City of Nedlands

Birdwood Parade Management Plan

2019–2024

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ACRONYMS AND ABBREVIATIONS

ACRONYM/ ABBREVIATION	DESCRIPTION
DBCA	Department of Biodiversity Conservation and Attractions
DCA	Development Control Area
DEC	Department of Environment and Conservation
DFES	Department of Fire and Emergency Services
DPaW	Department of Parks and Wildlife
EPBC Act	Environmental Protection and Biodiversity Conservation Act
GPS	Global Positioning System
ha	Hectare
the City	City of Nedlands
WALGA	Western Australian Local Government Association
WESROC	Western Suburbs Regional Organisation of Councils

All photos courtesy of Sally Wallace
Cover photo: Gunners Memorial, the Swan River and Birdwood Parade Bushland

Contents

2. ACKNOWLEDGEMENTS

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City of Nedlands Health and Compliance Department
Friends of Point Resolution
Ian Fordyce and Associates
Syrinx Environmental Pl
Technology One Limited

3. SUMMARY

This Management Plan is dedicated specifically to the management of Birdwood Parade bushland. Detailed information and actions relating to all natural areas within the City such as surveying methods, rehabilitation, environmental weed control, climate, geomorphology and soils, planning context, interpretation, priority flora and fauna, fire management, community involvement, access and feral animal management has been detailed on pages 1-102 of the Natural Areas Management Plan 2019–2024.

The Birdwood Parade Management Plan 2019–2024 has drawn heavily from the following documents:

- Birdwood Parade Management Plan (City of Nedlands, 2014)
- Nedlands Foreshore Bushland Reserves Management Plan 2003–2009 (Ecoscape, 2003)
- Weed Mapping Point Resolution and Birdwood Parade (Ecoscape, 2007)
- Natural Area Initial Assessment - Birdwood Parade (Orsini, 2008).

A five year Management Plan has been developed that provides management actions and strategies for the conservation and restoration of the bushland at Birdwood Parade. A summary of key actions are listed below.

Table 1: Summary of Actions 2019–2024

Management Actions 2019-2024	
BUSHLAND BOUNDARIES	
1.	Manage Birdwood Parade on the basis five Zones.
REHABILITATION	
2.	Retain historical orchard trees for their heritage significance.
3.	Focus rehabilitation on *Good* to *Very Good* bushland condition areas as a priority.
4.	Use stabilisation materials and methods to terrace steep slopes such as jute matting, coir and logs.
5.	Undertake annual maintenance of past rehabilitation sites.
6.	Undertake annual maintenance of the bushland edge adjacent to parkland areas.
7.	Maintain and monitor plants found in low abundance Zone 3 and 4 and only revegetate the edge of these areas with similar species.
8.	Maintain current views when rehabilitating the bushland edges and parkland areas.
9.	Consider delineating parkland areas with low garden curbing if parts of the parkland area are revegetated.
10.	Seek funding to restore the highly degraded areas on the northern boundary.
11.	Implement ‘Asbestos’, ‘Plant Pathogen’ and ‘Rehabilitation’ actions detailed in the Natural Areas Management Plan 2019-2024.
REVEGETATION	
12.	Careful consideration should be provided to the types of revegetation species used in areas where Black Flag is present.
13.	Work with local nurseries to grow species found in low abundance.

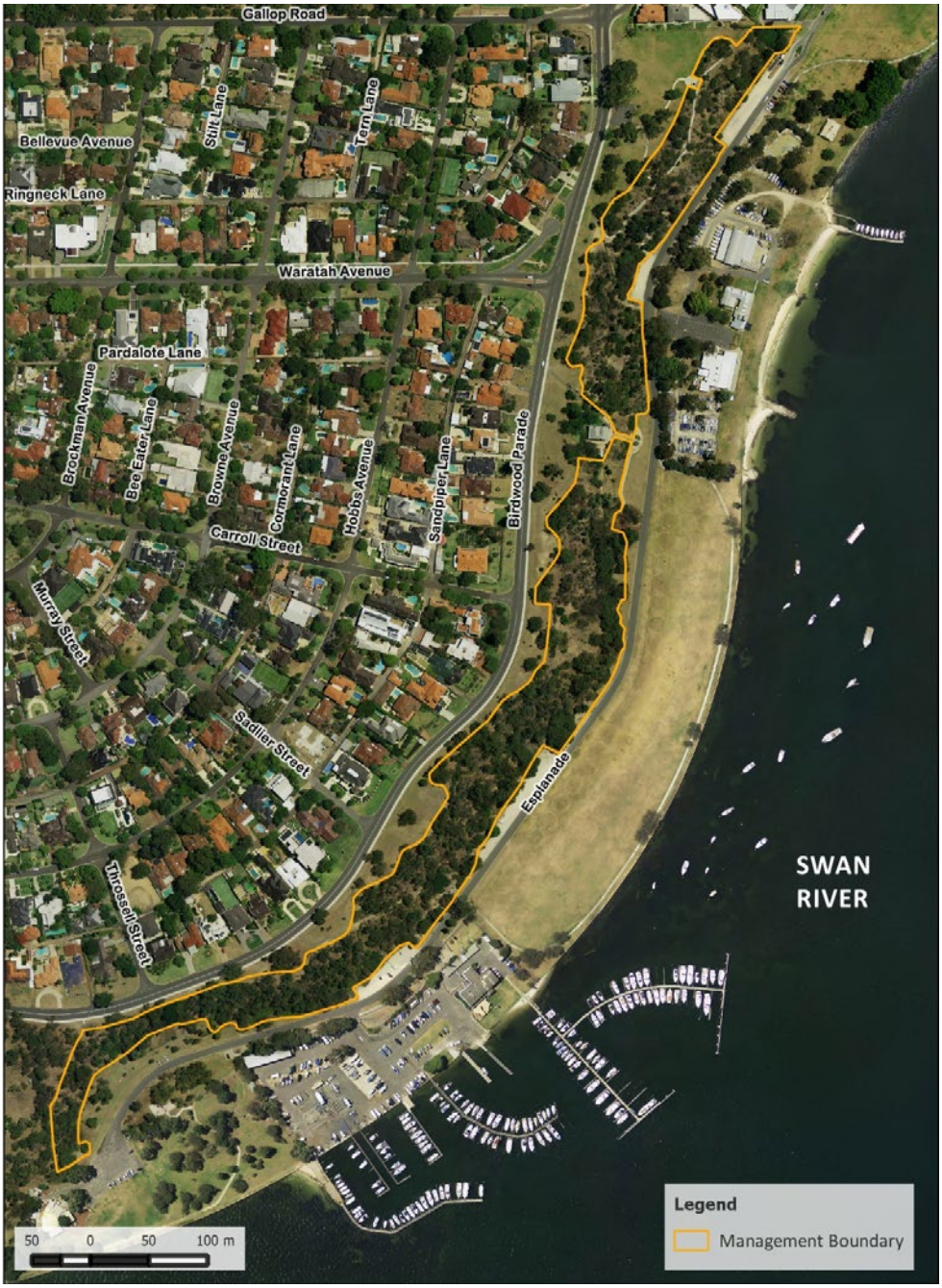
14.	Use only plant species for rehabilitation if they would have naturally occurred on site such as those found on the Mount Eliza Escarpment at Kings Park.
15.	Implement 'Revegetation' actions detailed in the Natural Areas Management Plan 2019-2024.
WEED CONTROL	
16.	Continue to control the following weeds as a high priority: Geraldton Carnation Weed, Bridal Creeper, Perennial Veldt Grass, Black Flag, *Raphanus* and *Brassica, Lupinus*, *Freesia*, Rose Pelargonium and woody weeds.
17.	Undertake ongoing maintenance of weeds in restoration sites.
18.	Control priority weeds in accordance with management notes detailed in Appendix 4.
19.	Only remove historically planted non-indigenous trees if they are invasive.
20.	Where native vegetation exists, mature Black Flag plants that have the potential to set seed should be hand wiped with herbicides or hand weeded to stop them from seeding.
21.	Implement 'Weed Control' actions in the Natural Areas Management Plan 2019-2024.
MONITORING	
22.	Monitor, control and document the distribution of new invasive weeds as they arise.
23.	Annually monitor weeds with the potential to expand rapidly and map changes in their distribution if required.
24.	Undertake annual monitoring and control of Brazilian Pepper, Geraldton Wax, African Cornflag, Giant Reed, *Lantana camara*, Marguerite Daisy and *Acacia iteaphylla* to ensure they do not spread or reestablish.
FIRE MANAGEMENT	
25.	Implement 'Fire Management' actions in the Natural Areas Management Plan 2019-2024.
ACCESS	
26.	Implement 'Access' actions in the Natural Areas Management Plan 2019-2024.
NATIVE ANIMALS	
27.	Undertake ongoing surveying of native fauna if resources allow.
28.	Minimise fires that may destroy tree hollows.
29.	Retain tree hollows for their habitat value.
30.	Undertake ongoing control of feral European Bees.
31.	Protect Rainbow Bee-eater nests.
32.	Continue implementing feral cat and fox control programs.
33.	Contribute to regional feral bird control programs coordinated by WALGA.
COMMUNITY INVOLVEMENT	
34.	Continue to support community events in the Reserve such as Clean Up Australia Day.

4. BACKGROUND

4.1 Study Site

Birdwood Parade bushland is located between the Esplanade and Birdwood Parade in Dalkeith, adjacent to the Swan River. The entire Birdwood Parade Reserve includes bushland and parkland areas to the east and west of the bushland and Gallop House which is located in the middle of the bushland. The focus of this Management Plan is on the management of the bushland area which covers approximately 5.7 hectares (ha). The bushland at Birdwood Parade is bordered by parkland to the west and east, a residence to the north and the Sunset Hospital site and Tawarri Reception and Function Centre to the south. It is located within the City of Nedlands approximately 6 km west south west of the Perth Central Business District, as shown in Figure 1.

Figure 1: Birdwood Parade Bushland



Birdwood Parade is vested to the City of Nedlands as A Class Reserve 1624 for "Parks and Recreation". The City of Nedlands has the power to lease on Reserve 1624. Birdwood Parade falls within the Department of Biodiversity Conservation and Attractions (DBCA) Development Control Area (DCA). The DBCA act as an advisory body on proposals that occur within the DCA.

Figure 2: DBCA Development Control Area at Birdwood Parade.

The Swan and Canning River Foreshore Assessment Management Strategy (2008) identifies the riverbank and shorelines of Birdwood Parade as Priority 2 and Priority 3 areas for management and a Priority 2 area for vegetation management. Management strategies recommended for these areas include renourishment where appropriate, foreshore stabilisation including bioengineering to protect infrastructure or recreational amenity; and improving linkages between regionally significant and good quality vegetation areas through planning and action.

4.2 Disturbance Factors

Birdwood Parade has a long history of disturbance with parts of the Reserve having been quarried for limestone, farmed and sand mined since the early colonial days. The Nedlands foreshore was also extended through reclamation works in the 1940s. Prior to these reclamation works the gardens surrounding Gallop House were level with the Swan River and subject to seasonal flooding.

Some existing remnant vegetation exists in small sections in the southern portion of the Reserve which are characterised by a high proportion of herbaceous species not found elsewhere in the Reserve. There are also some dense patches of Coastal Sword Sedge interspersed with Marri trees in *Very Good* condition. In other areas the majority of vegetation consists of an upper or mid storey of native and introduced trees. Currently the Reserve has a high proportion of invasive weeds in certain locations dominating the understorey especially bulbous weeds.

4.3 Implementation of Previous Management Plans

Previous management plans developed for Birdwood Parade include the Birdwood Parade Management Plan (Bunny, 1993), the Nedlands Foreshore Bushland Reserves Management Plan 2003-2009 (Ecoscape, 2003) which also included the management of Point Resolution and the Birdwood Parade Management Plan 2013-2018 (City of Nedlands).

The 1993 Management Plan was prepared as part of a university project. This Plan did not include detailed information regarding cultural values, interpretation or biophysical elements. The 2003-2009 Management Plan consolidated, reviewed and updated the information detailed in the 1993 Management Plan. It also included information regarding cultural and biophysical values and flora inventories. Since the development of the 1993 Management Plan the bushland has been actively managed by the City of Nedlands. The Friends of Point Resolution also have an interest in the management of Birdwood Parade and have collaborated with the City on Clean Up Australia Day and National Tree Day events.

The 2019-2024 Management Plan consolidates information regarding conservation activities that have been undertaken since the development of the 2013 Management Plan along with reviewing and updating the 2013 Plan. Of the thirty one management actions that were developed for the 2013 Management Plan twenty seven were implemented and four were partially implemented. A summary of the implementation of the 2013-2018 Management Plan action are detailed in Appendix 5. The partially implemented actions are detailed in table 2 below.

Table 2: Actions from the 2013-2018 Management Plan Partially Implemented

ACTIONS		IMPLEMENTED	REASON
REVEGETATION			
1.	Consider only planting overstorey species in areas where Black Flag is present.	Partially	Due to erosion areas where Black Flag was present required revegetation with shrubs as well as overstorey.
WEED CONTROL			
2.	Where native vegetation exists, mature Black Flag plants that have the potential to set seed should be hand wiped with herbicides to stop them from seeding.	Partially	Black Flag was generally hand weeded rather than wiped with herbicide.
NATIVE ANIMALS			
3.	Undertake ongoing surveying of native fauna if resources allow.	Partially	Only informal surveys undertaken.
4.	Contribute to regional programs being undertaken for feral bird control by DPaW.	Partially	This is being undertaken at a WESROC Council level.

4.4 Management Challenges and Success

Over the years there has been a significant reduction in the density and/or distribution of the following environmental weeds:

- African Cornflag (*Chasmanthe floribunda)*
- Black Flag (*Ferraria crispa*) – density only
- Geraldton Carnation Weed *(Euphorbia terracina*)
- Freesias (*Freesia alba x leichtlinii)*
- Giant Reed (*Arundo donax*)
- Common Lantana (*Lantana camera*)
- Marguerite Daisy (*Argyranthemum frutescens*)
- Perennial Veldt Grass (*Ehrharta calycina*).

Black Flag (*Ferraria crispa*) was widely distributed across the bushland prior to 2007 where it formed dense mats in several locations across the Reserve. It has reduced its density significantly through herbicide spraying and the use of the herbicide Dalapon is assisting in controlling Black Flag where it grows amongst native plants. As Black Flag is difficult to control and hand removal is not appropriate, careful consideration should be given to revegetating areas with dense ground covers or spreading shrubs where Black Flag occurs. These species will prove challenging where they are establishing if Black Flag is present. Black Flag also seeds prolifically and where native vegetation exists mature plants that have the potential to set seed should be hand wiped with herbicides or hand weeded to stop them from seeding.

Large dense patches of African Cornflag previously existed in several locations across the bushland. These have been reduced to isolated individuals and small patches with less than 1 percent (%) cover. These small patches should be continually monitored and removed as required.

Some non-indigenous species were historically planted such as Mindiyed (*Melaleuca nesophila*) which now have established populations in some areas within the bushland. As Mindiyed is not considered invasive, provides habitat and cover stopping other invasive weeds from spreading it is not recommended for removal.

Woody weeds such as Brazilian Pepper Trees have largely been removed from the Reserve. Occasionally some isolated plants reseed or resprout from previously removed infestations and these require ongoing monitoring and control. As Birdwood Parade has historical farming significance the removal of remnant orchard trees is not permitted.

In 2014 herbicide resistance was discovered in the Annual Veldt Grass population at Hollywood Reserve following scientific testing of both Annual and Perennial Veldt Grass. Furthermore, in 2018 herbicide resistance in Perennial Veldt Grass, whilst not scientifically tested, has been presumed to be occurring at certain isolated areas across a few reserves including Birdwood Parade. In order to address herbicide resistance the City has modified its grass spraying program ensuring that at all reserves hand weeding of Perennial Veldt Grass (and annual grasses provided resources are available) occurs following completion of the annual grass control program. This program includes Birdwood Parade.

There are informal tracks being made through the bushland from Birdwood Parade to the Esplanade on an ongoing basis. This occurs as the bushland has no fencing to delineate the bushland and parkland areas. Whilst the City attempts to restore these areas the informal tracks damage native vegetation. Following repair of these informal tracks new tracks are then made in other locations that disturb the native vegetation in these areas. This is an ongoing management issue for Birdwood Parade.

One area towards the Tawarri end of the bushland that had been historically used as a bike jump had jute erosion matting and brushing installed and was revegetated and brushed in an attempt to stop access and restore the area. However within a few weeks these works had been illegally removed. It has been accepted that limiting access through this area is not currently achievable unless there is formal fencing installed along the bushland edge. Funding could then be used to restore and stabilised the track. The installation of fencing would also aid in protecting future restoration works.

Significant restoration work has been undertaken in part of Zone 5 where a large stand of Giant Reed previously existed. This area has been successfully restored with native vegetation. The restoration of parts of Zone 5 should continue when funding is available.

The northern boundary of the Reserve (Zone 1) has a highly degraded area that contains various weeds including *Lantana camara* a Weed of National Significance (WoNS) and large dense thickets of Bougainvillea. The Bougainvillea is impenetrable and is expanding rapidly limiting a fire break along sections of the northern boundary. The Bougainvillea cannot be removed without an intensive restoration project. This is because the site is located on a steep embankment which contains limestone outcrops that potentially may be disturbed. Furthermore the entire plant and root ball need to be removed and this cannot be achieved without the use of machinery. Unfortunately it is not an option to kill the Bougainvillea and leave the biomass on site as the dead plant material will be a fire hazard.

In order to restore this area the Bougainvillea needs to be controlled in situ and then removed off site with machinery. The embankment then requires stabilising with jute erosion matting, terracing and dense revegetation. The City should seek funding to restore this area as it is an ongoing management issue and the Bougainvillea is expanding rapidly limiting a fire break along sections of the boundary.

Management Actions 2019-2024	
REHABILITATION	
1.	Seek funding to restore the highly degraded areas on the northern boundary.
REVEGETATION	
2.	Careful consideration should be provided to the types of revegetation species used in areas where Black Flag is present.
WEED CONTROL	
3.	Only remove historically planted non-indigenous trees if they are invasive.
4.	Where native vegetation exists, mature Black Flag plants that have the potential to set seed should be hand wiped with herbicides or hand weeded to stop them from seeding.

5. BIOLOGICAL ENVIRONMENT

5.1 Landscape Elements

The bushland at Birdwood Parade Reserve occupies a steep elongated embankment with limestone rock formations outcropping at the northern end of the bushland. Birdwood Parade has an elevated position that offers views of the Swan River, Kings Pak and Perth City. The parkland area adjacent to Birdwood Parade contains many significant habitat trees such as Marris and Jarrahs.

5.2 Soils and Geomorphology

Birdwood Parade lies on the Spearwood Dunes. The bushland itself occupies a steep bank of Tamala Limestone, for the most part blanketed under grey or brownish grey sand. Apart from some small, isolated outcrops, the limestone is confined to the northernmost 200 m section. A very small portion of river terrace near the Perth Flying Squadron Yacht Club is included in the Reserve. The landscape here has been extensively altered, but the soil profile probably preserves elements of the original alluvial sand.

5.3 Vegetation

Vegetation Complex Heddle et al (1980)

On a regional scale the bushland at Birdwood Parade is mapped as occurring on the Karrakatta Complex – Central and South. This complex is also represented in Kings Park and consists predominantly of an Open Forest of Tuart-Jarrah-Marri. In the deeper sands Tuart is replaced by Jarrah, while Marri (*Corymbia calophylla*) is more dominant around moister sites.

The lower portion of Birdwood Parade Reserve was cleared for farming in the early period of the European settlement of Western Australia and would have formed part of the Vasse Complex. This complex is dominated by *Melaleuca* Scrub, *Melaleuca*-Flooded Gum Woodland and Tuart-Jarrah-Marri Forests (Department of Conservation and Environment, cited in Ecoscape 2003).

Floristic Community Type Gibson (1994)

Floristic Community Types (FCTs) classify vegetation into groups of plant species that tend to co-occur in small to medium areas. Birdwood Parade forms part of Super Group 4 - Uplands Centred on Spearwood and Quindalup Dunes. Birdwood Parade has not been sampled or inferred as containing a specific FCT.

Structural Plant Communities - Natural Area Initial Assessments 2008

In 2008 through the Natural Area Initial Assessments undertaken one Structural Plant Community was identified as Jarrah (*Eucalyptus marginata*) / Marri (*Corymbia calophylla*) forest. This information is detailed on the Local Biodiversity Program Natural Area Assessment database for Birdwood Parade.

The dominant trees were identified as Jarrah, Marri and Peppermints; dominant shrubs as *Xanthorrhoea preissii* and *Macrozamia riedlei;* and dominant understorey plants as *Lepidosperma gladiatum.* Other common native species noted as occurring on site included *Acacia cyclops, Acacia rostellifera, Jacksonia furcellata, Spyridium globulosum, Grevillea crithmifolia, Grevillea vestita, Rhagodia baccata, Melaleuca lanceolata, Hakea prostrata, Acanthocarpus preissii, Banksia attenuata, Petrophile*

linearis, Sowerbaea laxiflora (1 individual*), Stirlingia latifolia and Desmocladus flexuosa.*

5.4 Corridor Value

Birdwood Parade forms important ecological linkages with nearby river foreshore areas such as Point Resolution, Bishop Road and Pelican Point. It is identified as part of Greenway 24 in "A Strategic Plan for Perth's Greenways" by Tingay and Associates and it forms part of the regional river foreshore greenway identified in the Western Suburbs Greening Plan stretching approximately 15 km from Kings Park to Fremantle.

5.5 Bushland Condition

The methodology followed for bushland condition assessments undertaken in 2018 is detailed on pages 34-36 of the Natural Areas Management Plan 2019–2024. Bushland condition is useful in tracking large changes over time and should continue to be measured each time this Management Plan is reviewed. This allows changes to be regularly monitored and recorded.

Historical Bushland Condition Assessment Data

Over the years bushland condition has been mapped using different methods and scales. Bushland condition was not mapped in the 1993 Management Plan. It was mapped in the 2003-2009 Management Plan using the Kaesehagen Scale. These maps were digitised however they did not use 20 x 20 m polygons and condition ratings were allocated strictly on the basis of local native species present.

In 2003 the overall condition of the bushland was assessed as approximately two thirds *Poor* and one third as *Poor – Very Poor* along with some rehabilitation sites. The bushland condition mapping undertaken in 2008 using the Keighery Scale through the Natural Area Initial Assessments assessed the bushland as 44% *Degraded*, 30% *Good* and 26% *Very Degraded*. This survey was undertaken in spring 2008 and condition ratings were not allocated strictly on the basis of local native species present. These maps did not use 20 x 20 m polygons.

2013 and 2018 Bushland Condition Assessment

Bushland condition mapping in 2013 and 2018 was undertaken in spring by adapting the Keighery Scale and divided the bushland into 20 x 20 m polygons.

The Keighery Scale was adapted to assess the impact of disturbance on vegetation structure. Each 20 x 20 m polygon was provided a rating from *Very Good, Good, Degraded* to *Completely Degraded.* The main disturbance factors that influenced the condition rating included fire, environmental weeds, clearing and the selective removal of species (for example from plant pathogens, frequent fires, grazing and logging). The existence on non-indigenous native plants such as *Melaleuca nesophila* did not reduce the condition rating (except in the *Very Good* rated areas) unless they were considered invasive to the site and/or if they were found in isolation with no other local provenance species present.

In 2018 approximately 60% of the bushland was assessed as *Good* with some small *Very Good, Degraded* and *Completely Degraded* areas as shown in Table 3 below.

Table 3. Extent of Bushland Condition by Class 2018

Very Good	*Good*	*Degraded*	*Completely Degraded*	Total Area
0.46 ha	3.5 ha	1.6 ha	0.2 ha	5.7 ha

The areas rated as *Very Good* condition primarily included the Coastal Sword Sedge community. In order to attain a *Very Good* condition rating the area could be impacted by some disturbance such as frequents fires, clearing and aggressive weeds (in low abundance or considered a low priority). However, they needed to contain good vegetation strata expected for the location, show signs of natural recruitment and contain established local provenance species with a similar abundance and diversity that would be expected naturally.

The *Good* condition rated areas consist of a band of differing levels of condition (some of these were considered more on the *Degraded* or the *Very Good* side of *Good* condition). In the *Good* condition bushland areas, weed cover consisted of mostly annual species or invasive weeds in low abundance. Some introduced native Western Australian plants may also have formed part of the vegetation structure (such as *Eucalyptus utilis or Melaleuca nesophila*), however they needed to be found cohabiting with local provenance native species and considered to provide good habitat value.

Areas assessed as *Degraded* had a combination of the following criteria that resulted in their *Degraded* rating:

- Sparse native vegetation cover
- High density of invasive weeds
- Comprised of newly revegetated areas.

There were also small areas that were assessed as *Completely Degraded*. These areas had a combination of the following criteria that resulted their *Completely Degraded* rating:

- Lawn or infrastructure that covered entire quadrat
- No local provenance or Western Australian native flora
- Only a small proportion of native shrubs or seedlings and the remainder weed species.

5.6 Flora

There are 169 flora species recorded at Birdwood Parade, of these 70 are identified as native species and 99 as introduced weed species. The suite of species originally present at Birdwood Parade cannot be directly observed due to the long history of degradation at the site such as farming, quarrying and sand mining.

Prior to the development of the 2003 Management Plan there were no flora lists for Birdwood Parade. The flora list for Birdwood Parade is has been based on the following surveys:

- Ecoscape 2003
- Ian Fordyce 2013 and 2018
- Ongoing observations by City of Nedlands staff.

Plants recorded at Birdwood Parade since the 2013-2018 Management Plan.
Since 2013, the below listed native plants were surveyed which were not previously recorded in flora inventories at Birdwood Parade:

- *Austrostipa elegantissima*
- *Caladenia flava*
- *Dichopogon capillipes*
- *Isolepis marginata* (Coarse Club-rush)
- *Lomandra maritima*
- *Melaleuca rhaphiophylla*
- *Templetonia retusa.*

5.7 Plant Pathogens

A survey of plant pathogens undertaken across the City's natural areas in 2010 isolated the following plant pathogens from 25 trees in the parkland and bushland areas at Birdwood Parade (17 Marris and 8 Jarrahs):

- *Phytophthora aff. Arenaria* (2 Jarrahs)
- *Phytophthora multivora* (6 Marris)
- Quambalaria canker (13 Marris).

The 2010 survey noted that many trees exhibited signs of stress through epicormic growth, a few had mechanical damage and stem boring insects and one had a possible *Armillaria* infection.

Since 2010 *Maskiella globosa* (Armoured Scale) another plant pathogen has been confirmed at Birdwood Parade. Management of *Maskiella globosa* is detailed in the Natural Areas Management Plan 2019-2024 and consists of reducing disturbance, applying systemic and/or soil treatments and mechanical removal provided funding is available. The identification and management of plant pathogens and other causes of tree decline has been detailed further in the Natural Areas Management Plan 2019-2024.

5.8 Weeds

Of the 99 weed species recorded at Birdwood Parade (listed in Appendix 1) the distribution of 12 of these and woody weeds were mapped in 2018. They are shown in the map section in Appendix 6.

Some non-indigenous native plants listed in the native flora inventory in Appendix 1 were intentionally planted such as *Melaleuca nesophila* and *Eucalyptus utilis.* There are also orchard species included in the flor inventory such as Fig trees and need to be retained for their heritage value.

Non-indigenous native plants are not listed as weeds at Birdwood Parade as they provide much needed habitat and they are not causing environmental management issues. Non-indigenous native plants at Birdwood Parade should only be removed if they are invasive. However, as these species come to the end of their natural life they should be replaced with local provenance species.

Weed mapping

The methodology applied for weed mapping is detailed on pages 34-36 of the Natural Areas Management Plan 2019-2024. Weed mapping was undertaken in spring 2018 using 20 x 20 m polygons and the Department of Environment and Conservation (DEC) Standard Operating Procedure SOP 22.1. *Techniques for Mapping Weed Distribution and Cover in Bushland and Wetlands.* These procedures were developed to address the subjectivity that can be encountered when different people undertake mapping. In order to address this subjectivity the below listed broad cover classes were developed and were used to undertake the 2013 and 2018 weed mapping:

- Individual plants (mapped as GPS points – this was limited to woody weeds)
- Less than 5%
- 6-75%
- 76-100%.

Using SOP 22.1 for the weed mapping undertaken in spring 2013 and 2018 addressed the subjectivity involved in mapping weed cover. However, in order to refine weed management for the 2014–2019 Management Plan actual cover was also mapped. These cover classes included:

- Less than 1%
- 2-5%
- 6-10%
- 11-20%
- Then 9% increments until 100%.

The purpose of additionally mapping actual cover in 2018 was to allow for more refined and focussed reporting of weed cover and density. Whilst the broad cover classes assisted with standardising the mapping process, addressing issues with subjectivity and identifying focus areas and actions. The cover classes did not accurately reflect weed management programs success or failures. For example, if a weed species was mapped as 6-75% in the 2013-2018 Management Plan it may have undergone a significant reduction after five years of management however it had the potential to still be mapped in the same cover class for the 2019–2024 Management Plan.

Furthermore, the City has undertaken long term management of some species such as Rose Pelargonium which was primarily mapped as less than 5% in 2013. However, in reality the cover of Rose Pelargonium is now less than 1% and it would have still been mapped as less than 5% in 2018 if the broad cover classes were used in isolation.

In the map section in Appendix 6 only three ‘Actual Cover’ maps have been provided. These maps are for the species that had high weed cover above 5%. Generally, the majority of the weed species mapped had broad cover classes of less than 5% and an actual cover of less than 1%.

Target Species for Weed Mapping 2018

In 2018 the weeds listed in Table 4 on the next page:

Table 4: Weed Species Mapped in 2018

No	SPECIES	Actual Cover Map Provided
1.	African Cornflag *(Chasmanthe floribunda*)	No
2.	Black Flag *(Ferraria crispa)*	Yes
3.	Bridal Creeper *(Asparagus asparagoides*)	No
4.	*Freesia (Freesia alba x leichtlinii*)	No
5.	Fumitory	Yes
6.	Geraldton Carnation Weed *(Euphorbia terracina)*	No
7.	Giant Reed *(Arundo donax)*	No
8.	*Gladiolus undulatus and angustus* – Gladiolus	No
9.	*Oxalis Pes-Caprae* (Soursob)	Yes
10.	Perennial Veldt Grass *(Ehrharta calycina)*	No
11.	Pretty Betsy *(Centranthus macrosiphon)*	No
12.	Rose Pelargonium *(Pelargonium capitatum*)	No
13.	Woody weeds	No

Limitations of weed mapping

Only the above listed priority weeds were mapped due to the time and the cost involved with mapping. Unfortunately, there are always going to be limitations encountered with weed mapping including timing of the survey and weather variations. These are detailed further below.

Timing of Survey

Surveying should always be undertaken in spring when weeds are active. There are six natural areas in the City that require mapping and they all cannot all be surveyed simultaneously. Therefore at the time of surveying some weeds may have germinated, may not be flowering, may be covered over by taller weeds (and therefore not visible) or they may have been removed through weeding activities. Also some weeds do not flower every year and therefore they may be difficult to identify at the time of the survey.

Weather variations from year to year

Some years can have early rain which will provide an early flowering and germination period. Other years have late rain that extends into spring which provides successive germination events by which time the survey could have concluded.

5.9 Fungi

No 'Fungi Forays' have been held at Birdwood Parade and prior to the development of the 2013 Management Plan, no previous inventories were compiled. Only 4 fungi have been noted as occurring at Birdwood Parade and these are listed in Appendix 2. These have been opportunistically noted by City staff. It is therefore likely that there are a significantly higher number of fungi on site than has been recorded to date. The fungi list for Birdwood Parade should be continually updated as new species are recorded.

5.10 Native Fauna

A total of 10 native birds and 3 reptiles have been recorded at Birdwood Parade. The native fauna inventories have been opportunistically noted by City staff and volunteers, and require continually updating as new species are recorded.

Birds

Of the 10 bird species identified in Appendix 3 two species are listed under the Environmental Protection Biodiversity Conservation Act 1999 (EPBC Act) the Carnaby's Black-Cockatoo *(Calyptorhynchus latirostris)* which is listed as *Endangered* and the Rainbow Bee-eater *(Merops ornatus)* which is listed as a *Marine* species.

Mammals

No native mammals have been recorded at Birdwood Parade to date. However due to their distribution and adaptability it is assumed that Brushtail Possums (*Trichosurus vulpecula*), Gould's Wattled Bats (*Chalinolobus gouldii)* and the White-striped Freetail Bat (*Tadarida australis*) occur at Birdwood Parade.

Herpetofauna (Reptiles & Amphibians)

A total of three Herpetofauna species have been confirmed at Birdwood Parade. These include: The Sands Gould's Monitor (*Varanus gouldii*), the Fence Skink (*Cyptoblepharus buchananii*) and the Western Bobtail (*Tiliqua rugosa*).

The three species listed above would only form part of the herpetofaunal species at Birdwood Parade and further informal surveys should be undertaken to update the current species list.

Invertebrates

No native invertebrates have been confirmed onsite. Like herpetofauna, invertebrates should also be informally surveyed and species lists compiled.

5.11 Introduced Fauna

Feral animal management strategies have been detailed on pages 85-90 of the Natural Areas Management Plan 2019-2024.

Mammals

Birdwood Parade has the following confirmed introduced mammals: rabbits (*Oryctolagus cuniculus)*, foxes *(Vulpes vulpes*), Cat (*Felis catus*) and the Black Rat (*Rattus rattus)*. Other possible (unconfirmed) introduced fauna include the House Mouse (*Mus musculus*).

Invertebrates

One introduced invertebrate of concern at Birdwood Parade includes the European Honey Bee *(Apis mellifera).*

Introduced Birds

There are seven known introduced or feral birds within Birdwood Parade these include the Rock Dove (*Columba livia*), Spotted Dove (*Streptopelia chinensis*), Laughing Dove (*Streptopelia senegalensis*), Rainbow Lorikeet (*Trichoglossus haematodus*), Laughing Kookaburra (*Dacelo novaeguineae*) and Little and Long-billed Corellas' (Cacatua sanguinea and *tenuirostris*).

6. PLAN FOR MANAGEMENT

General management principles and weed control strategies that relate to all natural areas has been detailed in the 'Plan For Management' section on pages 39-51 of the Natural Areas Management Plan 2019-2024.

6.1 Management Zones

External Boundaries

For management purposes it is important to distinguish between parkland and bushland zones. At Birdwood Parade, the boundaries between bushland and parkland areas are mostly well defined by shrubs and trees between the bushland and parkland areas.

Internal Boundaries

For management purposes the bushland is divided into 5 Zones. These 5 Zones form the basis of general management and are intended to facilitate the establishment of guidelines for managing areas of similar terrain and degradation. Specific sites are targeted areas for rehabilitation within Zones. They demarcate the extent of areas where specific works should occur.

Figure 3: Management Zones at Birdwood Parade.

Management Actions 2019-2024	
1.	Manage Birdwood Parade on the basis five Zones.

6.2 Rehabilitation

The improvement of bushland condition at Birdwood Parade will be achieved by assisting natural regeneration in *Good* to *Very Good* bushland condition areas and through reconstruction at selected *Degraded* sites.

Sites

Sites are areas within Zones where resources for rehabilitation and monitoring are focused. Areas where rehabilitation has previously occurred are also considered sites. A rehabilitation plan should be developed for each area requiring reconstruction to minimise any possible detrimental impacts such as trampling, erosion, spraying native species in low abundance or the introduction of weed species.

The priority for rehabilitation is the consolidation and expansion of better condition bushland in all Zones. The Bradley Method should be followed which focuses on targeting better condition bushland areas within these Zones. Restoration of the more *Degraded* bushland areas should be a focus if resources allow, in areas affected by erosion and in areas directly adjacent to *Good* bushland. If internal funding is not available then these sites could be the focus of grant funded projects.

Past Rehabilitation Sites

The following rehabilitation sites should have ongoing annual maintenance undertaken:

- Garden Beds
- Embankment in front of Garden Beds
- Edges of the first and second pathways on the northern end
- Bushland edge along the boundary of the parkland area
- Large degraded area to the south of Gallop House
- Revegetation sites in Zone 5 (opposite the Dalkeith and Nedlands Yacht Clubs)
- Areas of the lower embankment adjacent to Tawarri Reception and Function Centre.

The above listed sites require ongoing annual infill planting, weed control and maintenance of stabilisation works such as jute matting and brushing.

The bushland edge along the boundary of the parkland area requires ongoing revegetation as plants die and at areas that are becoming eroded. This will reinforce the boundary between the parkland and bushland areas. In the past, significant revegetation of the bushland edge has been undertaken in order to develop a hedge to clearly delineate the bushland boundary. This has achieved a significant reduction of informal access into the bushland. Plant species such as *Grevillea crithmifolia* and *Grevillea vestita* are very good at maintaining the boundary between parkland and bushland areas.

Very Good Condition Bushland in Zone 3 and 4

Some areas in part of Zone 3 and 4 have many native herbs, sedges and shrubs that are not found elsewhere in the bushland. Many of these species cannot be propagated and any weed control carried out in this area needs to be undertaken carefully so that these plants are not damaged. The periphery of this area should also only be revegetated with similar species to maintain the community of plants found in this area.

Potential Reconstruction Sites

The following sites are potential reconstruction sites and should only be restored if significant funding is available and after resources have focused on the maintenance of *Good* to *Very Good* bushland condition areas:

- Embankment in Zone 1 and 4
- Parkland areas to expand the bushland edge in Zone 5.

Parts of the embankment in Zones 1 and 4 are highly degraded and have very steep embankments. There is little existing understorey vegetation and some of these areas have dense weed infestations. The City has been undertaking staged rehabilitation in Zone 1 however currently the City does not have the required resources to undertake complete rehabilitation of these areas. This is because available funding is needed to undertake ongoing restoration of previously rehabilitated sites and to manage the restoration of the remainder of the bushland areas.

When these areas are rehabilitated steep slopes that are at risk of soil slippage should be stabilised with jute matting, coir and/or terraced with logs as these materials can be useful for stabilising fragile slopes as well as suppressing weeds.

Adjacent Parkland Areas

Through the City's Greenway Policy some of the parkland area has been earmarked to be revegetated. This aims to increase the bushland buffer and greenway corridor value of Birdwood Parade and to reduce water consumption by reducing the area of reticulated parkland area.

There are no immediate plans for these works to commence however when and if they do proceed, the following points should be considered:

- Delineating these areas with low garden curbing
- Maintaining the visual amenity of the area by not reducing current views of the Swan River from the parkland area.

Management Actions 2019-2024	
1.	Focus rehabilitation on *Good* to *Very Good* bushland condition areas as a priority.
2.	Use stabilisation materials and methods to terrace steep slopes such as jute matting, coir and logs.
3.	Undertake annual maintenance of past rehabilitation sites.
4.	Undertake annual maintenance of the bushland edge adjacent to parkland areas.
5.	Maintain and monitor plants found in low abundance Zone 3 and 4 and only revegetate the edge of these areas with similar species.

6.	Maintain current views when rehabilitating the bushland edges and parkland areas.
7.	Consider delineating parkland areas with low garden curbing if parts of the parkland area are revegetated.
8.	Retain historical orchard trees for their heritage significance.
9.	Implement 'Asbestos', 'Plant Pathogen' and 'Rehabilitation' actions detailed in the Natural Areas Management Plan 2019-2024

6.3 Revegetation

Species Selection

Ideally species used for revegetation in reconstruction sites would consist of the entire collection of plants that naturally occur at Birdwood Parade. This is not always possible as not all local provenance species can be propagated.

The suite of native species that would have once occurred at Birdwood Parade can be inferred from the Mount Eliza Escarpment in Kings Park which occupies a similar position in the landscape and is less than 3 km away. When developing species lists they should be cross referenced to those that have been found on the Mount Eliza Escarpment.

Species of Significance or Low Abundance

There are a number of species of significance or found in low numbers within Birdwood Parade these are mainly found in Zones 3 and 4. Special consideration should be given to ensure their survival onsite. They should be mapped, monitored and if possible propagated for revegetation at reconstruction sites these include:

- *Caladenia latifolia*
- *Astroloma macrocalyx*
- *Hibbertia hypericoides* (not recorded in 2013 or 2018)
- *Myoporum insulare*
- *Sowerbaea laxiflora*
- *Desmocladus flexuosus*
- *Petrophile linearis*
- *Thysanotus.*

Management Actions 2019-2024	
1.	Work with local nurseries to grow species found in low abundance.
2.	Use only plant species for rehabilitation if they would have naturally occurred on site such as those found on the Mount Eliza Escarpment at Kings Park.
3.	Implement 'Revegetation' actions detailed in the Natural Areas Management Plan 2019-2024.

6.4 Environmental Weed Control

A total of 27 priority weeds have been listed for management at Birdwood Parade (Table 5). Each priority weed has been provided management notes and the Weed Prioritisation Process rating (DBCA 2016). Priority weeds will be managed according to management notes provided on the DBCA Florabase website at https://florabase.dpaw.wa.gov.au and are detailed in Appendix 4.

Priority weeds have been selected from:

- Swan Region Weed Prioritisation Process (DPaW 2013)
- Swan Impact and Invasiveness Ratings (DBCA 2016)
- State and Federal weed lists
- Their ability to contribute to fuel loads
- Their ability to be controlled without causing disturbance to natural areas.

Table 5: Priority Weeds for Control – (Ratings taken from DBCA 2016 (Swan Rating))

Species Name		Common Name	Notes	Rating
1.	*Acacia iteaphylla*	Flinders Range Wattle	Monitor for re-infestation.	High/Rapid
2.	*Avena fatua*	Wild Oat	Ongoing control required in conjunction with grass spraying program.	Medium/High
3.	*Argyranthemum frutescens*	Marguerite Daisy	Monitor for re-infestation.	Unrated/Slow
4.	*Arundo donax*	Giant Reed	Requires ongoing monitoring and control.	High/Slow
5.	*Asparagus asparagoides*	Bridal Creeper	Ongoing biological control required, removal of berries and/or hand removal of small populations.	High/Rapid
6.	*Brachychiton populneus*	Kurrajong	Requires ongoing monitoring and control.	High/Medium
7.	*Brassica barrelieri subsp. Oxyrrhina*	Smooth Stem Turnip	Ongoing hand weeding required.	High/Rapid
8.	*Chamelaucium uncinatum*	Geraldton Wax	Ongoing removal of juvenile seedlings.	Medium/Slow
9.	*Chasmanthe floribunda*	African Cornflag	Ongoing monitoring and control.	Medium/High
10.	*Cynodon dactylon*	Couch	Focus control in restoration sites.	High/Rapid
11.	*Ehrharta calycina*	Perennial Veldt Grass	Ongoing control required.	High/Rapid
12.	*Ehrharta longiflora*	Annual Veldt Grass	Ongoing control required in conjunction with grass spraying program.	Medium/Rapid
13.	*Euphorbia terracina*	Geraldton Carnation Weed	Ongoing hand weeding required.	High/Rapid
14.	*Ferraria crispa*	Black Flag	Ongoing control required.	High/Rapid
15.	*Freesia alba x leichtlinii*	Freesia	Ongoing control required.	High/Rapid
16.	*Fumaria capreolata*	Whiteflower Fumitory	Hand weeding required if resources allow. Focus control in restoration sites.	High/Rapid

	Species Name	Common Name	Notes	Rating
17.	*Lantana camara*	Common Lantana	Difficult to control as located on very steep embankment in Zone 1 and removal may cause erosion.	High/Medium
18.	*Lactuca serriola*	*Prickly Lettuce*	Ongoing control required.	High/Rapid
19.	*Lagurus ovatus*	Hare's Tail Grass	Ongoing control required.	High/Rapid
20.	*Lupinus angustifolius*	Narrowleaf Lupin	Ongoing hand weeding required.	High/Medium
21.	*Lupinus cosentinii*	Sandplain Lupin	Ongoing hand weeding required.	High/Medium
22.	*Olea europaea*	Olive	Ongoing control required of juvenile/semi mature trees as any large trees may have heritage value.	High/Rapid
23.	*Pelargonium capitatum*	Rose Pelargonium	Ongoing control required.	High/Rapid
24.	*Pennisetum clandestinum*	Kikuyu Grass	Focus control in restoration sites.	High/Slow
25.	*Raphanus raphanistrum*	Wild Radish	Ongoing hand weeding required.	Unrated/Medium
26.	*Schinus terebinthifolia*	Brazilian Pepper	Requires ongoing monitoring for re-infestation/resprouting.	High/Medium
27.	*Tamarix aphylla*	Athel Pine	Remove juveniles. Only remove mature specimens if causing disturbance and resources allow.	High/Rapid

Table 6: Alert Weeds for Birdwood Parade

Species Name	Common Name	Notes
Tamarix aphylla	Athel Pine	Some mature specimens exist
Lantana camara	Common Lantana	Some mature specimens exist in Zone1

Strategy

Priority weeds should be controlled in all Zones in accordance with management notes in Appendix 4. Of the priority weeds listed in Table 5 the following weeds are considered the highest priority for management:

- Geraldton Carnation Weed
- Bridal Creeper
- Perennial Veldt Grass
- Black Flag
- *Raphanus* and *Brassica* species
- *Lupinus*
- *Freesia*
- Fumitory
- Rose Pelargonium
- Woody weeds.

Fumitory

With the removal of many annual and perennial grass weeds like other reserves Fumitory has increased at Birdwood Parade. Spraying low levels of selective herbicide can control Fumitory when growing amongst native plants. However this is costly and some native plants are particularly sensitive to herbicides. As Fumitory is not considered as high a priority as some other priority weeds that have been managed consistently over the years. Spraying Fumitory is therefore not recommended, except in restoration sites. Fumitory can however be successfully removed by hand provided enough resources are available to continue ongoing control of other priority weeds.

Geraldton Wax

Geraldton Wax has previously been removed from Birdwood Parade Bushland. A few mature specimens exist which provide habitat for birds. The mature specimens should remain however the bushland should be monitored for the germination of seedlings of which should be removed as required.

Orchard Trees

Many orchard trees remain in the Reserve from the time the Reserve was used for farming. These trees should be retained for their historical value and are not proposed for removal.

Maintenance Areas

Numerous weeds are present in restoration sites such as:

- The Garden Beds near Gunners Memorial
- Embankment in front of Garden Beds

- Edge of the first and second pathways
- Large degraded area to the south of Gallop House
- Revegetation sites in Zone 5 (opposite the Dalkeith and Nedlands Yacht Clubs)
- Revegetation sites on the lower embankment adjacent to Tawarri Reception and Function Centre.

These areas have weeds such as *Conyza bonariensis* (Tall Fleabane), *Lactuca serriola (*Prickly Lettuce), *Oxalis glabra* and *pes-caprae* (Soursob), *Raphanus raphanistrum* (Wild radish), *Lupinus* and *Solanum nigrum* (Blackberry nightshade). These areas require ongoing maintenance of weeds so that they do not threaten nearby bushland areas.

6.5 Monitoring

Of the 99 weeds identified as occurring within Birdwood Parade, the distribution and density of 12 weeds were mapped along with woody weeds. These should continue to be mapped every five years as part of management plan reviews.

Highly invasive weeds with the potential to expand their distributions should be monitored and mapped annually (if they have increased their distribution) so that their current distribution can be monitored and controlled as required. These species include Black Flag, Bridal Creeper, *Gladiolus undulatus* and *angustus* and Freesias. New invasive weeds should also be mapped as they arise and controlled as necessary.

Weeds that either have small populations or have previously been removed from the bushland require annual monitoring and control. They include:

- Brazilian Pepper
- African Cornflag
- Geraldton Wax
- Giant Reed
- *Gladiolus undulatus* and *angustus*
- *Lantana camara*
- Marguerite Daisy
- *Acacia iteaphylla*.

Management Actions 2019-2024	
WEED CONTROL	
1.	Continue to control the following weeds as a high priority: Geraldton Carnation Weed, Bridal Creeper, Perennial Veldt Grass, Black Flag, *Raphanus* and *Brassica, Lupinus*, *Freesia*, Rose Pelargonium and woody weeds.
3.	Undertake ongoing maintenance of weeds in restoration sites.
4.	Control priority weeds in accordance with management notes detailed in Appendix 4.
5.	Only remove historically planted non-indigenous trees if they are invasive.
6.	Implement ‘Weed Control’ actions in the Natural Areas Management Plan 2019-2024.

MONITORING	
7.	Monitor, control and document the distribution of new invasive weeds as they arise.
8.	Annually monitor weeds with the potential to expand rapidly and map changes in their distribution if required.
9.	Undertake annual monitoring and control of Brazilian Pepper, Geraldton Wax, African Cornflag, Giant Reed, *Lantana camara*, Marguerite Daisy and *Acacia iteaphylla* to ensure they do not spread or reestablish.

7. FIRE MANAGEMENT

Fire management actions for all natural areas has been detailed on pages 61-67 of the Natural Areas Management Plan 2019-2024.

Summary of Current Practices
The City undertakes the following fire management practices at Birdwood Parade:

- Annual review of the Birdwood Parade Fire Pre-Plan with Department of Fire and Emergency Services
- Maintenance of firebreaks prior to the 30th November annually
- Annual program to manually reduce fuel loads by removing fine fuels especially within asset protection zones
- Ongoing management of grass weeds
- Fuel load assessments (as required) to monitor fuel loads and respond accordingly
- Follow up maintenance of bush fire risk assessment actions.

The Department of Fire and Emergency Services has a Fire Pre-Plan for Birdwood Parade which was developed in conjunction with relevant stakeholders and is reviewed annually. This plan details site information, ecological requirements, vulnerable property, risk management strategies and responsibilities; communications plan, hazards and fire suppression strategies and tactics.

In 2013 the City undertook bushfire risk assessments in all of City's natural areas using Australian Standard AS 3959 (Buildings in Bush Fire Prone Areas) and ISO AS/NZ 31000-2009 (Risk Management - Principles and Guidelines). Whilst this was not a requirement for the City and is only a legislative requirement for developments occurring in bush fire prone areas. It was undertaken as a proactive measure by the City to assist in managing fire risk. As a result of these assessments several actions were identified and implemented for Birdwood Parade and follow up maintenance has been scheduled (as required) in order to maintain these actions.

Fuel load assessments were undertaken for all natural areas in 2015 using methodology described within the DFES Visual Fuel Load Guide for the Swan Coastal Plain and Darling Scarp (DFES, 2015). Following these assessments a number of actions were undertaken to reduce fuel loads at Birdwood Parade. In addition to this the City also has an annual grass weed management program that reduces fuels loads and a manual fuel load reduction program including the removal of excess leaf litter and dead vegetation.

Management Actions 2019-2024	
1.	Implement 'Fire Management' actions in the Natural Areas Management Plan 2019-2024.

8. ACCESS

The "*Objectives for Access*" have been detailed for all natural areas on pages 68-73 of the Natural Areas Management Plan 2019-2024. The path network at Birdwood Parade is considered appropriate and interim stabilisation work was undertaken in 2012 consisting of the installation of limestone retaining, spillways and curbing.

The path network at Birdwood Parade is due to be upgraded in accordance with the City's Natural Area Path Network Policy. Upgrade of the path network is being put forward for inclusion in the 2019/20 capital works program. Due to the steepness of the site the path network within the bushland area does not allow for disability access. However, there is some disability access available from the carpark at Birdwood Parade towards Gunners Memorial.

Fencing at Birdwood Parade is minimal and consists of ring lock fencing along the path near Gunners Memorial and chain mesh fencing at the base of the limestone outcrops adjacent to the Skate Park on The Esplanade. These fences are to be retained to restrict access to the limestone outcrops for safety reasons.

Many informal tracks are being created at various locations between Birdwood Parade and The Esplanade and rehabilitation of these tracks is an ongoing management issue. There is a significant track being created as a short cut between Sunset Hospital and the All Abilities Play Space on the foreshore. As fencing is one of the most effective ways to protect bushland areas, the installation of conservation fencing between the parkland and bushland areas should be investigated with priority on the Birdwood Parade side of the bushland.

Management Actions 2019-2024	
1.	Implement 'Access' actions in the Natural Areas Management Plan 2019-2024.

9. CULTURAL HERITAGE, INTERPRETATION & EDUCATION

Cultural Heritage, Interpretation and Education has been detailed for all natural areas on pages 74-82 of the Natural Areas Management Plan 2019-2024.

The Whadjuk Trail Network is a project that is being undertaken by the Western Suburbs Regional Organisation of Councils (WESROC) and natural area 'Friends of' groups in the Western Suburbs. The Whadjuk Trail Network consists of a series of walking trails that link all natural areas in the Western Suburbs, including the Cities of Stirling, Fremantle and Perth.

Currently six out of seven trails have been installed. Two trails traverse Birdwood Parade. They include the Karda and Karak Bidi Trails. The Karda Bidi extends from Jetty road in Claremont through Point Resolution and Birdwood Parade to Rosalie Park in Subiaco. The Karak Bidi extends from Birdwood Parade through Lake Claremont and Hollywood Reserve to Rosalie Park in Subiaco.

Directional signage on pathways and bollards directs walkers along Birdwood Parade and interpretive signage is also located along the trails detailing the environmental, Aboriginal and European significance of Birdwood Parade.

10. NATIVE ANIMALS

Background

There are 13 confirmed native animal species in Birdwood Parade (10 birds, and 3 reptiles). Ongoing surveying of native fauna within Birdwood Parade should be undertaken if resources are available.

At present all these species are managed indirectly through improving bushland condition and control of feral animals which have the potential to predate, compete with or displace native animals. This is discussed in the feral animal management section on pages 85–90 of the Natural Areas Management Plan 2019-2024.

Strategy for Protection of Native Animals

Birds

Of the 10 bird species identified in Appendix 3 two species are protected under the EPBC Act. These include the Carnaby's Black-Cockatoo *(Calyptorhynchus latirostris)* which is listed as *Endangered* and the Rainbow Bee-eater *(Merops ornatus)* which is listed as a *Marine* species.

Large flocks of Carnaby's Black-Cockatoos are often seen foraging in the bushland. Carnaby's have the following confirmed roost sites within close proximity to Birdwood Parade:

- Adelma Rd Dalkeith (NEDDALR003)
- Birdwood Parade, Dalkeith (NEDDALR002)
- Archdeacon Street, Nedlands (NEDNEDR002).

Remnant trees provide habitat for many bird species. The sandy embankment and parkland areas are also used for nesting by the migratory Rainbow Bee-eaters. Rainbow Bee-eaters migrate annually in summer and nest in Perth's sandy soils where they have been seen nesting and foraging at Birdwood Parade. If nests are encountered in the bushland or parkland area they should be protected so that any restoration work undertaken or mowing activities do not disturb their nests. Feral fox control should also be implemented as they can predate on their nests.

Feral birds

Feral birds compete with native birds for foraging material and nesting hollows. Some also carry diseases which have the potential to infect native bird populations such as Rainbow Lorikeets that carry Beak and Feather Disease. The Western Australian Local Government Association (WALGA) are coordinating a regional feral bird control program focussing on Rainbow Lorikeets and Long-billed Corellas. They are currently seeking funding from Local Governments to continue this program.

The protection of native animals at Birdwood Parade can be achieved through:

- Fire risk management to minimise fires that may destroy tree hollows
- Retaining hollows for refuges in large old and dead trees
- Controlling feral European Bees
- Protecting nests of Rainbow Bee-eaters
- Ongoing feral cat and fox control programs
- Contributing to regional feral bird programs coordinated by WALGA.

Management Actions 2019-2024	
1.	Undertake ongoing surveying of native fauna if resources allow.
2.	Minimise fires that may destroy tree hollows.
3.	Retain tree hollows for their habitat value.
4.	Undertake ongoing control of feral European Bees.
5.	Protect Rainbow Bee-eater nests.
6.	Continue implementing feral cat and fox control programs.
7.	Contribute to regional feral bird control programs coordinated by WALGA.

11. COMMUNITY INVOLVEMENT

The objectives and strategies for community involvement for all the City's community 'Friends of' groups are detailed on pages 83-84 of the Natural Areas Management Plan 2019-2024. In summary the activities of bushland community groups should continue to be supported by the City through the Community Friends Group Policy and assistance should be provided to help 'Friends of' groups remain sustainable through advertising and the volunteer referral centre.

The Friends of Point Resolution formed in 1999 to protect Point Resolution from proposals to install facilities to increase the use of the Reserve. Whilst they formed to protect Point Resolution, the Friends of Point Resolution also have an interest in the management of Birdwood Parade and have collaborated with the City on Clean Up Australia Day and National Tree Day events held at Birdwood Parade.

Management Actions 2019-2024	
1.	Continue to support community events in the Reserve such as Clean Up Australia Day.

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Appendix 1: Flora Inventory
Native Plant Inventory

Species	Common Name	Notes
Acacia cyclops	Coastal Wattle	
Acacia lasiocarpa	Dune Moses	
Acacia pulchella	Prickly Moses	
Acacia rostellifera	Summer-scented Wattle	
Acacia saligna	Golden Wreath Wattle	
Acanthocarpus preissii		
Agonis flexuosa	Peppermint	
Alexgeorgea nitens		
Allocasuarina fraseriana	Sheoak	
Allocasuarina humilis	Dwarf Sheoak	
Astroloma macrocalyx	Swan Berry	
Austrostipa elegantissima	Feather Speargrass	
Austrostipa flavescens		
Banksia attenuata	Slender Banksia	
Banksia dallanneyi	Honeypot Dryandra	
Banksia grandis	Bull Banksia	
Banksia menziesii	Firewood Banksia	
Banksia sessilis	Parrot Bush	
Caladenia flava	Cowslip Orchid	
Caladenia latifolia	Pink Fairy Orchid	
Callitris preissii	Rottnest Island Pine	
Calothamnus quadrifidus	One-sided Bottlebrush	
Conostylis candicans	Grey Cottonhead	
Corymbia calophylla	Marri	
Crassula colorata	Dense Stonecrop	
Desmocladus flexuosa		
Dianella revoluta var. divaricata	Blueberry Lily	
Dichopogon capillipes		
Dodonaea hackettiana	Hackett's Hop Bush	
Enchylaena tomentosum	Ruby Saltbush	
Eremophila glabra	Tar Bush	
Eucalyptus gomphocephala	Tuart	
Eucalyptus marginata	Jarrah	
Ficinia nodosa	Knotted Club Rush	
Gompholobium tomentosum	Hairy Yellow Pea	
Grevillea crithmifolia		
Grevillea vestita		
Guichenotia ledifolia		

Species	Common Name	Notes
Hakea prostrata	Harsh Hakea	
Hardenbergia comptoniana	Native Wisteria	
Hemiandra pungens	Snakebush	
Isolepis marginata	Coarse Club-rush	
Jacksonia furcellata	Grey Stinkwood	
Jacksonia sternbergiana	Stinkwood	
Lepidosperma gladiatum	Coast Sword-sedge	
Lomandra caespitosa	Tufted Mat Rush	
Lomandra hermaphrodita		
Lomandra maritima		
Macrozamia fraseri	Zamia	
Melaleuca huegelii	Chenille Honeymyrtle	
Melaleuca lanceolata	Rottnest Tea Tree	Planted
Melaleuca rhaphiophylla		
Melaleuca systena	Coastal Honeymyrtle	
Mesomelaena pseudostygia		
Microtis media	Mignonette Orchid	
Myoporum insulare	Blueberry Tree	
Olearia axillaris	Coastal Daisybush	
Opercularia vaginata	Dogweed	
Petrophile linearis	Pixie Mops	
Rhagodia baccata	Berry Saltbush	
Scaevola anchusifolia	Silky Scaevola	
Scaevola crassifolia	Thick-leaved Fan-flower	
Spyridium globulosum	Basket Bush	
Sowerbaea laxiflora	Purple Tassels	
Stirlingia latifolia	Blueboy	
Templetonia retusa	Cockies Tongues	
Thysanotus arenarius		
Thysanotus manglesianus	Fringed Lily	
Trachymene coerulea	Blue Lace Flower	
Tricoryne elatior	Yellow Autumn Lily	
Xanthorrhoea preissii	Grass Tree	

Native plant inventory reviewed and updated by Ian Fordyce and Associates.

Weed Inventory

Species	Common Name
Acacia iteaphylla	Flinders Range Wattle
Acacia merinthophora	
Acacia podalyriifolia	
**Aira caryophyllea*	Silvery Hairgrass
**Allium triquetrum*	
**Argyranthemum frutescens*	Marguerite Daisy
**Arundo donax*	Giant Reed
**Asparagus asparagoides*	Bridal Creeper
*Asparagus declinatus	
**Avena barbata*	Bearded Oat
**Avena fatua*	Wild Oat
**Bougainvillea spectabilis*	Bougainvillea
**Brachychiton populneus*	Kurrajong
**Brassica barrelieri subsp. oxyrrhina*	Smooth Stem Turnip
**Briza maxima*	Blowfly Grass
**Briza minor*	Shivery Grass
Callistemon phoeniceus	Lesser Bottlebrush
Callistemon sp.	Bottlebrush (fine-leafed form)
Calothamnus quadrifidus subsp. *homalophyllus*	Murchison Clawflower
Casuarina glauca	Swamp Oak, Swamp Sheoak
*Centranthus macrosiphon	Pretty Betsy
*Ceratonia siliqua	Carob Tree
Chamelaucium uncinatum	Geraldton Wax
**Chasmanthe floribunda*	African Cornflag
**Conyza bonariensis*	Flaxleaf Fleabane
Corymbia citriodora	Lemon-scented Gum
Corymbia maculata	Spotted Gum
**Cotula turbinata*	Funnel Weed
**Cynodon dactylon*	Couch
Dischisma capitatum	Woolly-headed Dischisma
**Ehrharta calycina*	Perennial Veldt Grass
**Ehrharta longiflora*	Annual Veldt Grass
**Erythrina sykesii*	Coral Tree
Eucalyptus caesia	Caesia
Eucalyptus camaldulensis	River Red Gum
Eucalyptus erythrocorys	Illyarrie
Eucalyptus gracilis?	Yorrel
Eucalyptus macrocarpa	
Eucalyptus maculata	Spotted Gum
Eucalyptus paniculata?	Grey Iron Box
Eucalyptus petiolaris	Pink-flowered Yellow Gum
Eucalyptus torquata	Coral Gum
Eucalyptus utilis	Coastal Moort

Species	Common Name
**Euphorbia peplus*	Petty Spurge
**Euphorbia terracina*	Geraldton Carnation Weed
**Ferraria crispa*	Black Flag
**Freesia aff. leichtlinii*	Freesia
**Ficus carica*	Edible Fig
Ficus macrophylla	Morton Bay Fig
**Fumaria capreolata*	Whiteflower Fumitory
**Geranium molle*	Dove's Foot Cranesbill
**Gladiolus angustus*	Long-tubed Painted Lady
*Gladiolus caryophyllaceus	Painted Bugle, Gladiolus
Grevillea robusta	Silky Oak
Hakea bucculenta	Red Pokers
Hakea petiolaris	Sea Urchin Hakea
**Hypochaeris glabra/ radicata*	Smooth Catsear/Flatweed
**Lactuca serriola*	Prickly Lettuce
**Lagurus ovatus*	Hares Tail Grass
**Lantana camara*	Common Lantana
**Lolium perenne*	Perennial Ryegrass
**Lupinus angustifolius*	Narrow-leafed Lupin
**Lupinus cosentinii*	Sandplain Lupin
**Lycium ferocissum*	African Boxthorn
**Lysimachia arvensis*	Scarlet Pimpernel (blue-flowered form)
**Malva parviflora*	
Melaleuca armillaris	Bracelet Honeymyrtle
Melaleuca armillaris	Bracelet Honeymyrtle
Melaleuca elliptica	Granite Bottlebrush
Melaleuca nesophila	Mindiyed
**Melia azedarach*	Cape Lilac
**Metrosideros excelsa*	NZ Christmas Tree, Pohutukawa
**Morus* sp. (probably *M. alba*)	Mulberry
**Olea europaea*	Olive Tree
**Orobanche minor*	Lesser Broomrape
**Osteospermum ecklonis*	Veldt Daisy
**Oxalis pes-caprae*	Soursob
**Pelargonium capitatum*	Rose Pelargonium
**Petrorhagia dubia*	Velvet Pink
**Phoenix dactylifera*	Date Palm
**Plumbago auriculata*	Cape Plumbago
**Prunus dulcis*)	Almond
**8Raphanus raphanistrum*	Wild Radish
**Ricinus communis*	Castor Oil Plant
**Romulea rosea*	Guildford Grass
**Schinus terebinthifolia*	Brazilian Pepper
**Solanum nigrum*	Blackberry Nightshade

Species	Common Name
**Sonchus asper/oleraceus*	Rough Sowthistle/Sowthistle
**Stenotaphrum secundatum*	Buffalo Grass
**Tamarix aphylla*	Athel Pine
**Tropaeolum majus*	
**Trachyandra divaricata*	Dune Onion weed
**Trifolium campestre*	Hop Clover
***Trifolium dubium*	Suckling Clover
**Tropaeolum majus*	Nasturtium
**Urospermum picroides*	False Hawkebit
**Ursinia anthemoides*	Ursinia
***Vicia sativa*	Common Vetch
**Wahlenbergia capensis*	Cape Bluebell

Weed inventory reviewed and updated by Ian Fordyce and Associates.

Appendix 2: Fungi Inventory

Scientific Name	Common Name
Crepidotus sp.	
Laetiporus portentosus	White Punk
Pycnoporus coccineus	Scarlet Bracket Fungus
Scleroderma sp.	Earthball

Appendix 3: Fauna Inventory

Bird Inventory

Common Name	Scientific Name	Introduced
Australian Magpie	*Cracticus tibicen*	
Australian Raven	*Corvus coronoides*	
Australian Ringneck	*Barnardius zonarius*	
Carnaby's Black-Cockatoo	*Calyptorhynchus latirostris*	
Chestnut Fairy-wren	Malarus lambertii	
Galah	*Eolophus roseicapilla*	
*Laughing Dove	*Streptopelia senegalensis*	*
*Laughing Kookaburra	*Dacelo novaegaineae*	*
*Little Corella	*Cacatua sanguinea*	*
*Long-billed Corella	*Cacatua tenuirostris*	*
Rainbow Bee-eater	*Merops ornatus*	
*Rainbow Lorikeet	*Trichoglossus haematodus*	*
Red Wattlebird	*Anthochacra caranculata*	
*Rock Dove (Feral Pigeon)	*Columba livia*	*
Silver Eye	*Zosterops lateralis*	
*Spotted Dove	*Stretopelia chinesis*	*
Welcome Swallow	*Hirundo neoxena*	

Mammals and Reptiles Inventory

Mammals		**Introduced**
Fox	*Vulpes vulpes*	*
Rabbit	*Oryctolagus cuniculus*	*
Reptiles		
Sands Gould's Monitor	*Varanus gouldii*	
Fence Skink	*Cyptoblepharus buchananii*	
Western Bobtail	*Tiliqua rugosa*	

Appendix 4: Priority Weed Management Notes (Compiled from WA Herbarium DBCA Florabase website)

Species Name		Common Name	Management Strategy	Timing (optimal)
1.	*Acacia iteaphylla*	Flinders Range Wattle	Manually remove populations.	All Year
2.	*Avena fatua*	Wild Oat	Spray at 3-5 leaf stage with Fusilade Forte at 16 ml/10 L and wetting agent. Repeat treatment over following 2 years. Prevent seed production and seedbank inputs each year. For small infestations hand removal may be feasible.	Aug - Nov
3.	*Agave americana*	Century Plant	Dig out and/or hand remove small infestations. Stem inject into base of leaves 1 part Tordon/5 parts diesel.	Nov - Jan
4.	*Argyranthemum frutescens*	Marguerite Daisy	Manually remove populations.	June - Oct
5.	*Asparagus asparagoides*	Bridal Creeper	Dig out juvenile seedlings in degraded areas. Spray 0.2 g metsulfuron methyl + Pulse in 15 L water (or 2.5 - 5g /ha + Pulse). Best results achieved when flowering. Biological control agents available such as the Leafhopper and the Rust.	July - Aug
6.	*Brachychiton populneus*	Kurrajong	Hand pull seedlings. For mature plants try stem injection with 50-100% glyphosate or apply 250 ml Access in 15 L of diesel to basal 50 cm of trunk (basal bark) or cut and paint with 50% glyphosate.	Sept - April
7.	*Brassica barrelieri subsp. oxyrrhina*	Smooth Stem Turnip	Manually remove populations.	June - Oct
8.	*Carpobrotus edulis*	Hottentot Fig	Manual methods appear to be the most effective means of control. Roll up large mats removing all roots and stem fragments and remove from site. Follow up with removal of any germinating plants. Only remove when flowering.	Sept - Nov
9.	*Chamelaucium uncinatum*	Geraldton Wax	Cut to base and paint with 50% glyphosate. Control seedlings following fire.	All Year
10.	*Chasmanthe floribunda*	African Cornflag	Dig out isolated plants.	June - Sept
11.	*Cynodon dactylon*	Couch	Spray Fusilade Forte at 8 ml/L + wetting agent when plants are small and beginning new growth, or 1% glyphosate (at degraded sites) in late spring/summer and autumn when rhizomes are actively growing.	Nov - Feb

	Species Name	Common Name	Management Strategy	Timing (optimal)
12.	*Ehrharta calycina*	Perennial Veldt Grass	For small infestations, cut out plants ensuring crown removal. Do not slash. Alternatively spray with Fusilade Forte 13 ml/L or 3.3-6.6 L/ha + wetting agent on actively growing and unstressed plants. Use higher rate in dense undergrowth or on older less vigorous plants. Follow-up in subsequent years. Use unplanned fires to spray regrowth and seedlings within 4-6 weeks of germination.	June – Sep (herbicide) and Nov – Feb (manual)
13.	*Ehrharta longiflora*	Annual Veldt Grass	Hand remove small infestations. Alternatively spray with Fusilade Forte 30 ml/10 L or 1.6 L/ha (based on 500 L water/ha) + wetting agent before flowering stem emerges, or at 3-5 leaf stage.	Aug - Oct
14.	*Euphorbia terracina*	Geraldton Carnation Weed	Manually remove populations. Undertake control after any fire event.	June – Nov
15.	*Ferraria crispa*	Black Flag	Hand remove very small populations in degraded sites. Sift soil to find all corms. Spray 2,2 DPA 10 g/L + Pulse when flowering. In degraded sites try glyphosate 1% + metsulfuron methyl 0.2 g/15 L + Pulse. Takes a number of years to control populations.	Aug - Sept
16.	*'Freesia alba x leichtlinii*	Freesia	Spot spray metsulfuron methyl 0.2 g/15 L + Pulse or 2.5-5 g/ha + Pulse. Apply just on flowering at corm exhaustion.	July – Aug
17.	*Fumaria capreolata*	Climbing Fumitory	Hand remove seedlings in good bushland areas.	July – Aug
18.	Leptospermum laevigatum	Coast Teatree	Hand pull seedlings. Fell mature plants. Resprouting has been recorded in some areas. Where resprouting has been observed, apply 250 ml Access in 15 L of diesel to bottom 50 cm of trunk (basal bark).	July - Oct
19.	*Lagurus ovatus*	Hare's Tail Grass	Prevent seed set. Hand removal small isolated infestations. In selective situations spray with 16 ml/10 L (800 ml/ha) Fusilade Forte + spray oil any time before flowering. A lower rate of 13 ml/10 L Fusilade Forte can be used in winter at the 2-8 leaf stage before stem elongation.	June - Aug
20.	*Lupinus angustifolius*	Narrowleaf Lupin	Manually remove populations.	June - Oct

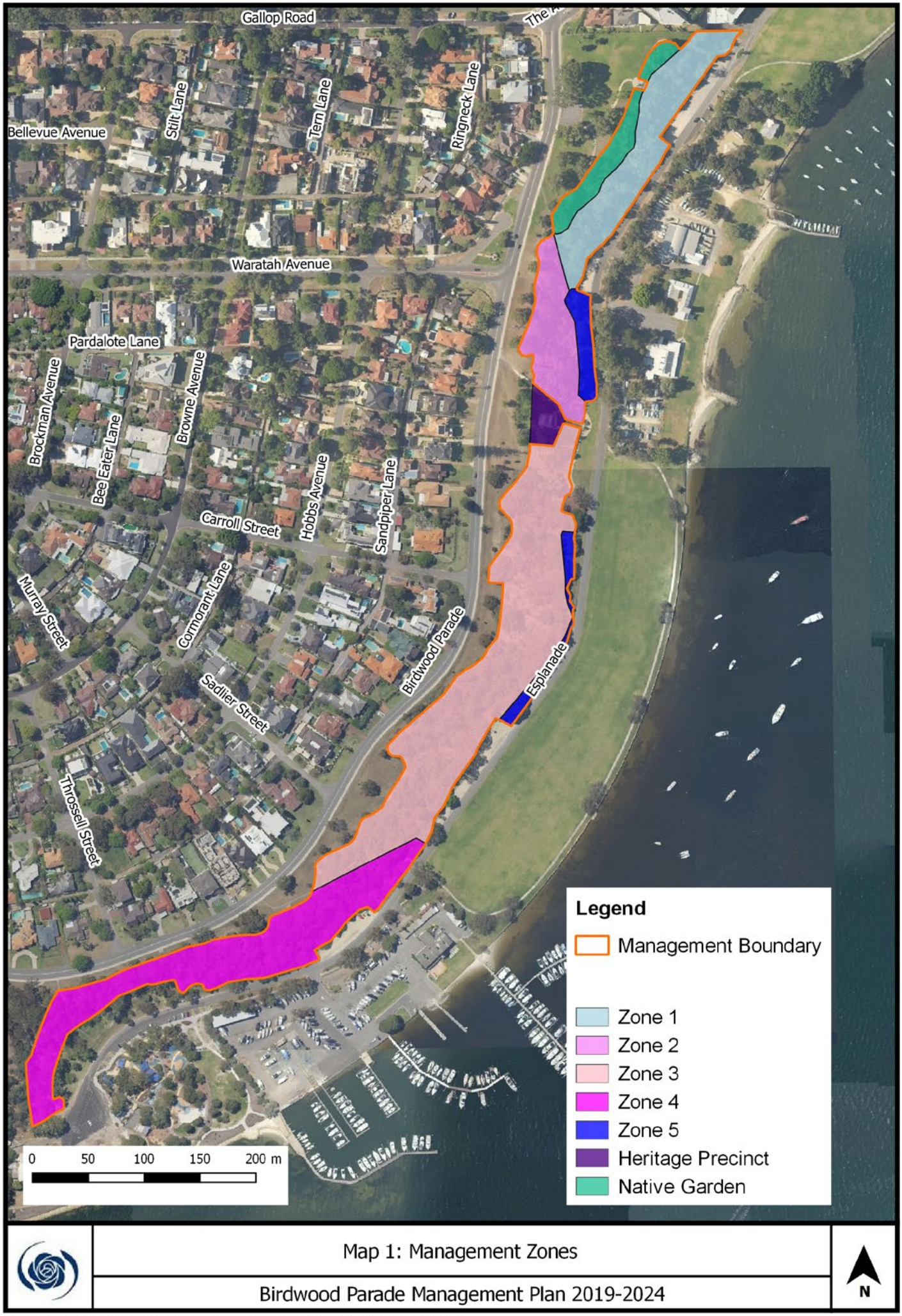
	Species Name	Common Name	Management Strategy	Timing (optimal)
21.	*Lupinus cosentinii*	Sandplain Lupin	Manually remove populations.	June - Oct
22.	*Olea europaea*	Olive	Hand pull or dig out seedlings and small plants ensuring removal of all roots. For mature plants cut to base and paint 50% glyphosate or apply 250 ml Access in 15 L of diesel to base 50 cm of trunk (basal bark). Monitor sites for seedling recruitment.	March – May and Oct - Dec
23.	*Pelargonium capitatum*	Rose Pelargonium	Only control when native vegetation has established. Hand pull isolated plants taking care to remove the entire stem as it can reshoot from below ground level. Spot spray metsulfuron methyl 5 g/ha + Pulse. Easily controlled after fire.	June - Oct
24.	*Pennisetum clandestinum*	Kikuyu Grass	Difficult to manually control as all rhizomes must be removed. Spray with 1% glyphosate or Fusilade Forte at 16mL/L + wetting agent. 2-3 sprays over a single growing season are often required. Use unplanned fire events to effectively control regrowth.	Nov - Jan
25.	*Raphanus raphanistrum*	Wild Radish	Manually remove populations.	June - Oct
26.	*Schinus terebinthifolia*	Brazilian Pepper	Hand pull seedlings ensuring removal of all root material. Stem inject older plants using 50% glyphosate or basal bark with 250 ml Access in 15 L of diesel to bottom 50 cm of trunk during summer. Avoid root disturbance until trees are confirmed dead.	Dec - March
27.	*Trachyandra divaricata*	Dune Onion Weed	Only control when native vegetation has established. Manually remove isolated or small infestations prior to flowering. Wipe with 50% glyphosate solution before flowering. For dense infestations in degraded areas spot spray 0.4 g chlorosulfuron plus 25 ml wetting agent in 10 L of water when plants actively growing.	June - August

Appendix 5: Implementation of the 2013-2018 Management Plan.

ACTIONS		IMPLEMENTED
BUSHLAND BOUNDARIES		
1.	Manage Birdwood Parade on the basis five zones.	Yes
REHABILITATION		
2.	Retain historical orchard trees for their heritage significance.	Yes
3.	Focus rehabilitation on *Good* to *Very Good* bushland condition areas as a priority.	Yes
4.	Use stabilisation materials and methods to terrace steep slopes such as jute matting, coir; and logs.	Yes
5.	Undertake annual maintenance of past rehabilitation sites.	Yes
6.	Undertake annual maintenance of the bushland edge adjacent to parkland areas.	Yes
7.	Maintain and monitor plants found in low abundance Zone 3 and 4 and only revegetate the edge of these areas with similar species.	Yes
8.	Maintain current views when rehabilitating the bushland edges and parkland areas.	Yes
9.	Consider delineating parkland areas with low garden curbing if parts of the parkland area are revegetated.	Yes
10.	Seek advice from DPaW or BGPA in regards to rehabilitation of areas that have dense Black Flag infestations.	Yes
REVEGETATION		
11.	Consider only planting overstorey species in areas where Black Flag is present.	Partially
12.	Work with local nurseries to grow species found in low abundance.	Yes
13.	Use only plant species for rehabilitation if they would have naturally occurred on site such as those found on the Mount Eliza Escarpment at Kings Park.	Yes
WEED CONTROL		
14.	Continue to control the following weeds as a high priority: Geraldton Carnation Weed, Bridal Creeper, Perennial Veldt Grass, Black Flag, One-leaf Cape Tulip, *Raphanus raphanistrum*, *Lupinus*, Freesia, woody weeds; and Rose Pelargonium.	Yes
15.	Undertake ongoing maintenance of weeds in restoration sites.	Yes
16.	Control priority weeds in accordance with management notes detailed in Appendix 4.	Yes
17.	Only remove historically planted non-indigenous trees if they are invasive.	Yes
18.	Where native vegetation exists, mature Black Flag plants that have the potential to set seed should be hand wiped with herbicides to stop them from seeding.	Partially

ACTIONS		IMPLEMENTED
19.	If weed control is undertaken on the steep embankment areas in Zone 4 and 1 erosion control methods should be implemented as part of the restoration project.	Yes
MONITORING		
20.	Monitor, control and document the distribution of new invasive weeds as they arise.	Yes
21.	Annually monitor weeds with the potential to expand rapidly and map changes in their distribution if required.	Yes
22.	Undertake annual monitoring and control of Brazilian Pepper, Geraldton Wax, African Cornflag, Giant Reed, *Lantana camara*, Marguerite Daisy and *Acacia iteaphylla* to ensure they do not spread or reestablish.	Yes
FIRE MANAGEMENT		
23.	Undertake annual management of Perennial Veldt Grass to reduce fuel loads.	Yes
NATIVE ANIMALS		
24.	Undertake ongoing surveying of native fauna if resources allow.	Partially
25.	Minimise fires that may destroy tree hollows.	Yes
26.	Retain hollows for refuges in large old and dead trees.	Yes
27.	Control feral European Bees as they can displace native animals.	Yes
28.	Protect nests of Rainbow Bee-eaters if they are encountered.	Yes
29.	Continue the fox control program.	Yes
30.	Contribute to regional programs being undertaken for feral bird control by DPaW.	Partially
COMMUNITY INVOLVEMENT		
31.	Continue to support community events in the Reserve such as Clean Up Australia Day.	Yes

Appendix 6
Maps



Map 1: Management Zones

Birdwood Parade Management Plan 2019-2024

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Map 2: Bushland Condition

Birdwood Parade Management Plan 2019-2024

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Map 3: Access and Pathways

Birdwood Parade Management Plan 2019-2024

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Map 4: *Arundo donax* - Giant Reed

Birdwood Parade Management Plan 2019-2024

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Map 5: A*sparagus asparagoides* - Bridal Creeper

Birdwood Parade Management Plan 2019-2024

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Map 6: *Centranthus macrosiphon* - Pretty Betsy

Birdwood Parade Management Plan 2019-2024

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Map 7: *Chasmanthe floribunda* - African Cornflag

Birdwood Parade Management Plan 2019-2024

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Map 8: *Ehrharta calycina* - Perennial Veldt Grass

Birdwood Parade Management Plan 2019-2024

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Map 9: *Euphorbia terracina* - Geraldton Carnation Weed

Birdwood Parade Management Plan 2019-2024

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Map 10: *Ferraria crispa* - Black Flag

Birdwood Parade Management Plan 2019-2024

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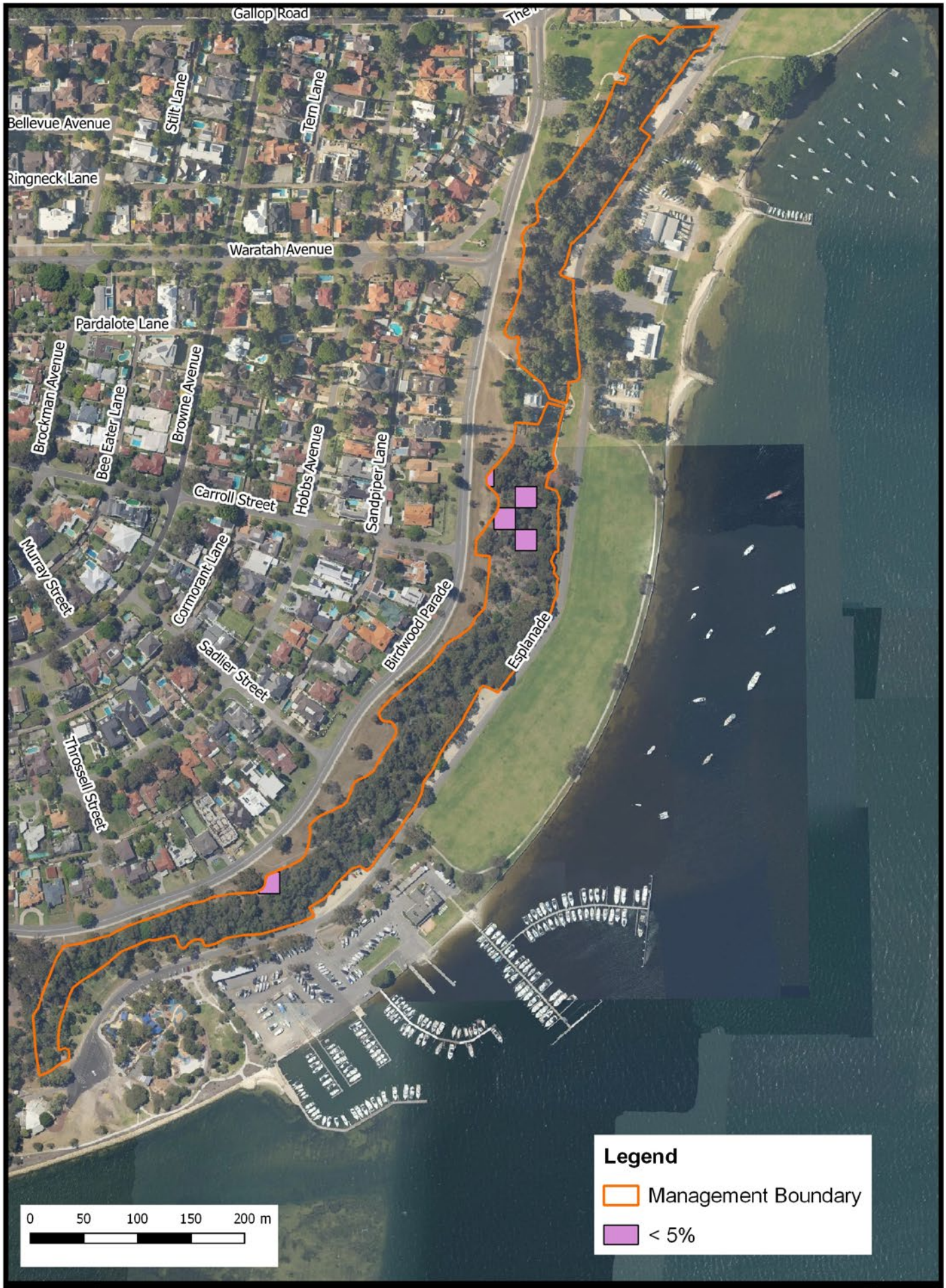

Map 11: *Freesia alba × leichtlinii - Freesia*

Birdwood Parade Management Plan 2019-2024

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Map 12: *Fumaria* sp – Fumitory

Birdwood Parade Management Plan 2019-2024

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Map 13: G*ladiolus undulatus* and *angustus* – *Gladiolus* sp

Birdwood Parade Management Plan 2019-2024

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Map 14: *Oxalis* sp - Soursob

Birdwood Parade Management Plan 2019-2024

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Map 15: *Pelargonium capitatum* - Rose Pelargonium

Birdwood Parade Management Plan 2019-2024

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Map 16: Woody Weeds

Birdwood Parade Management Plan 2019-2024

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Map 17: Actual Cover *Ferraria crispa* - Black Flag

Birdwood Parade Management Plan 2019-2024

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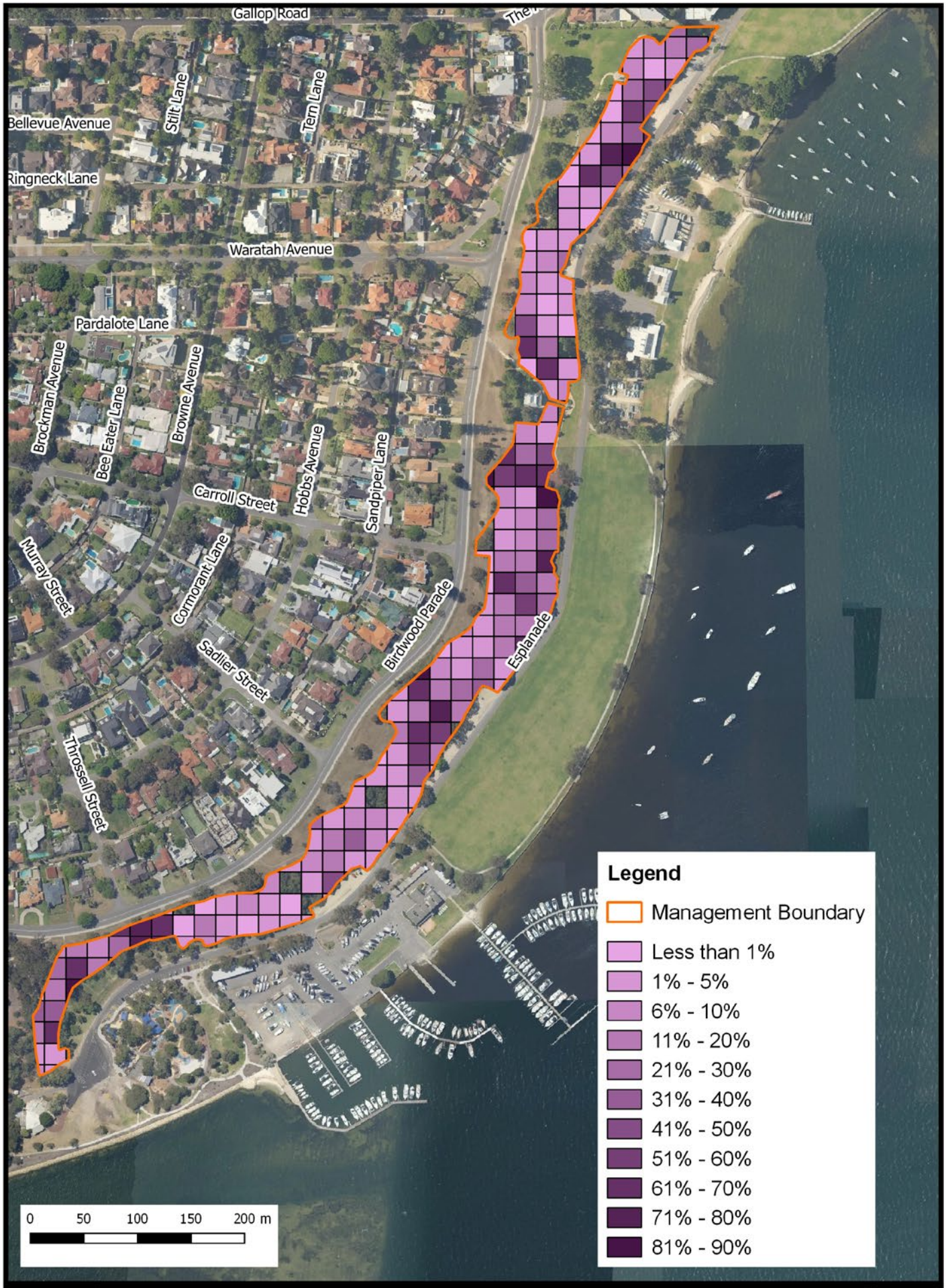

Map 18: Actual Cover *Fumaria* sp – Fumitory

Birdwood Parade Management Plan 2019-2024

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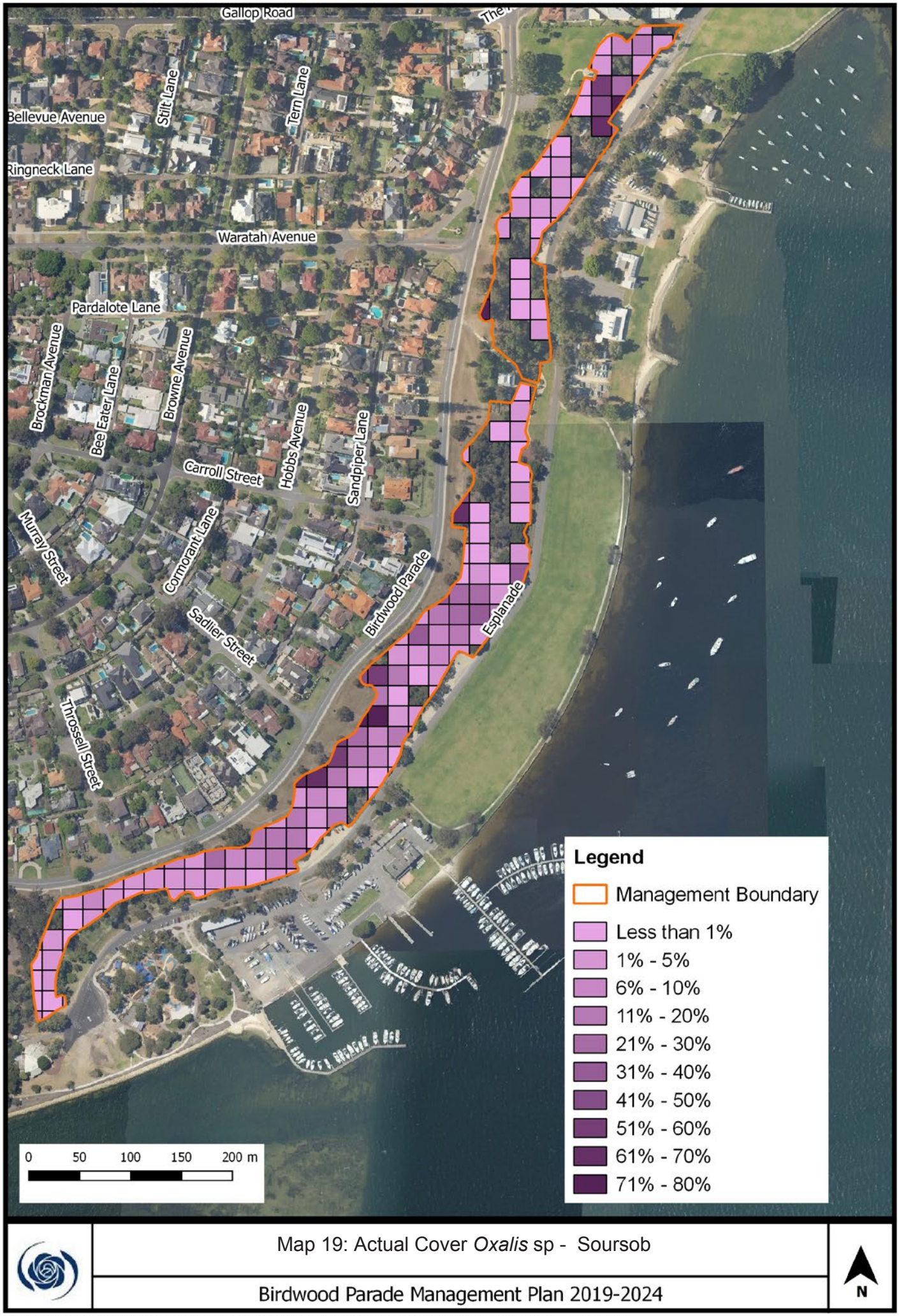

Map 19: Actual Cover *Oxalis* sp - Soursob

Birdwood Parade Management Plan 2019-2024

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Appendix 7
Natural Areas Management Plan 2019-2024

City of Nedlands

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