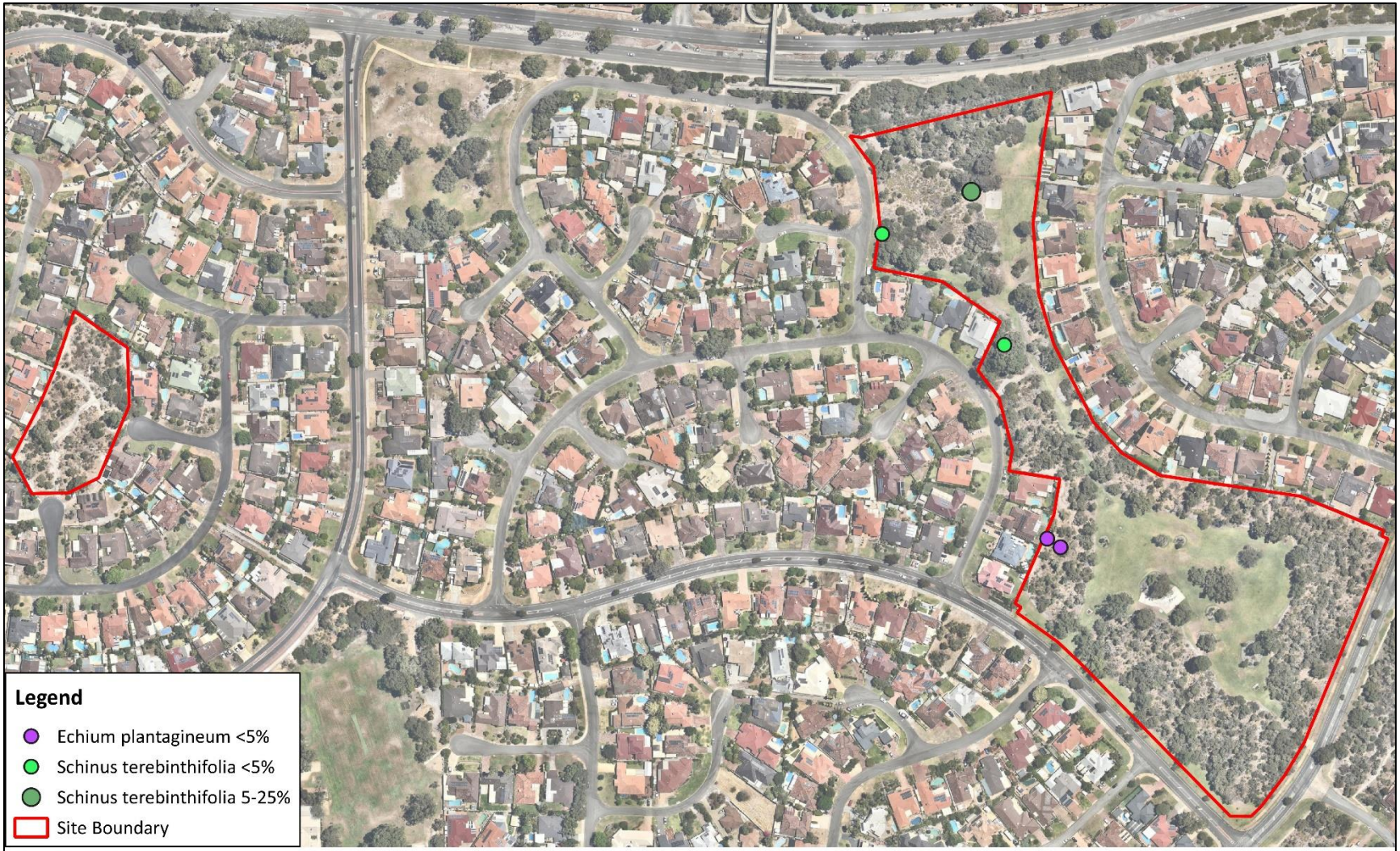
Legend
Echium plantagineum <5%
Schinus terebinthifolia <5%
Schinus terebinthifolia 5-25%
Site Boundary
Very High Impact Weeds
PJ Hanley Park and Phillip Jane, Leeming
South Eastern Reserves
Client:City of Melville
Date: March 2022
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Datum: GDA 94
0
100
200 m
N


Legend
Asparagus aethiopicus <5%
Schinus terebinthifolia <5%
Site Boundary
Very High Impact Weeds
Bill Brown Park and Beasley Park,
Leeming
South Eastern Reserves
Client:City of Melville
Date: March 2022
Created by: K.Grant
Image Source: Nearmap, 2022
Datum: GDA 94
0
100
200 m
N


Legend
Asparagus aethiopicus <5%
Schinus terebinthifolia <5%
Site Boundary
Very High Impact Weeds
Dudley Hartree and William Hall Park
South Eastern Reserves
Client:City of Melville
Date: March 2022
Created by: K.Grant
Image Source: Nearmap, 2022
Datum: GDA 94
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nearmap
current : clear : change
Legend
Asparagus aethiopicus <5%
Asparagus aethiopicus 5-25%
Schinus terebinthifolia <5%
Site Boundary
Very High Impact Weeds
Peter Bosci and Rob Weir Park,
Leeming
South Eastern Reserves
Client:City of Melville
Date: March 2022
Created by: K.Grant
Image Source: Nearmap, 2022
Datum: GDA 94
0
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200 m
N


Legend
Zantedeschia aethiopica <5%
Lachenalia reflexa <5%
Schinus terebinthifolia <5%
Site Boundary
Very High Impact Weeds
Peter Ellis Reserve and Douglas
Freeman Park, Leeming
South Eastern Reserves
Client:City of Melville
Date: March 2022
Created by: K.Grant
Image Source: Nearmap, 2022
Datum: GDA 94
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200 m
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Legend
<5%
5-25%
>25%
Site Boundary
Perennial Clumping Grasses Distribution
John Connell Reserve, Leeming
South Eastern Reserves
Client:City of Melville
Date: March 2022
Created by: K.Grant
Image Source: Nearmap, 2022
Datum: GDA 94
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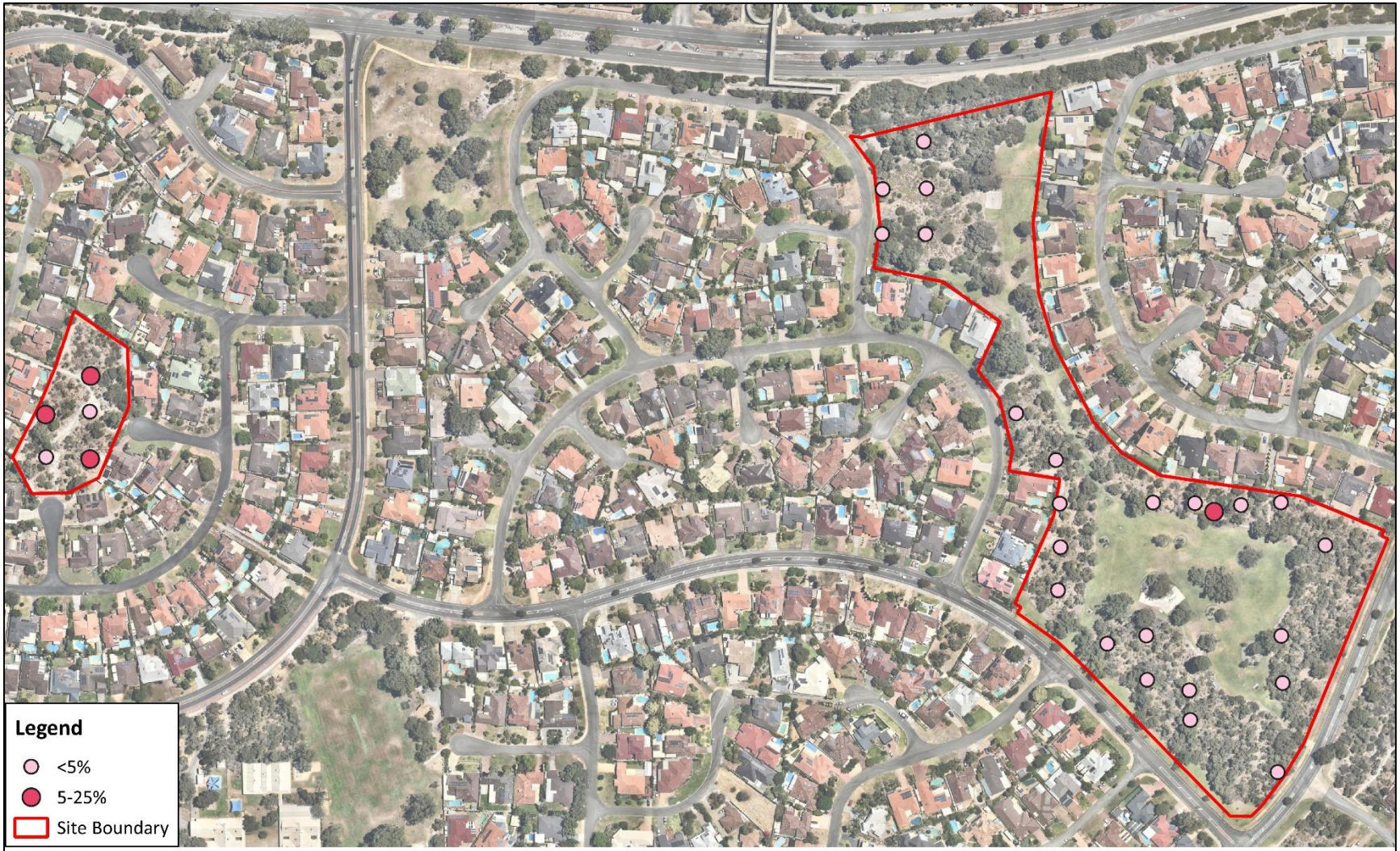
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Site Boundary
Perennial Clumping Grasses Distribution
PJ Hanley Park and Phillip Jane, Leeming
South Eastern Reserves
Client:City of Melville
Date: March 2022
Created by: K.Grant
Image Source: Nearmap, 2022
Datum: GDA 94
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Site Boundary
Perennial Clumping Grasses Distribution
Bill Brown Park and Beasley Park,
Leeming
South Eastern Reserves
Client:City of Melville
Date: March 2022
Created by: K.Grant
Image Source: Nearmap, 2022
Datum: GDA 94
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Legend
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Site Boundary
Perennial Clumping Grasses Distribution
Dudley Hartree and William Hall Park
South Eastern Reserves
Client:City of Melville
Date: March 2022
Created by: K.Grant
Image Source: Nearmap, 2022
Datum: GDA 94
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Perennial Clumping Grasses Distribution
Peter Bosci and Rob Weir Park, Leeming
South Eastern Reserves

Client:City of Melville
Date: March 2022
Created by: K.Grant
Image Source: Nearmap, 2022
Datum: GDA 94

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Legend
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Site Boundary
Perennial Clumping Grasses Distribution
Peter Ellis Reserve and Douglas Freeman Park, Leeming
Client:City of Melville
Date: March 2022
Created by: K.Grant
Image Source: Nearmap, 2022
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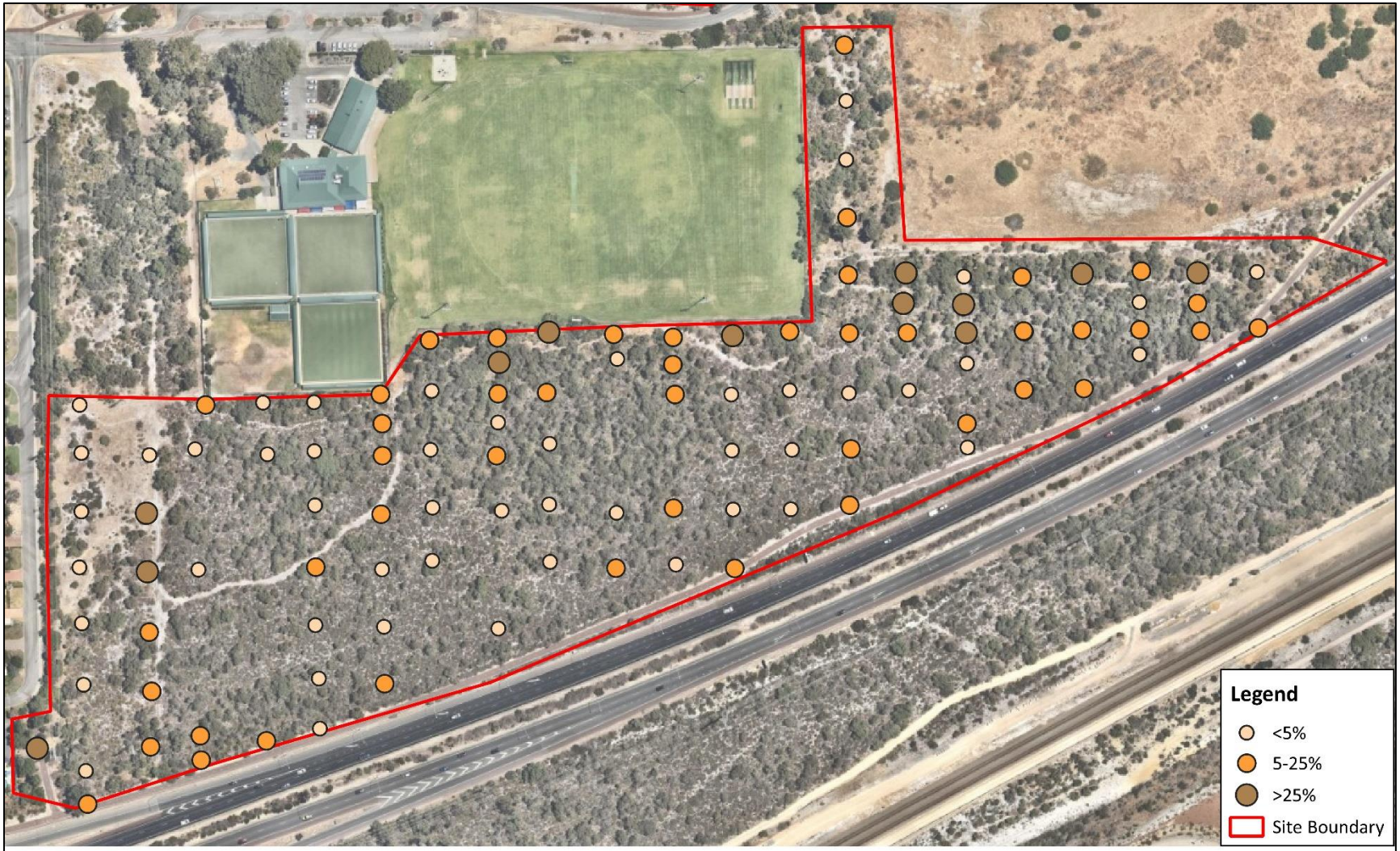
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Site Boundary
Annual Clumping Grasses Distribution
John Connell Reserve, Leeming
South Eastern Reserves
Client:City of Melville
Date: March 2022
Created by: K.Grant
Image Source: Nearmap, 2022
Datum: GDA 94
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Site Boundary
Annual Clumping Grasses Distribution
PJ Hanley Park and Phillip Jane, Leeming
South Eastern Reserves
Client:City of Melville
Date: March 2022
Created by: K.Grant
Image Source: Nearmap, 2022
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Site Boundary
Annual Clumping Grasses Distribution
Bill Brown Park and Beasley Park,
Leeming
South Eastern Reserves
Client:City of Melville
Date: March 2022
Created by: K.Grant
Image Source: Nearmap, 2022
Datum: GDA 94
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Legend
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5-25%
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Site Boundary
Annual Clumping Grasses Distribution
Dudley Hartree and William Hall Park
South Eastern Reserves
Client:City of Melville
Date: March 2022
Created by: K.Grant
Image Source: Nearmap, 2022
Datum: GDA 94
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Annual Clumping Grasses Distribution
Peter Bosci and Rob Weir Park,
Leeming
South Eastern Reserves

Client:City of Melville
Date: March 2022
Created by: K.Grant
Image Source: Nearmap, 2022
Datum: GDA 94

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Legend
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5-25%
>25%
Site Boundary
Annual Clumping Grasses Distribution
Peter Ellis Reserve and Douglas
Freeman Park, Leeming
South Eastern Reserves
Client:City of Melville
Date: March 2022
Created by: K.Grant
Image Source: Nearmap, 2022
Datum: GDA 94
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200 m
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Perennial Running Grasses Distribution
John Connell Reserve, Leeming
South Eastern Reserves

Client:City of Melville
Date: March 2022
Created by: K.Grant
Image Source: Nearmap, 2022
Datum: GDA 94

0 100 200 m

N


Legend
<5%
5-25%
Site Boundary
Perennial Running Grasses Distribution
Bill Brown Park and Beasley Park,
Leeming
South Eastern Reserves
Client:City of Melville
Date: March 2022
Created by: K.Grant
Image Source: Nearmap, 2022
Datum: GDA 94
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Legend
<5%
Site Boundary
Perennial Running Grasses Distribution
Dudley Hartree and William Hall Park,
Leeming
Client:City of Melville
Date: March 2022
Created by: K.Grant
Image Source: Nearmap, 2022
Datum: GDA 94
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Perennial Running Grasses Distribution
Peter Bosci and Rob Weir Park,
Leeming
South Eastern Reserves

Client:City of Melville
Date: March 2022
Created by: K.Grant
Image Source: Nearmap, 2022
Datum: GDA 94

0 100 200 m

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Legend
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5-25%
Site Boundary
Geophyte Distribution
John Connell Reserve, Leeming
South Eastern Reserves
Client:City of Melville
Date: March 2022
Created by: K.Grant
Image Source: Nearmap, 2022
Datum: GDA 94
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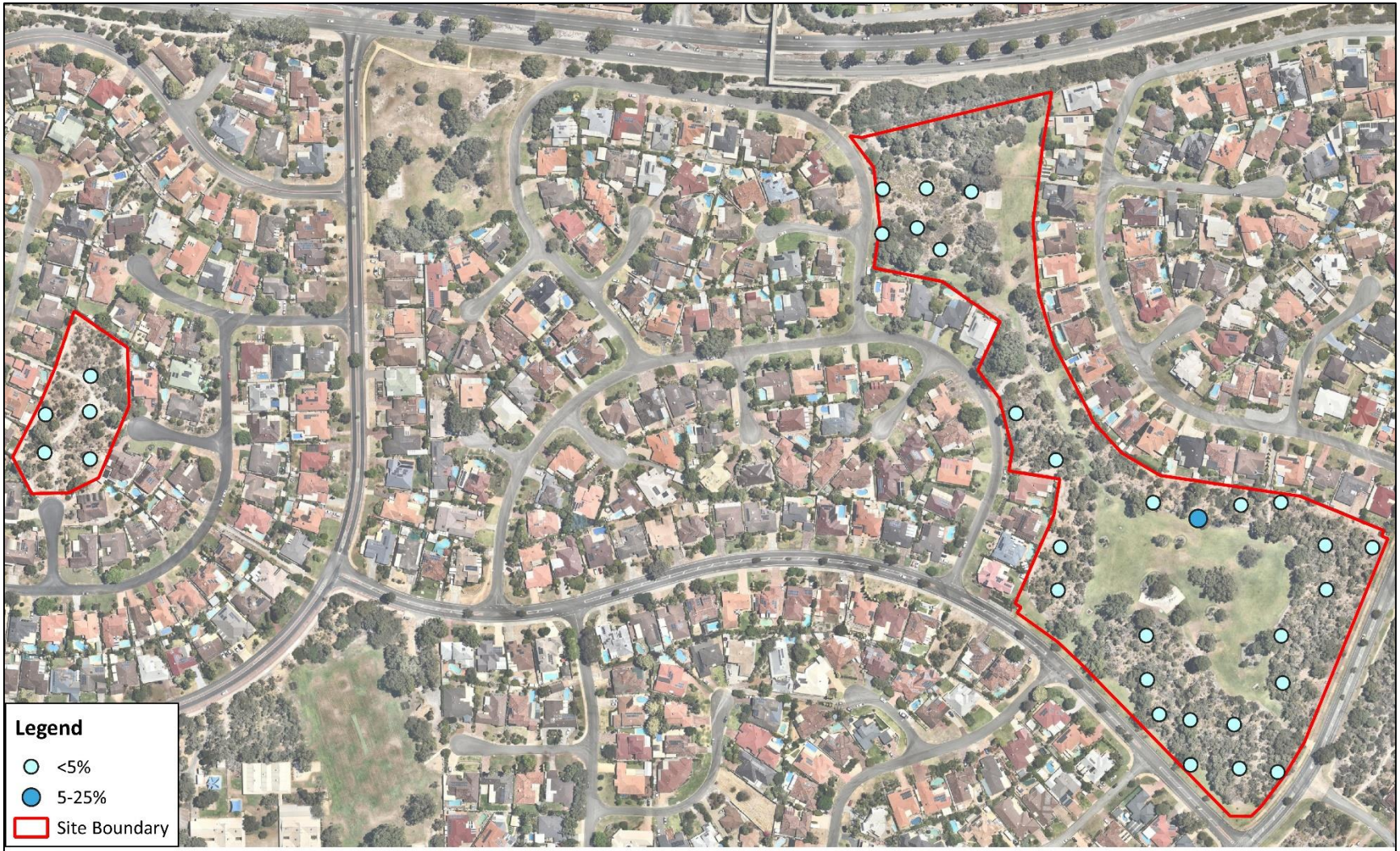
Legend
<5%
5-25%
Site Boundary
Geophyte Distribution
PJ Hanley Park and Phillip Jane,
Leeming
South Eastern Reserves
Client:City of Melville
Date: March 2022
Created by: K.Grant
Image Source: Nearmap, 2022
Datum: GDA 94
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Legend
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Site Boundary
Geophyte Distribution
Bill Brown Park and Beasley Park,
Leeming
South Eastern Reserves
Client:City of Melville
Date: March 2022
Created by: K.Grant
Image Source: Nearmap, 2022
Datum: GDA 94
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Site Boundary
Geophyte Distribution
Dudley Hartree and William Hall Park
South Eastern Reserves
Client:City of Melville
Date: March 2022
Created by: K.Grant
Image Source: Nearmap, 2022
Datum: GDA 94
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nearmap
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Legend
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Site Boundary
Geophyte Distribution
Peter Bosci and Rob Weir Park,
Leeming
South Eastern Reserves
Client:City of Melville
Date: March 2022
Created by: K.Grant
Image Source: Nearmap, 2022
Datum: GDA 94
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Legend
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Site Boundary
Geophyte Distribution
Peter Ellis Reserve and Douglas
Freeman Park, Leeming
South Eastern Reserves
Client:City of Melville
Date: March 2022
Created by: K.Grant
Image Source: Nearmap, 2022
Datum: GDA 94
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200 m
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Legend
<5%
5-25%
>25%
Site Boundary
Woody Weed Distribution
John Connell Reserve, Leeming
South Eastern Reserves
Client:City of Melville
Date: March 2022
Created by: K.Grant
Image Source: Nearmap, 2022
Datum: GDA 94
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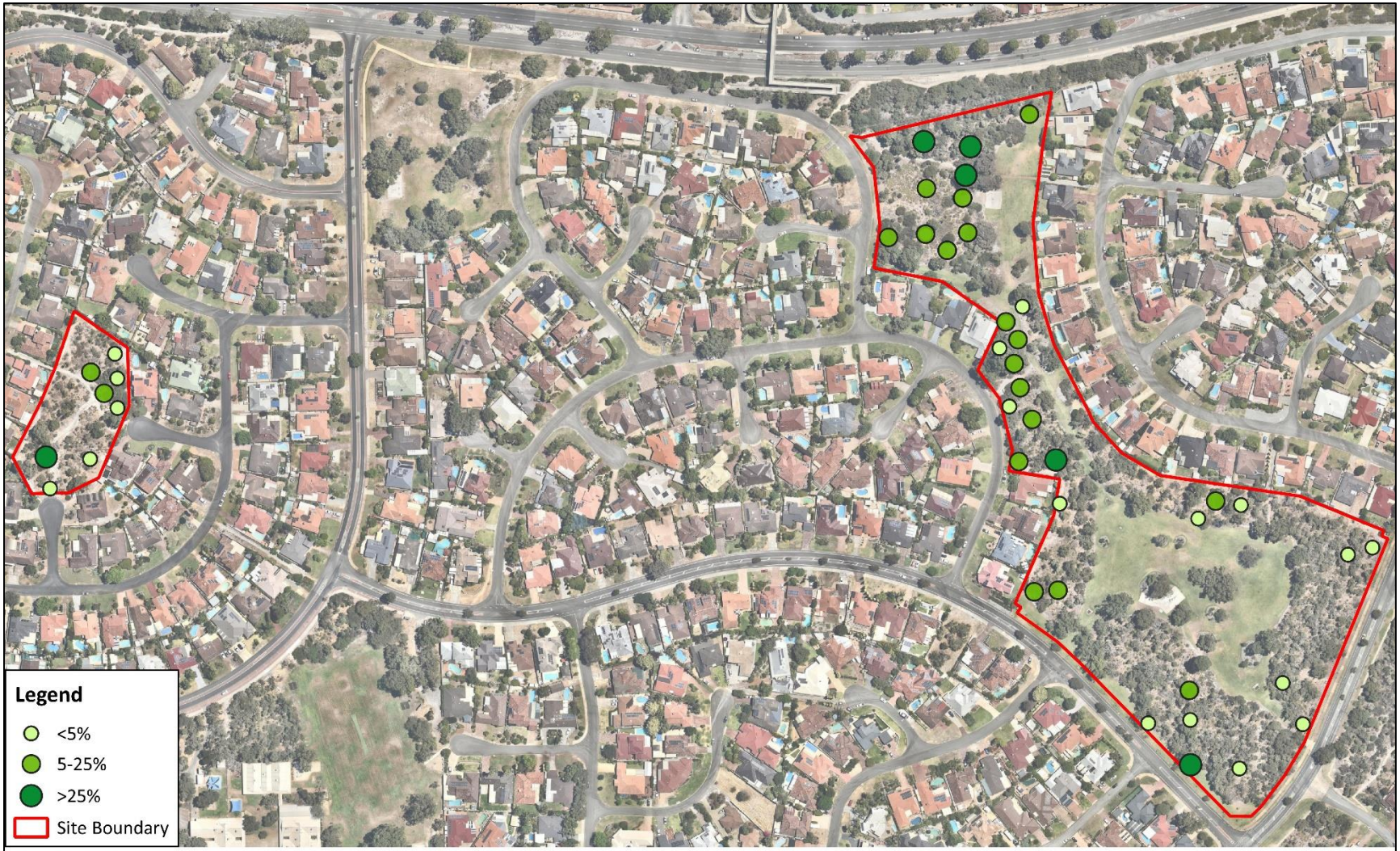
Legend
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Site Boundary
Woody Weed Distribution
PJ Hanley Park and Phillip Jane,
Leeming
South Eastern Reserves
Client:City of Melville
Date: March 2022
Created by: K.Grant
Image Source: Nearmap, 2022
Datum: GDA 94
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Legend
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Site Boundary
Woody Weed Distribution
Bill Brown Park and Beasley Park,
Leeming
South Eastern Reserves
Client:City of Melville
Date: March 2022
Created by: K.Grant
Image Source: Nearmap, 2022
Datum: GDA 94
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Legend
<5%
Site Boundary
Woody Weed Distribution
Dudley Hartree and William Hall Park
South Eastern Reserves
Client:City of Melville
Date: March 2022
Created by: K.Grant
Image Source: Nearmap, 2022
Datum: GDA 94
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200 m
N

Woody Weed Distribution
Peter Bosci and Rob Weir Park, Leeming
South Eastern Reserves

Client:City of Melville
Date: March 2022
Created by: K.Grant
Image Source: Nearmap, 2022
Datum: GDA 94

0 100 200 m

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Legend
<5%
Site Boundary
Woody Weed Distribution
Peter Ellis Reserve and Douglas
Freeman Park, Leeming
South Eastern Reserves
Client:City of Melville
Date: March 2022
Created by: K.Grant
Image Source: Nearmap, 2022
Datum: GDA 94
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200 m
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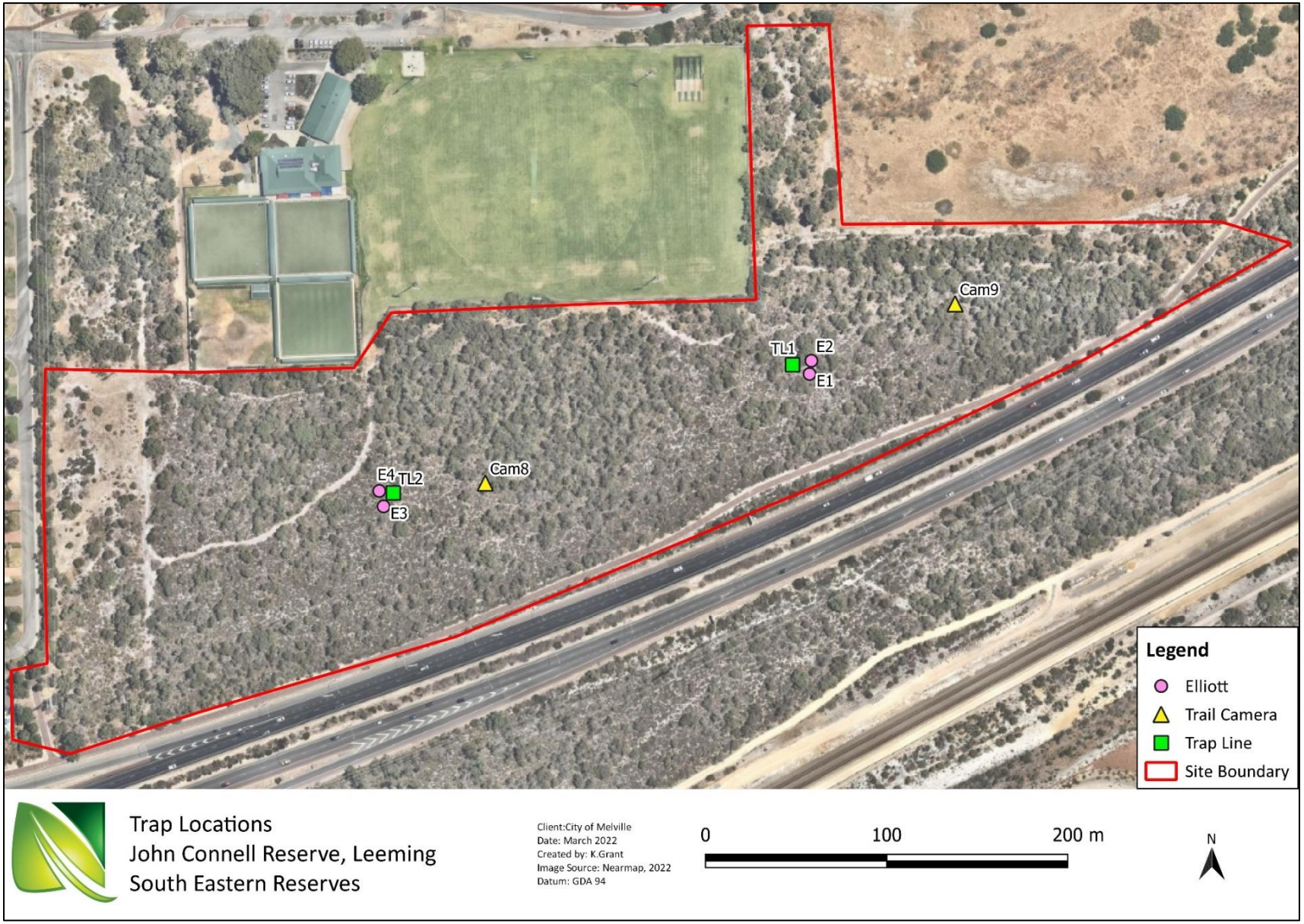
Appendix 1- Fauna Trapping Locations


Cam9
TL1
E2
E1
E4
TL2
E3
Cam8
Legend
Elliott
Trail Camera
Trap Line
Site Boundary
Trap Locations
John Connell Reserve, Leeming
South Eastern Reserves
Client:City of Melville
Date: March 2022
Created by: K.Grant
Image Source: Nearmap, 2022
Datum: GDA 94
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E8
TL6
TL5
E9
E13
E12
E10
TL7
Cam2
E11
Legend
Elliott
Trail Camera
Trap Line
Site Boundary
Trap Locations
PJ Hanley Park and Phillip Jane, Leeming
South Eastern Reserves
Client:City of Melville
Date: March 2022
Created by: K.Grant
Image Source: Nearmap, 2022
Datum: GDA 94
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200 m
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TL2
Cam1
E5
E1
E2
TL1
E3
E4
Legend
Elliott
Trail Camera
Trap Line
Site Boundary
Trap Locations
Bill Brown Park and Beasley Park,
Leeming
South Eastern Reserves
Client:City of Melville
Date: March 2022
Created by: K.Grant
Image Source: Nearmap, 2022
Datum: GDA 94
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200 m
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E7
TL4
E6
TL3
Legend
Elliott
Trap Line
Site Boundary
Trap Locations
Dudley Hartree and William Hall Park
South Eastern Reserves
Client:City of Melville
Date: March 2022
Created by: K.Grant
Image Source: Nearmap, 2022
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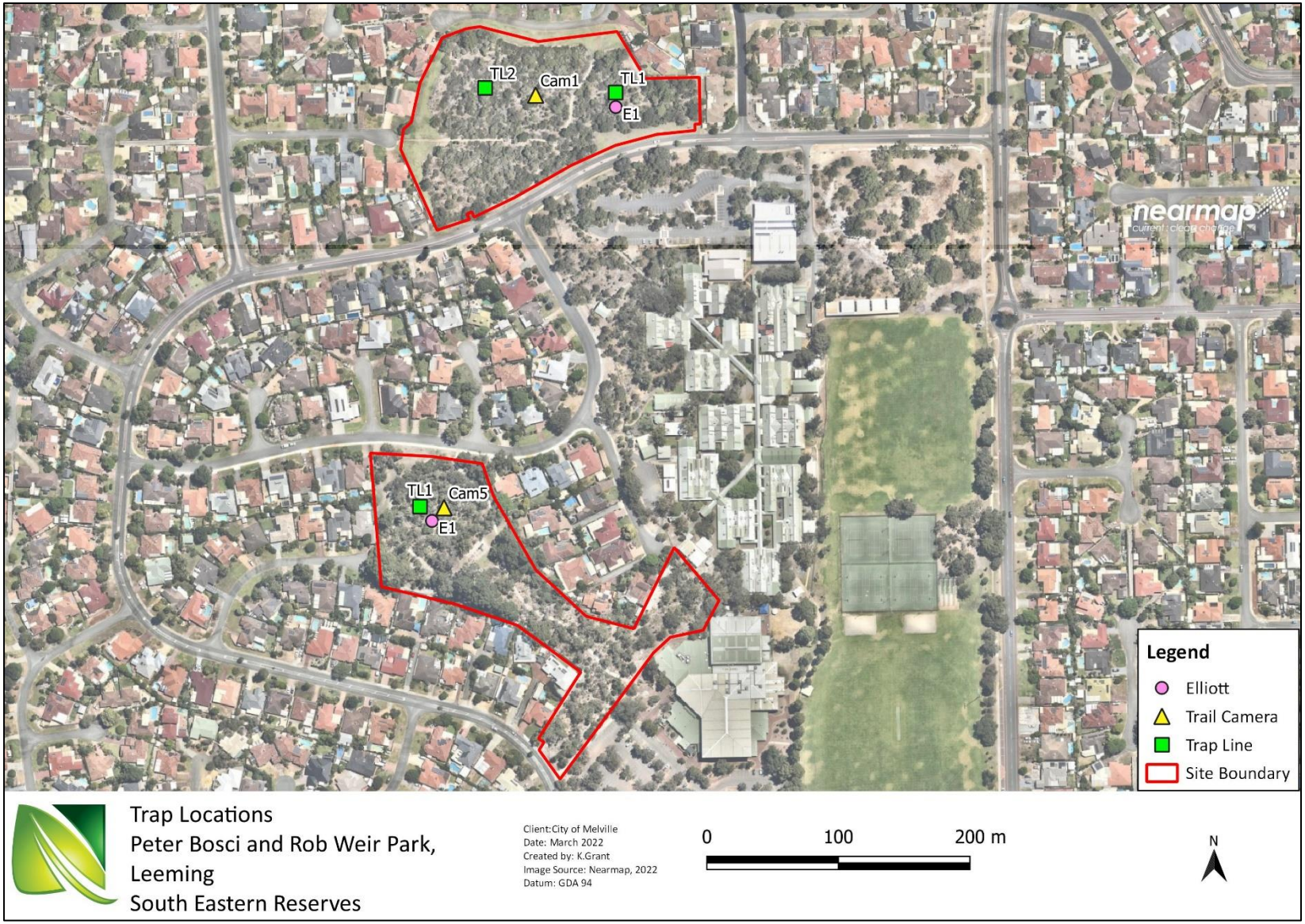
TL2
Cam1
TL1
E1
TL1
Cam5
E1
nearmap
Legend
Elliott
Trail Camera
Trap Line
Site Boundary
Trap Locations
Peter Bosci and Rob Weir Park,
Leeming
South Eastern Reserves
Client:City of Melville
Date: March 2022
Created by: K.Grant
Image Source: Nearmap, 2022
Datum: GDA 94
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200 m
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E1
TL1
Cam4
F1
E3
F2
Cam3
TL1
E1
Legend
Elliott
Funnel
Trail Camera
Trap Line
Site Boundary
Trap Locations
Peter Ellis Reserve and Douglas
Freeman Park, Leeming
South Eastern Reserves
Client:City of Melville
Date: March 2022
Created by: K.Grant
Image Source: Nearmap, 2022
Datum: GDA 94
0
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200 m
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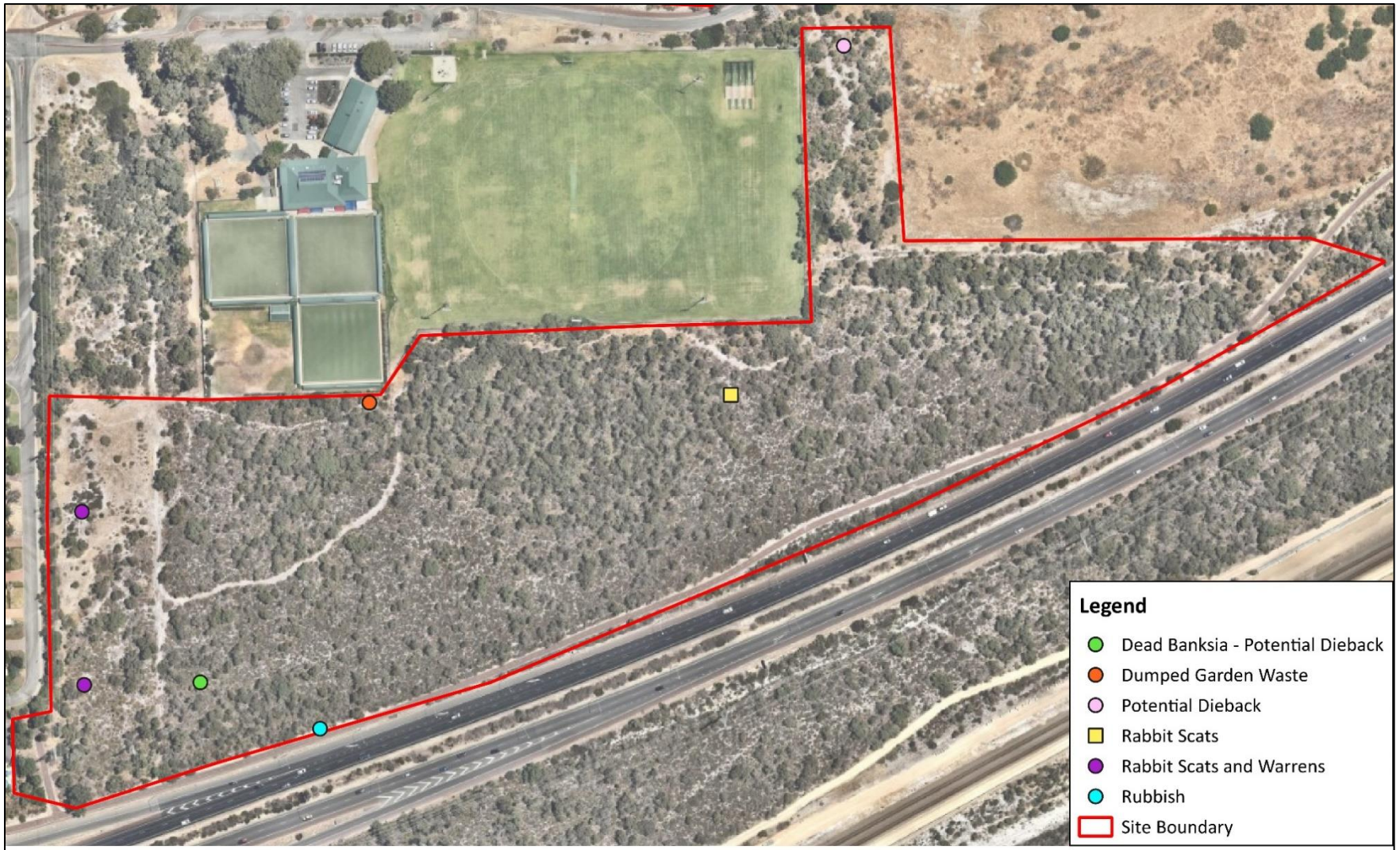
Appendix 2- Disturbances


Legend
Dead Banksia - Potential Dieback
Dumped Garden Waste
Potential Dieback
Rabbit Scats
Rabbit Scats and Warrens
Rubbish
Site Boundary
Disturbances
John Connell Reserve, Leeming
South Eastern Reserves
Client:City of Melville
Date: March 2022
Created by: K.Grant
Image Source: Nearmap, 2022
Datum: GDA 94
0
100
200 m
N


Legend
Dead Banksia - Potential Dieback
Rubbish
Site Boundary
Disturbances
PJ Hanley Park and Phillip Jane, Leeming
South Eastern Reserves
Client:City of Melville
Date: March 2022
Created by: K.Grant
Image Source: Nearmap, 2022
Datum: GDA 94
0
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200 m
N


Legend
Dead Banksia - Potential Dieback
Fenced Off Area - Utilities
Site Boundary
Disturbances
Bill Brown Park and Beasley Park,
Leeming
South Eastern Reserves
Client:City of Melville
Date: March 2022
Created by: K.Grant
Image Source: Nearmap, 2022
Datum: GDA 94
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200 m
N


Legend
Dead Banksia - Potential Dieback
Recently Slashed
Site Boundary
Disturbances
Dudley Hartree and William Hall Park
South Eastern Reserves
Client:City of Melville
Date: March 2022
Created by: K.Grant
Image Source: Nearmap, 2022
Datum: GDA 94
0
100
200 m
N

Disturbances
Peter Bosci and Rob Weir Park, Leeming
South Eastern Reserves

Client:City of Melville
Date: March 2022
Created by: K.Grant
Image Source: Nearmap, 2022
Datum: GDA 94

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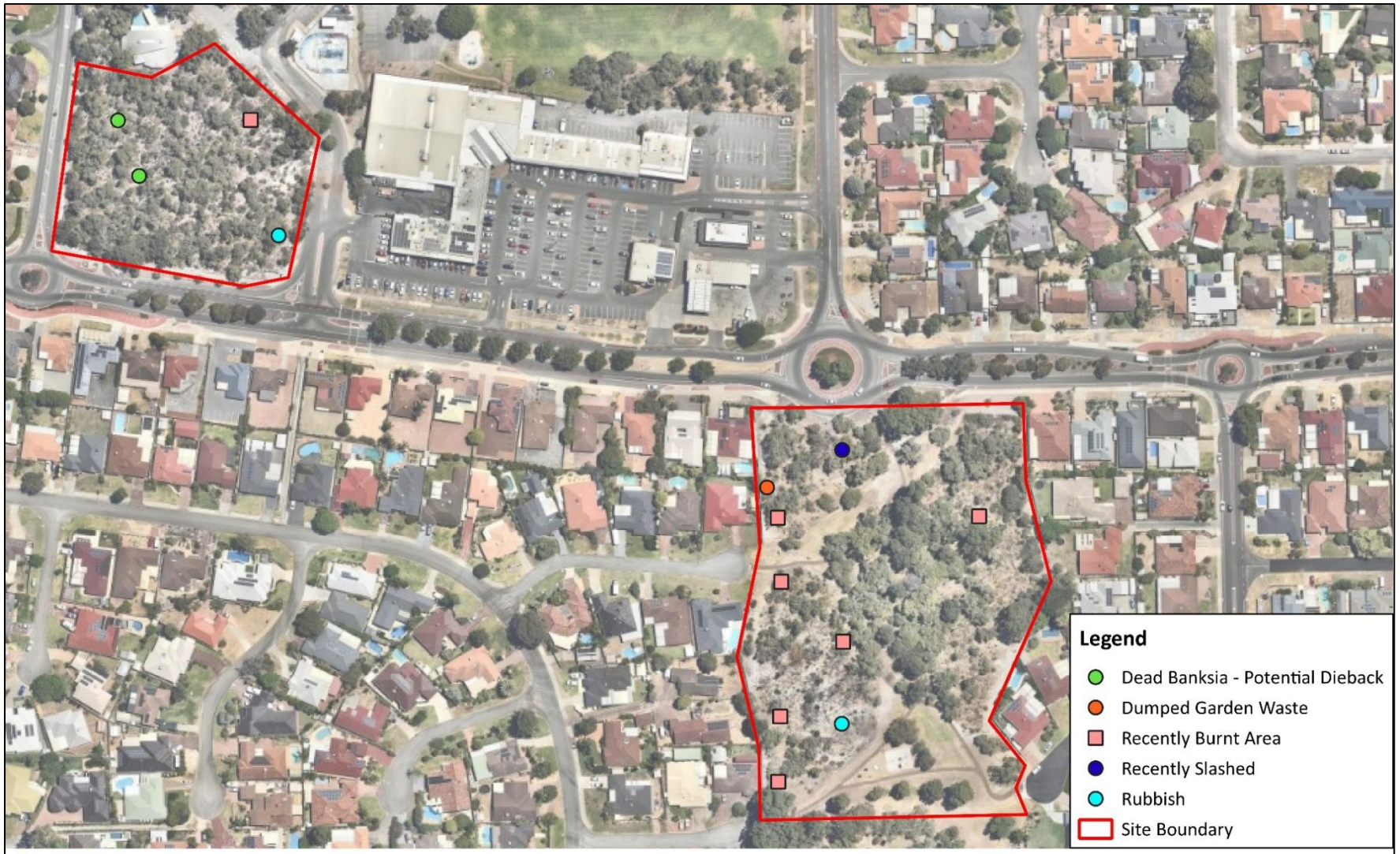
N


Legend
Dead Banksia - Potential Dieback
Dumped Garden Waste
Recently Burnt Area
Recently Slashed
Rubbish
Site Boundary
Disturbances
Peter Ellis Reserve and Douglas
Freeman Park, Leeming
South Eastern Reserves
Client:City of Melville
Date: March 2022
Created by: K.Grant
Image Source: Nearmap, 2022
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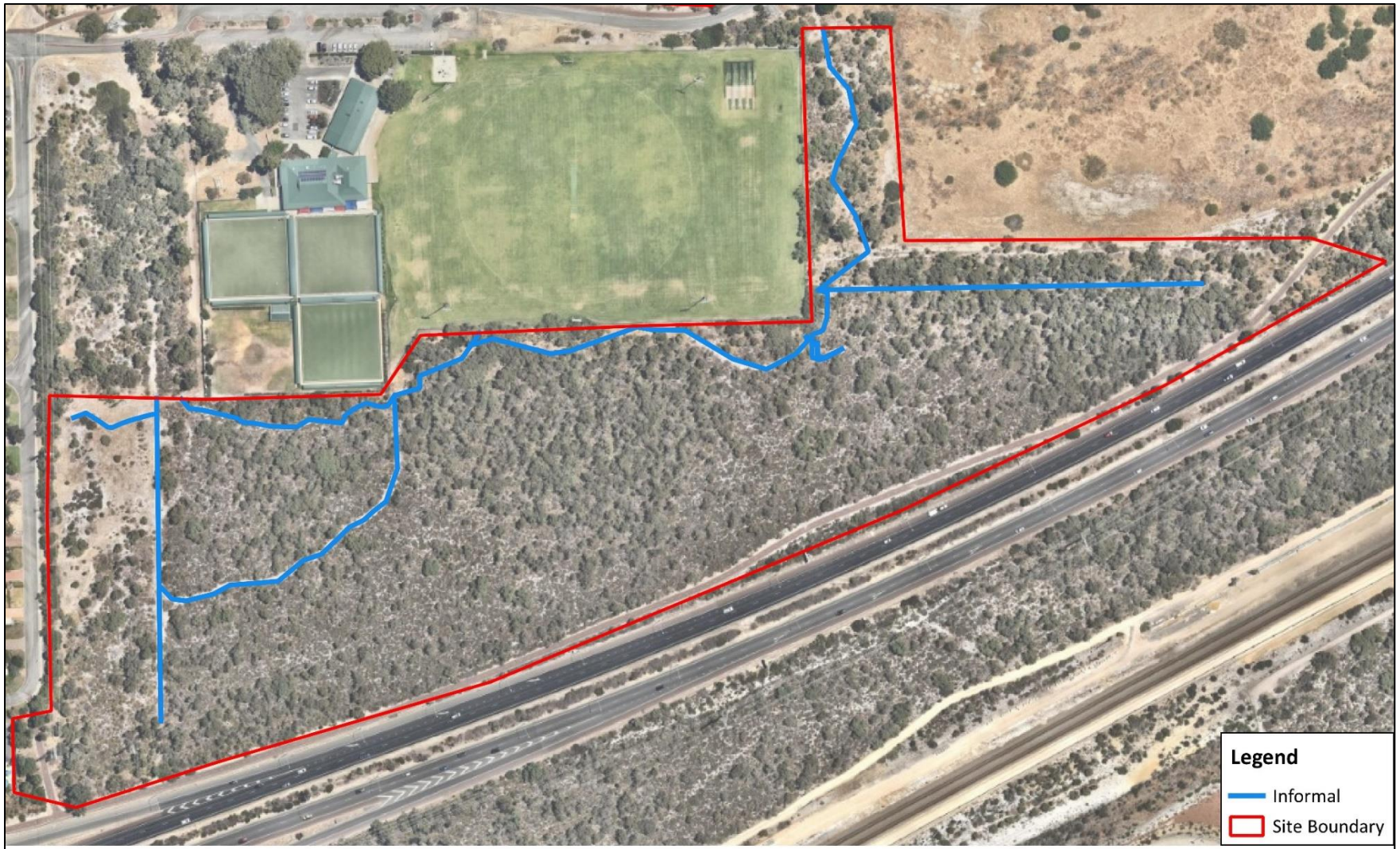

Informal Paths
John Connell Reserve, Leeming
South Eastern Reserves

Client:City of Melville
Date: March 2022
Created by: K.Grant
Image Source: Nearmap, 2022
Datum: GDA 94

0 100 200 m

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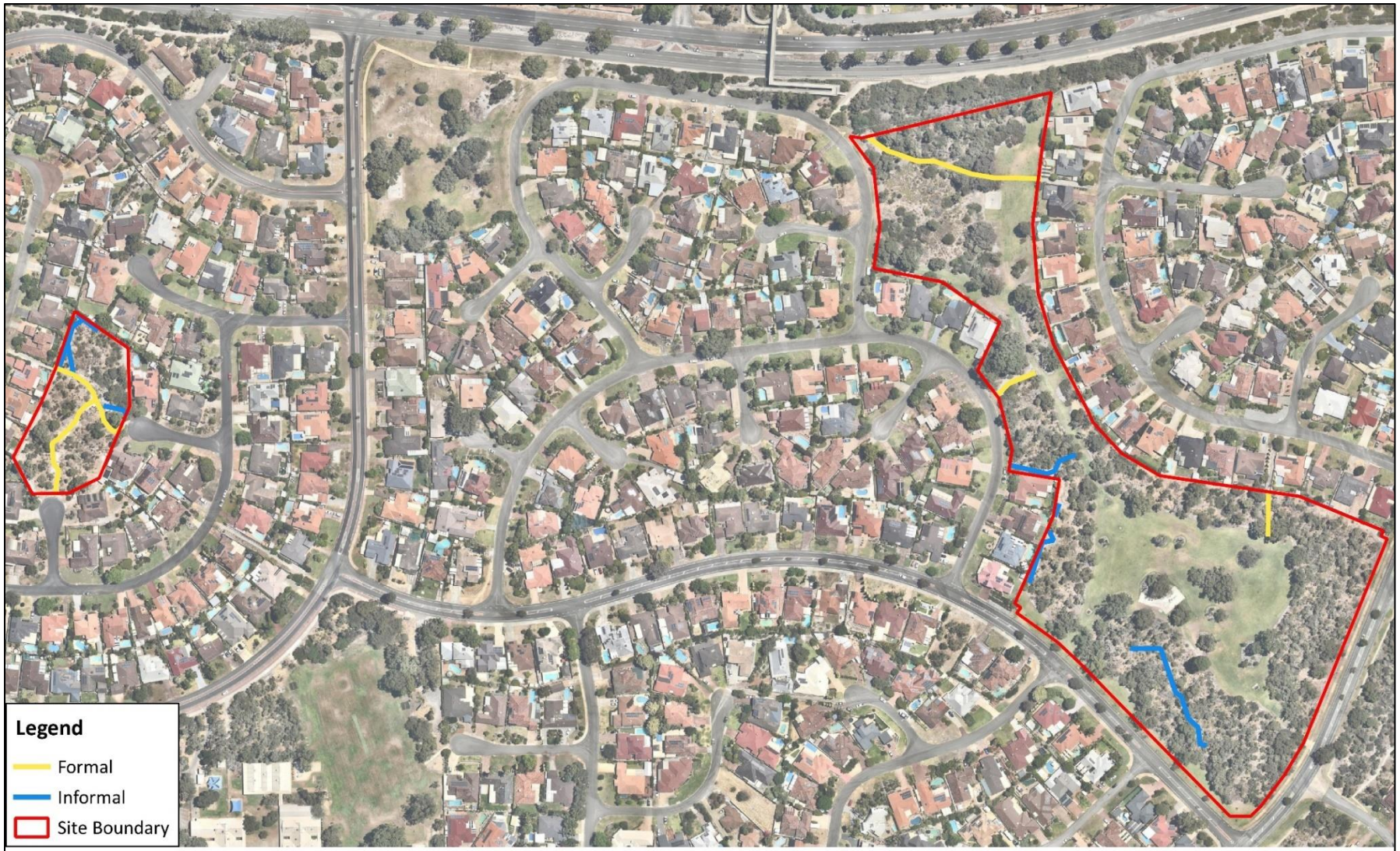
Legend
Formal
Informal
Site Boundary
Informal and Formal Paths
PJ Hanley Park and Phillip Jane, Leeming
South Eastern Reserves
Client:City of Melville
Date: March 2022
Created by: K.Grant
Image Source: Nearmap, 2022
Datum: GDA 94
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Legend
Formal
Informal
Site Boundary
Informal and Formal Paths
Bill Brown Park and Beasley Park,
Leeming
South Eastern Reserves
Client:City of Melville
Date: March 2022
Created by: K.Grant
Image Source: Nearmap, 2022
Datum: GDA 94
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Legend
Formal
Informal
Site Boundary
Informal and Formal Paths
Dudley Hartree and William Hall Park
South Eastern Reserves
Client:City of Melville
Date: March 2022
Created by: K.Grant
Image Source: Nearmap, 2022
Datum: GDA 94
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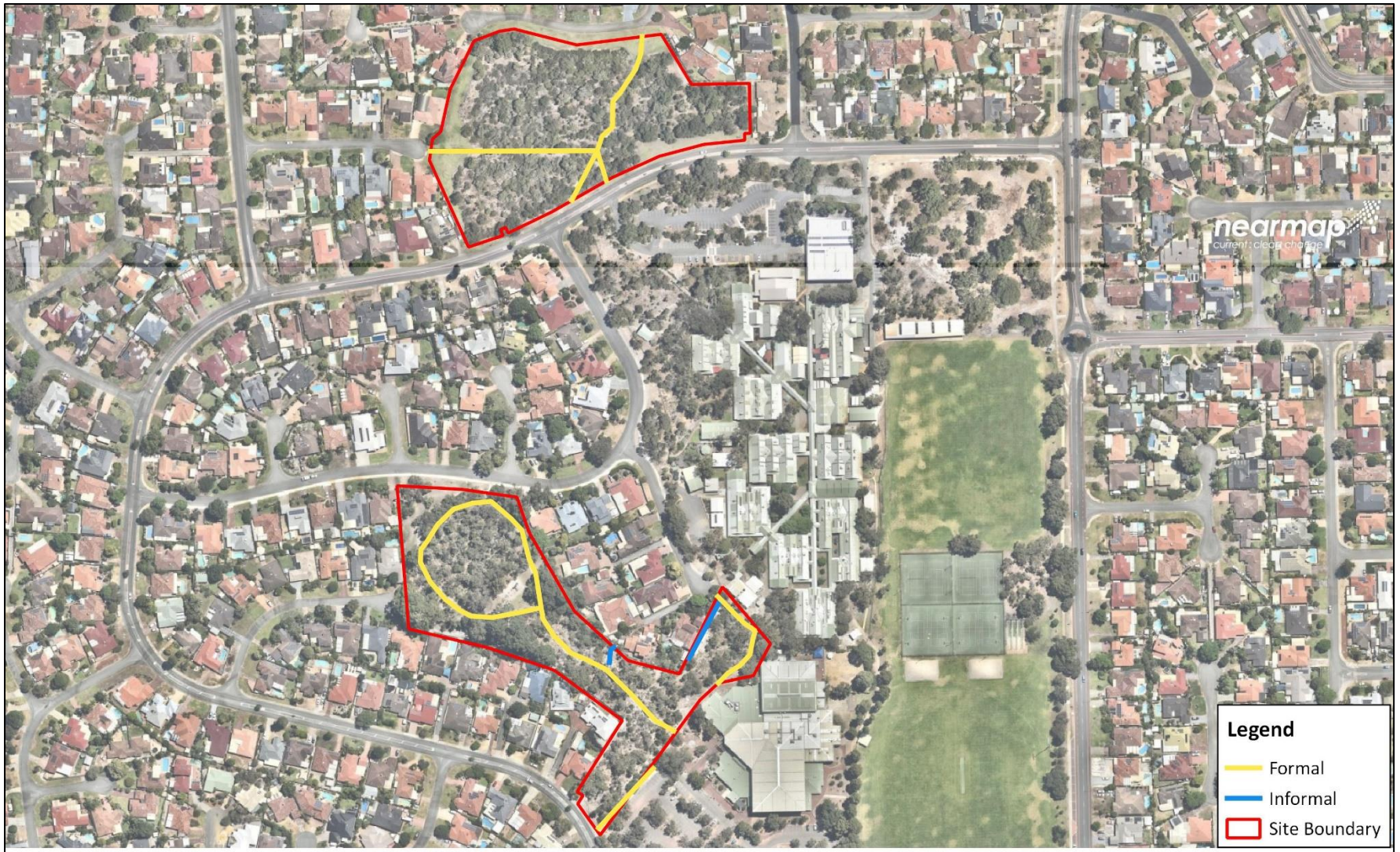
nearmap
current : clear change
Legend
Formal
Informal
Site Boundary
Informal and Formal Paths
Peter Bosci and Rob Weir Park,
Leeming
South Eastern Reserves
Client:City of Melville
Date: March 2022
Created by: K.Grant
Image Source: Nearmap, 2022
Datum: GDA 94
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Legend
Formal
Informal
Site Boundary
Informal and Formal Paths
Peter Ellis Reserve and Douglas
Freeman Park, Leeming
South Eastern Reserves
Client:City of Melville
Date: March 2022
Created by: K.Grant
Image Source: Nearmap, 2022
Datum: GDA 94
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200 m
N

Appendix 3- Flora Species List

Flora species found in each South-Eastern Reserves. Green denotes 'at-risk' species, *Denotes species introduced and # denotes dubious species found.

Family	Species	Beasley	Bill Brown	Douglas Freeman	Peter Bosci	Peter Ellis	Phillip Jane	Rob Weir	PJ Hanley	Dudley Hartree	William Hall	John Connell
Haemodoraceae	#*Anigozanthos flavidus* (planted)							X			X	
Cupressaceae	#*Callitris pyramidalis*				X							
Myrtaceae	#*Eucalyptus botryoides*							X				
Myrtaceae	#*Eucalyptus erythrocorys*								X			
Myrtaceae	#*Eucalyptus fibrosa* (planted)							X				
Myrtaceae	#*Eucalyptus grandis*						X	X				
Myrtaceae	#*Eucalyptus lehmannii*	X							X			
Myrtaceae	#*Eucalyptus sheathiana* (planted)						X					
Myrtaceae	#*Eucalyptus utilis*			X								
Proteaceae	#*Grevillea olivacea* (planted)							X				
Loganiaceae	#*Logania* sp. *(*garden escapee)					X						
Myrtaceae	#Planted foreign *Eucalyptus* sp.								X			
Euphorbiaceae	#*Ricinocarpos glaucus* (planted)			X			X	X		X		
Plantaginaceae	#*Sutera cordata*							X				
Fabaceae	**Acacia iteaphylla*	X	X		X		X	X	X	X		X
Fabaceae	**Acacia longifolia*				X		X			X		X
Fabaceae	**Acacia podalyriifolia*	X										

Family	Species	Beasley	Bill Brown	Douglas Freeman	Peter Bosci	Peter Ellis	Phillip Jane	Rob Weir	PJ Hanley	Dudley Hartree	William Hall	John Connell
Agapanthaceae	**Agapanthus praecox*						X			X		
Poaceae	**Aira cupaniana*			X	X					X		
Alliaceae	**Allium triquetrum*					X						
Asteraceae	**Arctotheca calendula*	X	X	X	X		X		X	X	X	X
Asparagaceae	**Asparagus aethiopicus*							X		X		
Asparagaceae	**Asparagus asparagoides*											X
Poaceae	**Avena barbata*	X	X	X	X	X	X	X	X	X	X	X
Brassicaceae	**Brassica tournefortii*			X	X		X		X		X	
Poaceae	**Briza maxima*	X	X	X	X	X	X	X		X		X
Poaceae	**Briza minor*		X									X
Poaceae	**Bromus catharticus*						X		X			
Poaceae	**Bromus diandrus*							X			X	X
Myrtaceae	**Callistemon citrinus* 'Kings Park Special'	X		X					X			
Bignoniaceae	**Campsis radicans*							X				
Brassicaceae	**Cardamine hirsuta*			X			X		X			
Aizoaceae	**Carpobrotus edulis*			X								X
Casuarinaceae	**Casuarina cunninghamiana*							X			X	
Casuarinaceae	**Casuarina glauca*									X		
Poaceae	**Cenchrus clandestinus*				X			X		X		
Myrtaceae	**Chamelaucium uncinatum*			X	X		X	X	X	X		

Family	Species	Beasley	Bill Brown	Douglas Freeman	Peter Bosci	Peter Ellis	Phillip Jane	Rob Weir	PJ Hanley	Dudley Hartree	William Hall	John Connell
Commelinaceae	**Commelina communis*			X								
Poaceae	**Cortaderia selloana*											X
Myrtaceae	**Corymbia citriodora*							X	X		X	
Asteraceae	**Cotula coronopifolia*				X		X					
Crassulaceae	**Crassula alata*						X		X		X	
Crassulaceae	**Crassula ovata*								X			
Poaceae	**Cynodon dactylon*				X			X		X		
Cyperaceae	**Cyperus eragrostis*			X								
Cyperaceae	**Cyperus rotundus*									X		
Orchidaceae	**Disa bracteata*		X					X				
Verbenaceae	**Duranta erecta*			X								
Chenopodiaceae	**Dysphania ambrosioides*			X								
Boraginaceae	**Echium plantagineum*						X					
Poaceae	**Ehrharta calycina*	X	X	X	X	X	X	X	X	X	X	X
Poaceae	**Ehrharta longiflora*	X	X	X	X	X	X	X	X	X		X
Poaceae	**Eragrostis curvula*						X					X
Asteraceae	**Erigeron sumatrensis*				X		X					X
Geraniaceae	**Erodium botrys*						X					
Euphorbiaceae	**Euphorbia peplus*	X		X					X	X	X	
Euphorbiaceae	**Euphorbia terracina*		X				X		X	X	X	X

Family	Species	Beasley	Bill Brown	Douglas Freeman	Peter Bosci	Peter Ellis	Phillip Jane	Rob Weir	PJ Hanley	Dudley Hartree	William Hall	John Connell
Moraceae	**Ficus carica*					X						X
Moraceae	**Ficus elastica*						X					
Iridaceae	**Freesia alba x leichtlinii*	X				X					X	
Papaveraceae	**Fumaria bastardii*	X		X					X	X		
Papaveraceae	**Fumaria capreolata*	X	X	X	X		X	X	X	X	X	X
Rubiaceae	**Galium murale*	X	X		X		X	X				
Asteraceae	**Gazania linearis*									X		
Geraniaceae	**Geranium molle*			X								
Iridaceae	**Gladiolus carneus*				X							
Iridaceae	**Gladiolus caryophyllaceus*	X	X	X	X	X	X	X	X	X	X	X
Proteaceae	**Hakea multilineata*								X			
Araliaceae	**Hedera helix*								X			
Brassicaceae	**Heliophila pusilla*	X						X				X
Poaceae	**Hordeum leporinum*						X					
Asteraceae	**Hypochaeris glabra*		X		X	X	X	X		X		X
Asteraceae	**Hypochaeris radicata*			X						X		X
Convolvulaceae	**Ipomoea indica*		X				X					
Asparagaceae	**Lachenalia reflexa*			X								
Asteraceae	**Lactuca serriola*	X		X			X	X	X		X	X
Poaceae	**Lagurus ovatus*											X

Family	Species	Beasley	Bill Brown	Douglas Freeman	Peter Bosci	Peter Ellis	Phillip Jane	Rob Weir	PJ Hanley	Dudley Hartree	William Hall	John Connell
Lamiaceae	**Lavandula stoechas*				X							
Asteraceae	**Leontodon rhagadioloides*		X	X	X	X	X	X	X		X	
Myrtaceae	**Leptospermum laevigatum*	X							X		X	X
Brassicaceae	**Lobularia maritima*			X	X							
Poaceae	**Lolium rigidum*			X	X					X		X
Primulaceae	**Lysimachia arvensis*	X		X							X	X
Fabaceae	**Medicago polymorpha*	X			X							
Myrtaceae	**Melaleuca nesophila*						X	X	X	X		
Myrtaceae	**Melaleuca quinquenervia*	X					X	X				
Myrtaceae	**Metrosideros excelsa*						X					
Plantaginaceae	**Misopates orontium*						X					
Asteraceae	**Monoculus monstrosus*			X								
Moraceae	**Morus alba*						X					
Nephroleipdaceae	**Nephrolepis cordifolia*							X				
Apocynaceae	**Nerium oleander*						X					
Onagraceae	**Oenothera drummondii*	X		X	X		X		X	X	X	
Oleaceae	**Olea europaea*	X		X				X				
Fabaceae	**Ornithopus compressus*			X			X					
Orobanchaceae	**Orobanche minor*						X	X	X		X	
Asteraceae	**Osteospermum ecklonis*			X	X		X			X		

Family	Species	Beasley	Bill Brown	Douglas Freeman	Peter Bosci	Peter Ellis	Phillip Jane	Rob Weir	PJ Hanley	Dudley Hartree	William Hall	John Connell
Oxalidaceae	**Oxalis glabra*			X			X					
Oxalidaceae	**Oxalis pes-caprae*	X		X			X		X			X
Oxalidaceae	**Oxalis purpurea*			X	X							
Vitaceae	**Parthenocissus inserta*		X									
Vitaceae	**Parthenocissus quinquefolia*						X					
Passifloraceae	**Passiflora edulis*						X					
Geraniaceae	**Pelargonium capitatum*			X	X	X	X	X	X	X	X	X
Caryophyllaceae	**Petrorhagia dubia*	X		X	X		X	X	X	X	X	
Poaceae	**Poa annua*						X					
Fabaceae	**Podalyria sericea*						X					
Polygalaceae	**Polygala myrtifolia*								X			
Asteraceae	**Pseudognaphalium luteoalbum*						X					
Ranunculaceae	**Ranunculus muricatus*			X								
Euphorbiaceae	**Ricinus communis*										X	
Fabaceae	**Robinia pseudoacacia*			X								
Iridaceae	**Romulea rosea*			X								
Anacardiaceae	**Schinus terebinthifolia*	X		X			X	X			X	
Asteraceae	**Senecio vulgaris*			X			X					
Caryophyllaceae	**Silene gallica*	X			X		X		X	X		
Solanaceae	**Solanum nigrum*			X			X				X	X

Family	Species	Beasley	Bill Brown	Douglas Freeman	Peter Bosci	Peter Ellis	Phillip Jane	Rob Weir	PJ Hanley	Dudley Hartree	William Hall	John Connell
Asteraceae	**Sonchus asper*								X			
Asteraceae	**Sonchus oleraceus*	X	X	X	X	X	X	X	X		X	X
Lamiaceae	**Stachys arvensis*							X				
Caryophyllaceae	**Stellaria media*				X		X		X			
Poaceae	**Stenotaphrum secundatum*											X
Asteraceae	**Taraxacum khatoonae*										X	
Apocynaceae	**Trachelospermum* sp.						X					
Asphodelaceae	**Trachyandra divaricata*									X		
Fabaceae	**Trifolium campestre*		X	X			X		X	X	X	
Fabaceae	**Trifolium dubium*						X		X			
Tropaeolaceae	**Tropaeolum majus*						X					
Asteraceae	**Urospermum picroides*	X		X	X					X		X
Asteraceae	**Ursinia anthemoides*	X	X	X	X	X	X	X	X	X	X	X
Fabaceae	**Vicia hirsuta*	X										
Fabaceae	**Vicia sativa*			X			X					
Poaceae	**Vulpia bromoides*	X										
Poaceae	**Vulpia myuros*				X				X		X	
Campanulaceae	**Wahlenbergia capensis*	X	X	X	X		X		X	X	X	X
Arecaceae	**Washingtonia filifera*							X				
Iridaceae	**Watsonia meriana*	X					X		X			

Family	Species	Beasley	Bill Brown	Douglas Freeman	Peter Bosci	Peter Ellis	Phillip Jane	Rob Weir	PJ Hanley	Dudley Hartree	William Hall	John Connell
Fabaceae	**Wisteria sinensis*						X					
Araceae	**Zantedeschia aethiopica*					X						X
Fabaceae	*Acacia alata*						X	X				
Fabaceae	*Acacia applanata*	X										X
Fabaceae	*Acacia cyclops*	X								X		
Fabaceae	*Acacia huegelii*											X
Fabaceae	*Acacia lasiocarpa*						X					
Fabaceae	*Acacia pulchella*		X	X	X	X	X	X		X	X	X
Fabaceae	*Acacia saligna*				X		X	X	X		X	
Fabaceae	*Acacia stenoptera*						X	X				X
Fabaceae	*Acacia willdenowiana*							X				
Proteaceae	*Adenanthos cygnorum* subsp. *cygnorum*	X	X	X	X	X	X	X	X	X	X	X
Proteaceae	*Adenanthos obovatus*						X					
Myrtaceae	*Agonis flexuosa*	X		X			X	X		X	X	
Restionaceae	*Alexgeorgea nitens*	X		X	X	X	X			X		
Casuarinaceae	*Allocasuarina fraseriana*	X	X		X	X	X	X	X	X	X	X
Casuarinaceae	*Allocasuarina humilis*		X	X		X	X	X	X	X		X
Poaceae	*Amphipogon turbinatus*	X							X			X
Haemodoraceae	*Anigozanthos humilis* subsp. *humilis*							X	X			
Haemodoraceae	*Anigozanthos manglesii*	X	X		X	X	X	X	X	X	X	X

Family	Species	Beasley	Bill Brown	Douglas Freeman	Peter Bosci	Peter Ellis	Phillip Jane	Rob Weir	PJ Hanley	Dudley Hartree	William Hall	John Connell
Hemerocallidaceae	*Arnocrinum preissii*											X
Myrtaceae	*Astartea scoparia*		X	X	X			X				
Poaceae	*Austrostipa compressa*											X
Poaceae	*Austrostipa flavescens*								X			
Proteaceae	*Banksia attenuata*	X	X	X	X	X	X	X	X	X	X	X
Proteaceae	*Banksia blechnifolia*						X					
Proteaceae	*Banksia grandis*	X	X				X	X	X			
Proteaceae	*Banksia ilicifolia*	X	X	X	X	X	X	X		X	X	X
Proteaceae	*Banksia littoralis*				X					X		
Proteaceae	*Banksia menziesii*	X	X	X	X	X	X	X	X	X	X	X
Proteaceae	*Banksia prionotes*								X	X		
Myrtaceae	*Beaufortia elegans*											X
Pittosporaceae	*Billardiera fusiformis*							X				
Rutaceae	*Boronia crenulata*							X				
Rutaceae	*Boronia ramosa*		X					X				
Fabaceae	*Bossiaea eriocarpa*	X		X	X	X	X	X	X	X		X
Colchicaceae	*Burchardia congesta*	X		X		X	X	X	X	X	X	X
Hemerocallidaceae	*Caesia micrantha*				X		X	X				
Hemerocallidaceae	*Caesia occidentalis*					X						X
Orchidaceae	*Caladenia arenicola*									X		

Family	Species	Beasley	Bill Brown	Douglas Freeman	Peter Bosci	Peter Ellis	Phillip Jane	Rob Weir	PJ Hanley	Dudley Hartree	William Hall	John Connell
Orchidaceae	*Caladenia flava* subsp. *flava*		X		X	X						X
Orchidaceae	*Caladenia latifolia*										X	
Montiaceae	*Calandrinia corrigioloides*											X
Dasypogonaceae	*Calectasia narragara*							X				X
Myrtaceae	*Callistemon phoeniceus*						X					
Cupressaceae	*Callitris preissii*				X			X		X	X	
Myrtaceae	*Calothamnus quadrifidus*				X		X	X		X		
Myrtaceae	*Calytrix flavescens*								X	X		X
Myrtaceae	*Calytrix fraseri*											X
Lauraceae	*Cassytha racemosa*											X
Cyperaceae	*Chaetophora curvifolia (*syn. *Schoenus curvifolius)*						X					X
Asparagaceae	*Chamaescilla corymbosa*	X										X
Ericaceae	*Conostephium pendulum*	X			X	X		X	X			X
Haemodoraceae	*Conostylis aculeata*		X	X	X		X	X	X	X	X	X
Haemodoraceae	*Conostylis candicans*			X		X		X				
Haemodoraceae	*Conostylis juncea*				X		X					X
Haemodoraceae	*Conostylis setigera*				X			X	X			X
Myrtaceae	*Corymbia calophylla*		X		X	X	X	X	X	X	X	
Hemerocallidaceae	*Corynotheca micrantha*	X										
Crassulaceae	*Crassula colorata*			X	X					X		

Family	Species	Beasley	Bill Brown	Douglas Freeman	Peter Bosci	Peter Ellis	Phillip Jane	Rob Weir	PJ Hanley	Dudley Hartree	William Hall	John Connell
Rutaceae	*Cyanothamnus ramosus*	X			X						X	X
Goodeniaceae	*Dampiera linearis*				X		X	X		X	X	X
Dasypogonaceae	*Dasypogon bromeliifolius*	X	X	X	X	X	X	X	X	X	X	X
Fabaceae	*Daviesia decurrens*		X									
Fabaceae	*Daviesia divaricata*							X				
Fabaceae	*Daviesia nudiflora*									X		
Fabaceae	*Daviesia physodes*		X		X			X				X
Fabaceae	*Daviesia triflora*	X								X		X
Restionaceae	*Desmocladus asper*						X					
Restionaceae	*Desmocladus fasciculatus*											X
Restionaceae	*Desmocladus flexuosus*		X					X				X
Hemerocallidaceae	*Dianella revoluta*						X					
Asparagaceae	*Dichopogon capillipes*											X
Poaceae	*Digitaria ciliaris*							X				
Orchidaceae	*Diuris corymbosa*				X							
Droseraceae	*Drosera erythrorhiza* subsp. *erythrorhiza*											X
Droseraceae	*Drosera macrantha*											X
Myrtaceae	*Eremaea asterocarpa*											X
Myrtaceae	*Eremaea pauciflora*			X	X		X		X			X
Myrtaceae	*Eucalyptus camaldulensis*	X		X							X	

Family	Species	Beasley	Bill Brown	Douglas Freeman	Peter Bosci	Peter Ellis	Phillip Jane	Rob Weir	PJ Hanley	Dudley Hartree	William Hall	John Connell
Myrtaceae	*Eucalyptus gomphocephala*						X					
Myrtaceae	*Eucalyptus marginata* subsp. *marginata*		X	X		X	X	X	X	X		
Myrtaceae	*Eucalyptus nicholii*						X					
Myrtaceae	*Eucalyptus rudis* subsp*. rudis*			X	X							
Myrtaceae	*Eucalyptus sideroxylon*						X	X				
Myrtaceae	*Eucalyptus todtiana*	X	X	X	X			X	X			X
Fabaceae	*Euchilopsis linearis*	X	X		X							X
Fabaceae	*Gastrolobium capitatum*	X										X
Fabaceae	*Gompholobium tomentosum*	X	X	X	X	X	X	X	X	X	X	X
Haloragaceae	*Gonocarpus pithyoides*	X	X									
Proteaceae	*Grevillea crithmifolia*			X					X			
Haemodoraceae	*Haemodorum spicatum*							X				
Proteaceae	*Hakea petiolaris*								X			
Proteaceae	*Hakea prostrata*							X				
Proteaceae	*Hakea undulata*							X				
Proteaceae	*Hakea varia*				X							
Fabaceae	*Hardenbergia comptoniana*		X				X	X	X	X	X	
Lamiaceae	*Hemiandra pungens*				X							
Hemerocallidaceae	*Hensmania turbinata*											X
Dilleniaceae	*Hibbertia cuneiformis*	X	X		X			X				X

Family	Species	Beasley	Bill Brown	Douglas Freeman	Peter Bosci	Peter Ellis	Phillip Jane	Rob Weir	PJ Hanley	Dudley Hartree	William Hall	John Connell
Dilleniaceae	*Hibbertia huegelii*								X			X
Dilleniaceae	*Hibbertia hypericoides*	X		X		X	X	X	X			X
Dilleniaceae	*Hibbertia racemosa*					X		X		X		
Dilleniaceae	*Hibbertia subvaginata*	X	X		X		X					X
Fabaceae	*Hovea trisperma*	X						X				X
Myrtaceae	*Hypocalymma angustifolium*											X
Myrtaceae	*Hypocalymma robustum*		X	X		X	X	X	X	X		X
Restionaceae	*Hypolaena exsulca*	X			X	X	X			X		X
Cyperaceae	*Isolepis cernua*						X	X				
Fabaceae	*Jacksonia calcicola*										X	
Fabaceae	*Jacksonia furcellata*	X	X	X	X	X	X	X	X	X		X
Fabaceae	*Jacksonia sternbergiana*				X			X		X		
Juncaceae	*Juncus pallidus*						X					
Fabaceae	*Kennedia prostrata*			X	X		X	X				
Myrtaceae	*Kunzea baxteri*							X	X			
Myrtaceae	*Kunzea glabrescens*	X			X	X	X	X	X	X		X
Asteraceae	*Lagenophora huegelii*											X
Asparagaceae	*Laxmannia ramosa* subsp. *ramosa*				X							
Asparagaceae	*Laxmannia squarrosa*				X	X		X	X			X
Goodeniaceae	*Lechenaultia floribunda*	X	X		X	X		X	X	X	X	X

Family	Species	Beasley	Bill Brown	Douglas Freeman	Peter Bosci	Peter Ellis	Phillip Jane	Rob Weir	PJ Hanley	Dudley Hartree	William Hall	John Connell
Cyperaceae	*Lepidosperma* aff. *scabrum*						X					X
Cyperaceae	*Lepidosperma gladiatum*							X				
Cyperaceae	*Lepidosperma oldhamii*				X			X				X
Cyperaceae	*Lepidosperma pubisquameum*							X			X	
Cyperaceae	*Lepidosperma squamatum*					X						
Campanulaceae	*Lobelia tenuior*											X
Asparagaceae	*Lomandra caespitosa*	X	X		X	X		X				X
Asparagaceae	*Lomandra hermaphrodita*	X	X				X	X	X		X	X
Asparagaceae	*Lomandra micrantha* subsp. *micrantha*											X
Asparagaceae	*Lomandra nigricans*				X							
Asparagaceae	*Lomandra preissii*		X		X					X		X
Asparagaceae	*Lomandra suaveolens*											X
Anarthriaceae	*Lyginia barbata*			X					X	X	X	X
Anarthriaceae	*Lyginia imberbis*		X	X	X	X	X	X	X	X	X	X
Zamiaceae	*Macrozamia riedlei*	X		X		X	X	X		X		X
Myrtaceae	*Melaleuca preissiana*	X			X		X					X
Myrtaceae	*Melaleuca rhaphiophylla*		X					X				
Myrtaceae	*Melaleuca seriata*			X								X
Myrtaceae	*Melaleuca systena*		X		X		X	X				
Myrtaceae	*Melaleuca teretifolia*			X								

Family	Species	Beasley	Bill Brown	Douglas Freeman	Peter Bosci	Peter Ellis	Phillip Jane	Rob Weir	PJ Hanley	Dudley Hartree	William Hall	John Connell
Myrtaceae	*Melaleuca thymoides*			X		X	X	X		X		X
Cyperaceae	*Mesomelaena pseudostygia*	X						X		X		X
Orchidaceae	*Microtis media* subsp. *media*	X	X		X	X	X	X		X	X	X
Euphorbiaceae	*Monotaxis occidentalis*						X					
Loranthaceae	*Nuytsia floribunda*	X		X		X		X	X	X	X	X
Asteraceae	*Olearia axillaris*							X				
Rubiaceae	*Opercularia vaginata*											X
Bignoniaceae	*Pandorea jasminoides*						X					
Urticaceae	*Parietaria judaica*			X								
Iridaceae	*Patersonia occidentalis*	X	X	X		X	X	X	X	X	X	X
Myrtaceae	*Pericalymma ellipticum*		X				X	X				
Proteaceae	*Persoonia saccata*		X	X						X		X
Proteaceae	*Petrophile linearis*			X				X		X		X
Rutaceae	*Philotheca spicata*				X	X	X			X		X
Haemodoraceae	*Phlebocarya ciliata*		X	X	X	X	X		X	X	X	X
Haemodoraceae	*Phlebocarya filifolia*											X
Phyllanthaceae	*Phyllanthus calycinus*								X			
Thymelaeaceae	*Pimelea ferruginea*			X	X					X		
Thymelaeaceae	*Pimelea leucantha*							X				
Thymelaeaceae	*Pimelea rosea*					X						

Family	Species	Beasley	Bill Brown	Douglas Freeman	Peter Bosci	Peter Ellis	Phillip Jane	Rob Weir	PJ Hanley	Dudley Hartree	William Hall	John Connell
Thymelaeaceae	*Pimelea sulphurea*											X
Apiaceae	*Platysace filiformis*	X								X		X
Plumbaginaceae	*Plumbago auriculata*			X								
Asteraceae	*Podotheca angustifolia*											X
Orchidaceae	*Pterostylis sp.*				X							
Orchidaceae	*Pterostylis vittata*											X
Orchidaceae	*Pyrorchis nigricans*		X									
Myrtaceae	*Regelia ciliata*			X	X							X
Myrtaceae	*Regelia inops*	X				X		X	X		X	X
Goodeniaceae	*Scaevola repens* var. *repens*	X						X	X	X		X
Cyperaceae	*Schoenus pedicellatus*											X
Myrtaceae	*Scholtzia involucrata*				X	X	X	X	X			X
Asteraceae	*Senecio condylus*								X			
Fabaceae	*Senna artemisioides* subsp. *folifolia*								X			
Asteraceae	*Siloxerus humifusus*	X			X							
Rhamnaceae	*Spyridium globulosum*						X					
Proteaceae	*Stirlingia latifolia*	X			X	X	X	X	X	X		X
Stylidiaceae	*Stylidium brunonianum*											X
Stylidiaceae	*Stylidium repens*		X		X							X
Stylidiaceae	*Stylidium schoenoides*	X										X

Family	Species	Beasley	Bill Brown	Douglas Freeman	Peter Bosci	Peter Ellis	Phillip Jane	Rob Weir	PJ Hanley	Dudley Hartree	William Hall	John Connell
Ericaceae	*Styphelia conostephioides (*syn. *Leucopogon conostephioides)*				X			X		X		X
Ericaceae	*Styphelia propinqua*				X							
Ericaceae	*Styphelia* sp.										X	
Ericaceae	*Styphelia xerophylla*		X		X		X					
Proteaceae	*Synaphea spinulosa*											X
Myrtaceae	*Syzygium* sp.								X			
Orchidaceae	*Thelymitra vulgaris*				X							
Asparagaceae	*Thysanotus manglesianus*				X						X	X
Asparagaceae	*Thysanotus multiflorus*		X									
Asparagaceae	*Thysanotus sparteus*											X
Asparagaceae	*Thysanotus thyrsoideus*				X							X
Araliaceae	*Trachymene pilosa*	X	X			X	X	X	X	X	X	X
Hemerocallidaceae	*Tricoryne elatior*	X			X	X	X			X		X
Campanulaceae	*Wahlenbergia preissii*											X
Asteraceae	*Waitzia suaveolens*				X							X
Xanthorrhoeaceae	*Xanthorrhoea brunonis*	X		X		X		X		X	X	X
Xanthorrhoeaceae	*Xanthorrhoea preissii*		X	X		X	X	X	X	X	X	X
Apiaceae	*Xanthosia huegelii*					X		X				X

Appendix 4- Fauna Species List

*Denotes introduced species. Green denotes 'at-risk' species.

Family	Species Name	Common Name	Beasley	Bill Brown	Douglas Freeman	Peter Bosci	Peter Ellis	Phillip Jane	Rob Weir	PJ Hanley	Dudley Hartree	William Hall	John Connell
Mammals													
Canidae	*Canis lupus familiaris*	Domestic Dog	X	X	X	X	X	X	X	X	X	X	X
Canidae	**Vulpes vulpes*	Red Fox											X
Felidae	**Felis catus*	Cat			X								
Leporidae	**Oryctolagus cuniculus*	Rabbit						X					
Muridae	**Mus musculus*	House Mouse				X							
Muridae	**Rattus rattus*	Black Rat			X			X			X		
Peramelidae	*Isoodon fusciventer*	Quenda	X	X				X					
Vespertilionidae	*Chalinolobus morio*	Chocolate Wattled Bat											X
Birds													
Cacatuidae	*Calyptorhynchus latirostris*	Carnaby's Cockatoo	X										
Cacatuidae	*Calyptorhynchus banksii naso*	Forest Red-tailed Black Cockatoo	X										
Cacatuidae	*Eolophus roseicapilla*	Galah								X			
Campephagidae	*Coracina novaehollandiae*	Black-faced Cuckoo-shrike							X				
Columbidae	**Streptopelia senegalensis*	Laughing Dove						X					X

Family	Species Name	Common Name	Beasley	Bill Brown	Douglas Freeman	Peter Bosci	Peter Ellis	Phillip Jane	Rob Weir	PJ Hanley	Dudley Hartree	William Hall	John Connell
Corvidae	*Corvus coronoides*	Australian Raven	X		X		X	X	X				
Cracticidae	*Gymnorhina tibicen*	Australian Magpie	X	X				X		X	X	X	
Hirundinidae	*Hirundo neoxena*	Welcome Swallow								X			
Meliphagidae	*Phylidonyris novaehollandiae*	New Holland Honeyeater	X					X		X			X
Meliphagidae	*Anthochaera carunculata*	Red Wattlebird	X	X	X	X	X	X	X	X	X	X	X
Podargidae	*Podargus strigoides*	Tawny Frogmouth			X								
Psittacidae	**Trichoglossus haematodus*	Rainbow Lorikeet	X		X			X	X			X	
Psittaculidae	*Barnardius zonarius*	Australian Ringneck						X		X			
Psittaculidae	*Purpureicephalus spurius*	Red-capped Parrot						X					
Rhipiduridae	*Rhipidura leucophrys*	Willie Wagtail	X			X		X					
Threskiornithidae	*Threskiornis moluccus*	Australian White Ibis					X						
Reptiles													
Gekkonidae	*Christinus marmoratus*	Marbled Gecko									X		
Pygopodidae	*Lialis burtonis*	Burton's Legless Lizard											X
Scincidae	*Tiliqua rugosa*	Bobtail	X		X	X	X	X	X	X			X
Scincidae	*Cryptoblepharus buchananii*	Buchanan's Snake-eyed Skink	X	X		X		X	X	X	X	X	X
Scincidae	*Hemiergis quadrilineata*	Two-toed Earless Skink	X		X								X

Family	Species Name	Common Name	Beasley	Bill Brown	Douglas Freeman	Peter Bosci	Peter Ellis	Phillip Jane	Rob Weir	PJ Hanley	Dudley Hartree	William Hall	John Connell
Scincidae	*Ctenotus fallens*	West-coast Laterite Ctenotus											X
Scincidae	*Morethia lineoocellata*											X	
Invertebrates													
Pieridae	**Pieris rapae*	Cabbage White Butterfly			X					X		X	X
Apidae	**Apis mellifera*	European Honeybee				X							X
Julidae	**Ommatoiulus moreleti*	Portuguese Millipede			X	X	X		X		X	X	X
Nephilidae	*Nephila edulis*	Australian Golden Orb-Weaver											X
Sparassidae	*Neosparassus* sp.	Badge Huntsman				X							
Geoplanidae	*Caenoplana coerulea*	Blue Planarian			X								
Araneidae	*Plebs* sp.	Bush Orb Weaver		X									X
Blattidae	*Drymaplaneta semivitta*	Cockroach			X		X				X		
	Dragonfly sp.		X		X								X
Syrphidae	*Syrphidae* sp.	Hoverfly sp.				X					X		X
Sparassidae	*Isopeda leishmanni*	Huntsman spider		X	X						X		
Formicidae	*Iridomyrmex* sp.	Meat ant										X	
Gryllotalpidae	*Gryllotalpa* sp.	Mole Cricket					X				X		X
Paradoxosomatidae	*Antichiropis* sp.	Polydesmid Millipede				X			X				

Family	Species Name	Common Name	Beasley	Bill Brown	Douglas Freeman	Peter Bosci	Peter Ellis	Phillip Jane	Rob Weir	PJ Hanley	Dudley Hartree	William Hall	John Connell
Armadillidiidae	*Armadillidium vulgare*	Roly-Poly				X	X						
Lycosidae	*Venator immansueta*	Wolf Spider				X		X			X		X
Lycosidae	*Venatrix arenaris*	Wolf Spider			X								
Formicidae	*Camponotus rufus*					X							

Appendix 5- Dieback Mapping

Phytophthora Dieback Occurrence

Phillip Jane Park

City of Melville

Phytophthora Dieback Occurrence

- Infested
- Uninfested
- Excluded

Google Satellite

Scale @ A4 1:4,000

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DETECTION • DIAGNOSIS • MANAGEMENT

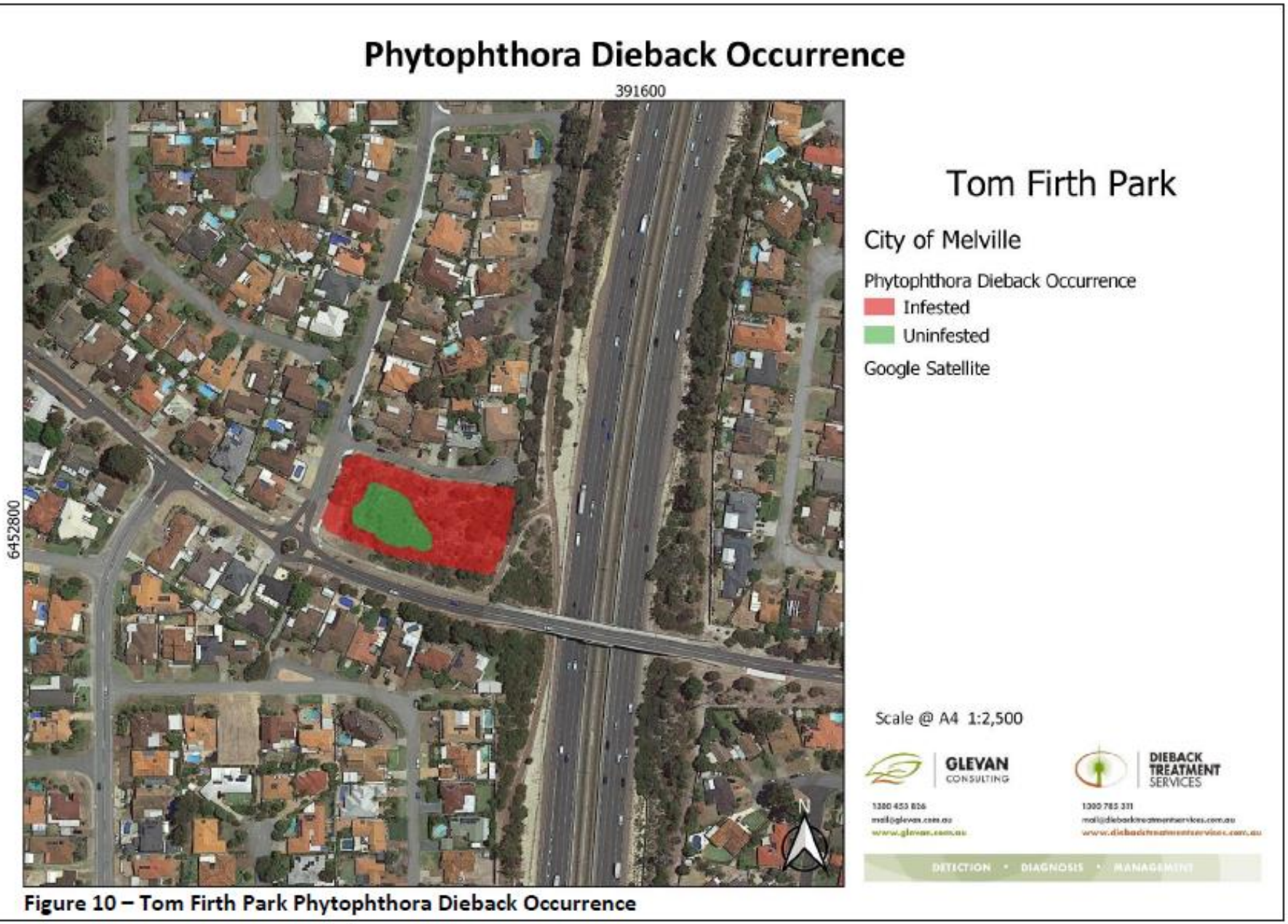

Figure 10 – Tom Firth Park Phytophthora Dieback Occurrence