



City of Nedlands

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Mount Claremont Oval Reserve Management Plan 2013—2018



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SUMMARY

This section of the City of Nedlands Natural Areas Management Plan 2013 - 2018 is dedicated specifically to the management of Mount Claremont Oval Reserve. Detailed information that relates to all natural areas within the City such as mapping methodology, rehabilitation, environmental weed control, climate change, geomorphology and soils, planning information, interpretation, priority flora and fauna, fire management, community involvement, access and feral animal management has been detailed on pages 1 – 76 of the Natural Areas Management Plan 2013 - 2018.

The Mount Claremont Oval Reserve Management Plan 2013 - 2018 has drawn heavily from the following documents:

- Natural Area Initial Assessment - Mount Claremont Oval Reserve (Orsini, 2008); and
- Weed Mapping of Bushland at Mount Claremont Oval Reserve (Ecoscape, 2006).

A five year Management Plan has been developed that provides management actions and strategies for the conservation and restoration of Mount Claremont Oval Reserve. A summary of key actions for Mount Claremont Oval Reserve are listed below.

Table 1: Summary of Mount Claremont Oval Reserve Management Actions 2013 – 2018

ACTIONS	
BUSHLAND BOUNDARIES	
1.	Manage Mount Claremont Oval Reserve on the basis of three zones.
REHABILITATION	
2.	Focus revegetation at selected degraded sites within Zones.
3.	Focus management on better condition bushland areas within Zones.
4.	Seek advice from DPAW or BGPA in regards to rehabilitation of areas that have dense Black Flag infestations.
5.	Only revegetate Zones 1 and 3 with similar existing local native species.
REVEGETATION	
6.	Consider only planting overstorey species in areas where Black Flag is present.
7.	Only use plant species for rehabilitation if they would have naturally occurred on site.
WEED CONTROL	
8.	Control the following weeds as a high priority: Geraldton Carnation Weed, Bridal Creeper, <i>Lachenalia aloides</i> , Perennial Veldt Grass, Annual Veldt Grass, Wild Oats, Black Flag, Wild Radish, <i>Lupinus sp</i> , <i>Freesia</i> ; and Woody Weeds.
9.	Annually monitor weeds with the potential to expand rapidly and map changes in their distribution if required.
10.	Monitor, control and document the distribution of new invasive weeds as they arise.
11.	Remove juvenile seedlings of Geraldton Wax and Coast Teatree if required.
12.	Do not undertake removal of historically planted non-indigenous Australian native plants (such as River Red Gums) unless they become invasive.
13.	Control priority weeds in accordance with management notes detailed in Appendix 4.
14.	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.
MONITORING	
15.	Monitor, control and document the distribution of new invasive weeds as they arise.
16.	Annually monitor weeds with the potential to expand rapidly and map changes in their distribution if required.
17.	Undertake annual monitoring and control of African Cornflag, <i>Watsonia bulbifera</i> , <i>Arctotis stoechadifolia</i> ; and <i>Acacia iteaphylla</i> to ensure they do not spread or reestablish.

FIRE MANAGEMENT	
18.	Undertake annual management of grass weeds to reduce fuel loads.
NATIVE ANIMALS	
19.	Undertake ongoing surveying of native fauna if resources allow.
20.	Minimise fires that may destroy tree hollows.
21.	Retain hollows for refuges in large old and dead trees.
22.	Control feral European Bees as they can displace native animals.
23.	Continue the fox control program.
24.	Contribute to regional programs being undertaken for feral bird control by DPAW.

BACKGROUND

Study Site

Mount Claremont Oval Reserve is located within the City of Nedlands approximately 7.5 km west of the Perth CBD. It is bordered by Cleland Street to the north, Mount Claremont Oval, Alfred Road and Lake Claremont to the south, Lisle Villages to the west and Montgomery Avenue to the east.

The bushland at Mount Claremont Oval Reserve is vested in the City of Nedlands as A Class Reserve 26102 for "Parks and Recreation". The City of Nedlands has the "Power to Lease" on Reserve 26102 and it covers an area of 2.21 hectares, as shown in Figure 1.

Figure 1: Location of Mount Claremont Oval Reserve



Disturbance Factors

Mount Claremont Oval Reserve has a long history of disturbance. Originally part of the bushland was excavated to construct the playing fields along Alfred Road. This resulted in a steep embankment in the central part of the Reserve that has largely been planted with a mixture of exotic trees. Some existing remnant vegetation exists in the eastern and western portions of the Reserve. The Reserve was completely burnt by a fire in 1983 and the eastern portion of the Reserve again in 1997. Other disturbance factors include the presence of old reticulation pipes from past irrigation of the Reserve, history of clearing with some parts of the northern portion of the Reserve still devoid of vegetation; and illegal dumping (primarily of garden waste) still occurring periodically along the boundary of Lisle Villages and the verge along on Cleland Street. Currently the Reserve has a high proportion of invasive weeds dominating the understorey especially bulbous weeds.

Implementation of Previous Management Plans

Mount Claremont Oval Reserve has been actively managed by the City of Nedlands since approximately 2005. There have been no previous management plans developed for Mount Claremont Oval Reserve. However weed mapping was undertaken in 2006 to guide the

management of environmental weeds on site and in 2008 assessments of the Reserve were undertaken using the Local Biodiversity Projects Natural Area Initial Assessment Templates. The 2008 Natural Area Initial Assessments provided four management recommendations for the Reserve these have been summarised in Table 2 below.

Table 2: Natural Area Initial Assessment Recommendations Mount Claremont Oval Reserve

ACTIONS	
1.	The Reserve is an important wildlife corridor linking coastal and inland reserves. Non-local natives and exotic tree species represent important wildlife habitat, particularly for birds, and should be retained.
2.	The eastern part of the reserve is <i>Very Degraded</i> with 100% ground cover of Black Flag and other highly invasive and difficult to control weeds. Revegetation and chemical control of Black Flag will be difficult to achieve and require significant resources and time.
3.	Concentrate resources to carry out weed control in the better part of the reserve and work towards the more degraded areas. Highly invasive weeds such as Brazilian Pepper Trees, Victorian Tea tree and Pelargonium should be controlled in priority.
4.	Fencing of the <i>Good</i> condition bushland is recommended to clearly identify areas of high conservation value and reduce human disturbance. Fencing should include both perimeter fencing and fencing between areas of <i>Good</i> condition and those that are highly <i>Degraded</i> .

Of the four recommendations provided for Mount Claremont Oval Reserve three were implemented and one was not implemented. The recommendation that was not implemented was in relation to fencing of the Reserve. This has not been achieved due to funding limitations. This recommendation is important and has been identified as a gap in the draft Natural Areas Asset Management Plan.

Management Challenges and Success

Historical weed mapping data is only available from 2006. Therefore it is difficult to determine the reduction of some weed species prior to 2006. Since the 2006 weed mapping was undertaken a significant reduction in the density and/or distribution of the following environmental weeds has occurred:

- African Cornflag (*Chasmanthe floribunda*),
- White Arctotis (*Arctotis stoechadifolia*),
- Brazilian Pepper Trees (*Schinus terebinthifolius*),
- Geraldton Wax (*Chamelaucium uncinatum*),
- Geraldton Carnation Weed (*Euphorbia terracina*),
- Lupins (*Lupinus* sp),
- *Freesias* (*Freesia alba x leichtlinii*); and
- Pelargonium (*Pelargonium capitatum*).

Unfortunately, Black Flag has been widely distributed across the bushland prior to 2006. It forms dense mats across the Reserve including amongst established vegetation and the mowed lawn area along Cleland Street. Some of these areas cannot be targeted for control by herbicides. Careful consideration should be given to revegetating areas where Black Flag occurs as ongoing management of these areas will be difficult once vegetation re-establishes. Consideration should be given to only planting overstorey species in these areas and liaising with other departments or agencies such as the Department of Parks and Wildlife (DPAW) and Botanic Gardens and Parks Authority (BGPA) to determine possible restoration options. 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 to stop them from seeding.

There are some mature specimens of Coast Teatree (Victorian Teatree) and Geraldton Wax in the western part of the Reserve. No recent control program has been undertaken on these populations. These mature specimens should remain, unless they are removed as part of an intensive restoration program, as they provide habitat and stabilisation and complete removal of them would leave large open patches devoid of vegetation. However, any juvenile trees should be removed as required.

Management Actions 2013 - 2018

ACTIONS	
REHABILITATION	
1.	Seek advice from DPAW or BGPA in regards to rehabilitation of areas that have dense Black Flag infestations.
REVEGETATION	
2.	Consider only planting overstorey species in areas where Black Flag is present.
WEED CONTROL	
3.	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.

BIOLOGICAL ENVIRONMENT

Landscape Elements

Mount Claremont Oval Reserve occupies a long embankment extending from Cleland Street with varying degrees of steepness down to Alfred Road and the playing fields on the corner of Alfred Road and Montgomery Avenue. The embankment is the remnant of a coastal dune. The most western and eastern portions of the Reserve maintain part of the natural dune vegetation while the middle portion contains a very steep embankment planted with a mixture of non-indigenous species which was excavated to construct the playing fields.

The highest point of the bushland is along Cleland Street which is approximately 30m above sea level and the lowest points of the Reserve are between 9 – 13m above sea level which are located along the playing fields and Alfred Road. The elevated position of Mount Claremont Oval Reserve offers views of Lake Claremont and nearby residential areas.

Soils and Geomorphology

Much of Mount Claremont Oval Reserve is underlain by what appears to be Karrakatta Sand. This is misleading, because the Karrakatta Sand has probably been introduced to the bank (as well as the oval itself) from the adjacent Spearwood Dune System. The current landform is a highly modified one. The oval was probably excavated from a bank of the Quindalup Dune System (possibly from the very outer edge of the blow-out mass that extends inland from Swanbourne, including much of Bold Park and the Rochdale Road area of Mount Claremont). The slope at the western end of the Reserve is made up largely or entirely of Safety Bay Sand; it is probably a remnant of the Quindalup Dune System.

Vegetation

Vegetation Complex Heddlé et al (1980)

On a regional scale, Mount Claremont Oval Reserve has been mapped as occurring on the Karrakatta – Central and South Vegetation Complex. This complex 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.

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. Mount Claremont Oval Reserve forms part of Super Group 4 - Uplands Centred on Spearwood and Quindalup Dunes. It has not been sampled or inferred as containing a specific FCT.

Structural Plant Communities - Natural Area Initial Assessments 2008

Two plant communities were identified through the Natural Area Initial Assessments undertaken in 2008 these included:

- Acacia (*Acacia cyclops* and *rostellifera*) Shrubland with scattered Tuarts (*Eucalyptus gomphocephala*), and
- Marri (*Corymbia calophylla*) Woodland.

This information is detailed on the Local Biodiversity Projects Natural Area Assessments database for Mount Claremont Oval Reserve.

Dominant plants identified in the Acacia (*Acacia cyclops* and *rostellifera*) Shrubland with scattered Tuarts (*Eucalyptus gomphocephala*) included tall Tuart trees along with the smaller *Acacia cyclops* and *Acacia rostellifera* trees. Other common native species were identified as *Melaleuca systema*,

Grevillea crithmifolia, *Grevillea vestita*, *Guichenotia ledifolia*, *Hakea prostrata*, *Banksia menziesii*, *Allocasuarina fraseriana*, *Lepidosperma gladiatum*, *Olearia axillaris* and *Calothamnus quadrifidus*.

Dominant plants identified in the Marri (*Corymbia calophylla*) Woodland included Marri trees, middle storey shrubs such as *Macrozamia riedlei* and *Xanthorrhoea preissii* and lower storey shrubs such as *Stirlingia latifolia*. Other common native species were identified as *Hardenbergia comptoniana*, *Allocasuarina fraseriana*, *Acacia saligna*, *Acacia cochlearis*, *Jacksonia furcellata*, *Jacksonia sternbergiana*, *Hakea prostrata*, *Conostylis candidans*, *Corynotheca micrantha*, *Banksia menziesii*, *Leucopogon propinquus*, *Senecio pinnatifolius*; and *Schoenus grandiflorus*.

Corridor Value

Mount Claremont Oval Reserve forms an important ecological corridor with Lake Claremont and Bold Park (via Montgomery Avenue). It is listed in the Western Suburbs Greening Plan (Ecoscape 2002) as an area for securing linkages as it assists by linking Bold Park to Lake Claremont. It also provides ecological linkages with other small remnant vegetation at Lake Claremont, Swanbourne Estate, Cottesloe Golf Course, Pine Tree Park, Mount Claremont Community Centre, Mooro Drive and Heritage Lane.

Bushland Condition

The methodology followed for bushland condition assessments undertaken in 2012/13 is detailed on pages 27 - 30 of the Natural Areas Management Plan 2013 - 2018. Bushland condition is useful in tracking large changes overtime 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

Bushland condition was mapped in 2006 where it mapped the overstorey and understorey vegetation. The following ratings were then provided:

- Overstorey and Understorey = *Fair* condition,
- Over or Understorey = *Poor* condition; and
- No Over or Understorey = *Very Poor* condition.

The bushland condition was assessed strictly on the basis of local native species present. On review of the bushland condition maps there were some small areas in the eastern and western portions of the Reserve in *Fair* condition with the remainder of the Reserve consisting of either *Poor* to *Very Poor* condition bushland. The *Very Poor* condition areas were primarily where non-indigenous plantings existed and the open cleared lawn areas along Cleland Street.

The bushland condition mapping undertaken in 2008 using the Keighery Scale through the Natural Area Initial Assessments assessed 53% as *Completely Degraded*, 32% as *Degraded* and 15% as *Good*. This survey was undertaken in spring 2008 and like the 2006 mapping the condition ratings were allocated on the basis of local native species present. These maps were not digitised and did not use 20 x 20m polygons.

2012/13 Bushland Condition Assessment

The mapping for the 2013 – 2018 Management Plan was undertaken in spring by adapting the Keighery Scale and dividing the bushland into 20 x 20m polygons. The use of 20 x 20m polygons allows a systematic, measurable and repeatable means for collecting data overtime. Where each 20 x 20m polygon represents an individual unit with a GPS coordinate. When bushland condition is undertaken in future this method will allow a quantitative assessment to be undertaken to compare changes overtime.

In 2012/13 the Keighery Scale was adapted to assess the impact of disturbance on vegetation structure. Each 20 x 20m 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, selective removal of species (from plant pathogens, frequent fires, grazing and logging for example) and clearing. The existence on non-indigenous plants (through enrichment planting) was not rated as a disturbance unless they displayed signs of causing disturbance to the area.

In 2012/13 the bushland was assessed as approximately half *Degraded* and half as *Good* condition. Refer to Table 3 below and the Bushland Condition map in the map section on page 25.

Table 3: Extent of Bushland Condition 2012/13

Very Good	Good	Degraded	Completely Degraded	Total Area
0	10.6Ha	11.5Ha	0	22.1Ha

The *Good* condition rated areas consisted of a band of differing levels of *Good* condition bushland. Some of these were more on the degraded side of *Good* condition and others were more on the *Very Good* condition side of *Good* condition. In the *Good* condition bushland areas some introduced native plants may also have formed part of the vegetation structure (such as *Eucalyptus utilis*) and this did not lead to a *Degraded* rating as these areas still retained vegetation structure and the non-native plants were not considered invasive to the Reserve.

Bushland condition at Mount Claremont Oval Reserve is unlikely to show large improvements in the next five years from the ratings provided in 2012/13 unless some intensive restoration work is undertaken in the *Degraded* areas. It is also unlikely that some of the *Good* condition bushland areas will become *Very Good* over the next five years as Black Flag occurs across the majority of the bushland and it is unlikely to be removed from the bushland within a five year period, possibly longer.

Notwithstanding, bushland condition is useful in tracking changes overtime and should continue to be measured each time this Management Plan is reviewed. This allows changes to be regularly monitored and recorded over time.

Flora

There are 111 flora species recorded at Mount Claremont Oval Reserve, of these 47 are identified as native species and 64 as introduced weed species. The flora list (Appendix 1) for Mount Claremont Oval Reserve has been based on informal surveys undertaken including:

- Ecoscape 2006 (opportunistically when weed mapping was undertaken),
- Orsini 2008; and
- City of Nedlands staff and Ian Fordyce in 2013.

The suite of species originally present at Mount Claremont Oval Reserve cannot be directly observed due to the long history of degradation at the site such as excavation works to construct the playing fields.

Species previously recorded in 2006 and/or 2008 that were not observed in 2013 include:

- *Leucopogon propinquus*,
- *Tetraria octandra*,
- *Tricoryne elatior*,

- *Pithocarpa cordata*; and
- *Gompholobium tomentosum*.

Since 2006 and 2008, the following native plants have been found which were not planted and were also not previously detailed as being recorded at Mount Claremont Oval Reserve:

- Pink Fairy Orchids (*Caladenia latifolia*),
- Cowslip Orchid (*Caladenia flava*),
- *Grevillea thelemanniana* (may have previously been recorded as *Grevillia preissii*),
- *Leschenaultia linarioides*,
- *Jacksonia furcellata*,
- *Eremophila glabra*,
- *Allocasuarina humilis*; and
- *Dianella revoluta* var. *divaricata*.

Since 2006 the following species were known to have been reintroduced through revegetation work undertaken:

- *Banksia sessilis*,
- *Allocasuarina humilis*; and
- *Banksia prionotes*.

Prior to introducing these species an audit was made to ensure that only those plant species that would have most likely naturally occurred within or nearby the Reserve were reintroduced.

Plant Pathogens

A survey of plant pathogens undertaken across the City's natural areas in 2011 isolated the following plant pathogens from 12 trees at Mount Claremont Oval Reserve (2 Tuarts, 6 Jarrah's and 4 Marri's):

- *Phytophthora sp. ohioensis* (2 Marri's),
- *Phytophthora multivora* (2 Marri's and 2 Jarrah's); and
- Quambalaria canker (3 Marri's).

The majority of trees displayed symptoms of stress such as crown thinning and epicormic growth. Three were also being attacked by stem-boring insects and one by Leaf Minors and a further two trees had possible *Armillaria luteobubalina* infections and one a possible *Omphalotus nidiformis* fungal pathogen infection.

The identification and management of plant pathogens and other causes of tree decline has been detailed in the Natural Areas Management Plan 2013 - 2018. In summary strict hygiene protocols are required (of which many are already being implemented) such as ensuring no soil or plant material is transferred between natural areas or restoration sites by brushing excess soil off clothing, machinery and equipment, and sterilising with 70% solutions of methylated spirits.

Trees can also be treated by implementing systemic treatments that can last for up to three years, so they are not as susceptible to death as a result of plant pathogens. The City implemented some systemic treatments in 2011. These trees are being monitored and follow up treatments may be required in the future.

Refer to pages 41 - 44 of the Natural Areas Management Plan 2013 – 2018 for management strategies and hygiene protocols.

Weeds

Of the 64 weeds recorded in at Mount Claremont Oval Reserve (listed in Appendix 1) the distribution of 4 of these and woody weeds were mapped in 2012/13. They are shown in the map section on page 25.

Some of the weeds listed in Appendix 1 include those that were intentionally planted such as River Red Gums and Coastal Moort. Non-indigenous plants provide habitat and should only be removed if they are outcompeting native vegetation.

Weed mapping

Historically weeds were mapped using different methods and cover classes. The 2006 weed mapping was digitised and assessed weed cover across the bushland however 20 x 20m polygons were not used to score weed distributions. The mapping in 2012/13 was undertaken in spring using 20 x 20m polygons and DPAW cover classes detailed in their weed mapping Standard Operating Procedure 22.1. These include:

- Individual plants (mapped as GPS points),
- Less than 5%,
- 6-75%; and
- 76-100%.

This method allows a systematic, measurable and repeatable means for collecting weed cover and density over time. Where each 20 x 20m polygon represents an individual unit with a GPS coordinate. When weed mapping is undertaken in future, using this method will allow a quantitative assessment to be undertaken to compare changes over time.

Target Species for Weed Mapping 2012/13

In 2012/13 the following weeds were mapped Perennial Veldt Grass (*Ehrharta calycina*), Geraldton Carnation Weed (*Euphorbia terracina*), Black Flag (*Ferraria crispa*), *Freesia* (*Freesia aff.leichtlinii*); and Woody Weeds.

Limitations of weed mapping

Only the above listed priority weeds could be mapped due to the time and the cost involved with the mapping. Unfortunately there are always going to be some limitations encountered with weed mapping and these include:

Timing of mapping

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

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 mapping could have concluded.

Fungi

No Fungi Forays have been held at Mount Claremont Oval Reserve and prior to the development of this Management Plan no previous inventories were compiled. Only 2 fungi have been noted as

occurring at Mount Claremont Oval Reserve (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 Mount Claremont Oval Reserve should be continually updated as new species are recorded.

Native Fauna

A total of 9 birds and 4 reptiles have been recorded at Mount Claremont Oval Reserve these are listed in Appendix 3.

Of the 9 bird species identified in Appendix 3 one species is listed under the Environmental Protection Biodiversity Conservation Act 1999 (EPBC Act) the Carnaby's Cockatoo (*Calyptorhynchus latirostris*) which is listed as *Endangered*.

Mammals

No mammals have been recorded at Mount Claremont Oval Reserve to date. However due to their distribution and adaptability it is likely that Brushtail Possums (*Trichosurus vulpecula*) and Goulds Wattle Bats (*Chalinolobus gouldii*) exist on site and possibly the White Stripped Mastiff Bat (*Tadarida australis*).

Herpetofauna (Reptiles & Amphibians)

A total of 4 herpetofauna species have been confirmed at Mount Claremont Oval Reserve. These include the Fence Skink (*Cyrtoblepharus buchananii*), the West Coast Ctenotus (*Ctenotus fallens*), the Western Bobtail (*Tiliqua rugosa*) and the Western Marbled Gecko (*Christinus marmoratus*).

The 4 species listed above would only form part of the herpetofaunal species at Mount Claremont Oval Reserve 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.

Introduced Fauna

Please refer to pages 65 – 69 of the Natural Areas Management Plan 2013 – 2018 for details of feral animal control strategies.

Mammals

Mount Claremont Oval Reserve contains only one confirmed introduced mammal the fox (*Vulpes vulpes*). Other possible (however unconfirmed) introduced fauna include the Cat (*Felis catus*), the House Mouse (*Mus musculus*); and the Black House Rat (*Rattus rattus*).

Invertebrates

One introduced invertebrate of concern at Mount Claremont Oval Reserve includes the European Honey Bee (*Apis mellifera*).

Birds

There are 4 recorded introduced birds within Mount Claremont Oval Reserve these include the Spotted Dove (*Streptopelia chinensis*), Laughing Dove (*Streptopelia senegalensis*), Rainbow Lorikeet (*Trichoglossus haematodus*) and the Laughing Kookaburra (*Dacelo novaeguineae*).

PLAN FOR MANAGEMENT

Please refer to pages 31 - 40 of the Natural Areas Management Plan 2013 – 2018 for general management principles and weed control strategies that relate to all natural areas.

Management Zones

External Boundaries

For management purposes it is important to distinguish between parkland and bushland zones. At Mount Claremont Oval Reserve, the boundary between bushland and parkland areas are well defined on the southern side of the Reserve by lawn areas, pathways and fencing. However the northern side of the Reserve the boundary between bushland and parkland areas is not well defined. Distinguishing the boundaries on the northern side of the Reserve can be achieved through the installation of fencing which will also reduce informal access and potential illegal access into the Reserve from Cleland Street.

Internal Boundaries

For management purposes the bushland should be managed on the basis of three Zones as this will facilitate the establishment of guidelines for managing areas of similar terrain and degradation. This includes Zone 1 (west of the main pathway) which is characterised by the Acacia Shrubland community, Zone 2 which consists of the steep embankment area that has largely been planted with non-indigenous trees and has a high proportion of *Degraded* areas; and Zone 3 at the eastern end of the Reserve which contains the Marri Woodland.

Figure 2: Management Zones at Mount Claremont Oval Reserve.



Management Actions 2013 – 2018

ACTIONS	
1.	Manage Mount Claremont Oval Reserve on the basis three zones.

Rehabilitation

The improvement of bushland condition at Mount Claremont Oval Reserve will be achieved by assisting natural regeneration through weed control in *Good* condition bushland areas and 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.

All Zones require annual weed control of priority weeds Zones 1 and 3 have a higher proportion of local provenance plants and are more representative of the natural plant communities that originally existed in the Reserve. Therefore if revegetation work is proposed within of Zone 1 and 3 they should be reconstructed with similar species that already exist in these areas to maintain these communities.

Management Actions 2013 - 2018

ACTIONS	
1.	Focus revegetation at selected degraded sites within Zones.
2.	Focus management on better condition bushland areas within Zones.
3.	Only revegetate Zone 1 and 3 with similar existing local native species.

Revegetation

Species Selection

Ideally species used for revegetation in reconstruction sites would consist of the entire collection of plants that naturally occur at Mount Claremont Oval Reserve such as those that naturally occur in nearby Bold Park. However this is not always possible as not all species can be propagated.

The dense infestations of Black Flag make revegetation difficult as any revegetation has the potential to create ongoing maintenance issues when spraying Black Flag. Consideration should be given to only planting overstorey species in these areas and liaising with other departments such as DPAW and the BGPA to determine possible options.

Management Actions 2013 - 2018

ACTIONS	
1.	Only use plant species for rehabilitation if they would have naturally occurred on site.

Environmental Weed Control

A total of 22 priority weeds have been listed for management at Mount Claremont Oval Reserve (Table 4). Each priority weed has been provided management notes and the Invasive Plant Prioritisation Process rating (DEC, 2008). Priority weeds will be managed according to management notes provided on DPAW's Florabase website at <http://florabase.dec.wa.gov.au> and are detailed in Appendix 4. Priority weeds have been selected from:

- The Swan Region Assessment 2008 (Invasive Plant Prioritisation Process (DEC)),
- 30 highest priority weeds for the Swan Region 2008,
- State and federal weed lists; and
- Their ability to be controlled without causing disturbance.

Table 4: Priority Weeds for Control – Mount Claremont Oval Reserve (Ratings taken from DEC Invasive Plant Prioritisation Process 2008 (Swan Region)).

Species name	Common name	Notes	Rating
1. <i>Arctotis stoechadifolia</i>	Arctotis	Requires ongoing monitoring and removal as required.	Unrated
2. <i>Argyranthemum frutescens</i>	Marguerite Daisy	Ongoing control required.	FAR (Further Assessment Required)
3. <i>Asparagus asparagoides</i>	Bridal Creeper	Requires ongoing monitoring and control.	Very High
4. <i>Avena fatua</i>	Wild Oat	Ongoing control required in conjunction with grass spraying program.	Very High
5. <i>Carpobrotus</i> sp. (probably <i>C. edulis</i>)	Coastal Pigface	Requires ongoing monitoring and control. Control only to take place when in flower so that it is not confused with native Pigface.	Medium/High
6. <i>Chamelaucium uncinatum</i>	Geraldton Wax	Remove juvenile seedlings as required.	Medium
7. <i>Chasmanthe floribunda</i>	African Cornflag	Requires ongoing monitoring and removal as required.	Medium
8. <i>Ehrharta calycina</i>	Perennial Veldt Grass	Ongoing control required.	Very High
9. <i>Ehrharta longiflora</i>	Annual Veldt Grass	Ongoing control required in conjunction with grass spraying program.	FAR
10. <i>Euphorbia terracina</i>	Geraldton Carnation Weed	Ongoing hand weeding required.	Very High
11. <i>Ferraria crispa</i>	Black Flag	Ongoing control required.	Very High
12. <i>'Freesia alba x leichtlinii</i>	<i>Freesia</i>	Ongoing control required.	Very High
13. <i>Fumaria capreolata</i>	Whiteflower Fumitory	Hand weeding required if resources allow.	Medium/High
14. <i>Lachenalia aloides</i>	Soldiers	Ongoing monitoring and control required. Hand remove populations in degraded sites.	High
15. <i>Leptospermum laevigatum</i>	Coast Teatree	Remove juvenile seedlings as required.	Very High
16. <i>Lupinus angustifolius</i>	Narrowleaf Lupin	Ongoing hand weeding required.	Unrated
17. <i>Lupinus cosentinii</i>	Sandplain Lupin	Ongoing hand weeding required.	Unrated
18. <i>Lycium ferocissimum</i>	African Boxthorn	Requires ongoing monitoring for re-infestation/ resprouting.	Very High
19. <i>Pelargonium capitatum</i>	Rose Pelargonium	Ongoing monitoring and control required.	Medium/High
20. <i>Raphanus raphanistrum</i>	Wild Radish	Ongoing hand weeding required.	FAR
21. <i>Schinus terebinthifolius</i>	Brazilian Pepper	Requires ongoing monitoring for re-infestation/ resprouting.	Very High
22. <i>Vicia sativa</i>	Common Vetch	Control required in conjunction with <i>Freesia</i> spraying if resources allow.	FAR

Strategy

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

- Geraldton Carnation Weed,
- Bridal Creeper,
- *Lachenalia aloides*,
- Perennial Veldt Grass,
- Annual Veldt Grass,
- Wild Oats,
- Black Flag,
- Wild Radish,
- *Lupinus* sp,
- *Freesia*; and
- Woody Weeds.

Fumitory

With the removal of many annual and perennial grass weeds like other reserves Fumitory has increased at Mount Claremont Oval Reserve. 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. 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 Mount Claremont Oval Reserve. A few mature specimens exist which provide habitat for birds. The mature specimens should be retained, unless they are removed as part of an intensive restoration project, and the bushland monitored for the germination of seedlings which should be removed as required.

Coast Teatree (Victorian Teatree)

Coast Teatree is a highly invasive weed particularly along the coast. There are some mature specimens along the boundary near Lisle Villages. There has been no control undertaken over recent years on these populations and they are not increasing their distribution. Therefore they should remain unless they are removed as part of an intensive restoration project. With juvenile seedlings removed as required.

Monitoring

Of the 64 weeds identified as occurring within Mount Claremont Oval Reserve, the distributions and densities of 4 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; and *Freesias*. New invasive weeds should also be mapped as they arise and controlled as necessary.

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

- African Cornflag,

- *Watsonia bulbifera*,
- *Arctotis stoechadifolia*; and
- *Acacia iteaphylla*.

Management Actions 2013 - 2018

ACTIONS	
WEED CONTROL	
1.	Control the following weeds as a high priority: Geraldton Carnation Weed, Bridal Creeper, <i>Lachenalia aloides</i> , Perennial Veldt Grass, Annual Veldt Grass, Wild Oats, Black Flag, Wild Radish, <i>Lupinus</i> sp, <i>Freesia</i> ; and Woody Weeds.
2.	Annually monitor weeds with the potential to expand rapidly and map changes in their distribution if required.
3.	Monitor, control and document the distribution of new invasive weeds as they arise.
4.	Remove juvenile seedlings of Geraldton Wax and Coast Teatree if required.
5.	Do not undertake removal of historically planted non-indigenous Australian native plants (such as River Red Gums) unless they become invasive.
6.	Control priority weeds in accordance with management notes detailed in Appendix 4.
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 African Cornflag, <i>Watsonia bulbifera</i> , <i>Arctotis stoechadifolia</i> ; and <i>Acacia iteaphylla</i> to ensure they do not spread or reestablish.

FIRE MANAGEMENT

Fire management actions for all natural areas have been detailed on pages 45 - 50 of the Natural Areas Management Plan 2013 – 2018 and the fire history map shown in the map section on page 25. The City recently 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*). As a result of these assessments the following actions are being implemented for Mount Claremont Oval Reserve:

- Remove any *Acacia rostellifera* trees within 6m of Lisle Villages permanently,
- Thin remaining *Acacia* trees within 25m of building to leave a 3m separation between crowns,
- Remove excess leaf litter and dead material within 25m of Lisle Villages; and
- Construct/maintain the 3m fire access way along boundary.

In addition to the above listed actions fire bans should be maintained at all times at Mount Claremont Oval Reserve and reduction of fuel loads through grass weed control along with annual maintenance of fire access ways are also ongoing fire hazard reduction strategies that need to be implemented for Mount Claremont Oval Reserve.

Management Actions 2013 - 2018

ACTIONS	
1.	Undertake annual management of grass weeds to reduce fuel loads.

ACCESS

The “*Objectives for Access*” have been detailed for all natural areas on pages 51 – 54 of the Natural Areas Management Plan 2013 - 2018. The path network at Mount Claremont Oval Reserve is considered appropriate and is shown in the map section on page 25. Interim stabilisation work was undertaken to heavily eroded path edges in 2011 with full upgrades scheduled to commence in 2019/20 in accordance with the Corporate Business Plan and the City’s Natural Area Path Network Policy. Due to the steepness of the site the path network within the bushland area does not allow for disability access.

The fencing along the southern part of the Reserve is considered adequate however; currently no fencing along the northern portion of the Reserve exists which has the potential to allow for illegal access. Informal walking and bike tracks are also evident along the northern portion of the Reserve to the pathway along Montgomery Avenue. Fencing of the northern portion of the Reserve has been identified as a gap in the draft Natural Areas Asset Management Plan.

CULTURAL HERITAGE, INTERPRETATION & EDUCATION

Cultural Heritage, Interpretation and Education has been detailed for all natural areas on pages 55 - 62 of the Natural Areas Management Plan 2013 -2018.

Walking trails linking all bushlands in the Western Suburbs (including Mount Claremont Oval Reserve) are in the process of being developed for the Whadjuk Trails Project. This project is a collaboration between Lotterywest, natural area friends groups across the Western Suburbs, WESROC Councils, the BGPA and the Cities of Stirling and Fremantle. A website displaying information about the trails including Mount Claremont Oval Reserve is in the process of being developed where people can download a map and App of sections of the trail network. Interpretive signage will also be installed through the Reserve detailing the cultural and environmental significance of Mount Claremont Oval Reserve.

NATIVE ANIMALS

Background

There are 13 confirmed native animal species in Mount Claremont Oval Reserve (9 birds and 4 reptiles). Ongoing surveying of native fauna within Mount Claremont Oval Reserve 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 under the section on feral animal management on pages 65 – 69 of the Natural Areas Management Plan 2013 - 2018.

Strategy for Protection of Native Animals

Birds

Of the 9 bird species identified in Appendix 3 one species is listed as *Endangered* under the EPBC Act the Carnaby’s Cockatoo (*Calyptorhynchus latirostris*).

Carnaby’s Cockatoo are often seen foraging in the bushland. Carnaby’s Cockatoos have a roost site at Perry Lakes (R15) and Hollywood Hospital (R3). There are a further two unconfirmed roost sites being researched by the Threatened Cockatoo Recovery Project. These include one on Narla Road in Swanbourne (DEC50) and the other is the Reserve itself (GCC30).

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 the Rainbow Lorikeets that carry Beak and Feather Disease. DPAW have been undertaking a five year 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 the mammals and birds at Mount Claremont Oval Reserve can be achieved through:

- Minimising fires that may destroy tree hollows,
- Retaining hollows for refuges in large old and dead trees,
- Controlling feral European Bees as they can displace native animals,
- Continuation of the fox control program; and
- Contributing to regional program being undertaken by DPAW for feral bird control.

Management Actions 2013 - 2018

ACTIONS	
1.	Undertake ongoing surveying of native fauna if resources allow.
2.	Minimise fires that may destroy tree hollows.
3.	Retain hollows for refuges in large old and dead trees.
4.	Control feral European Bees as they can displace native animals.
5.	Continue the fox control program.
6.	Contribute to regional programs being undertaken for feral bird control by DPAW.

COMMUNITY INVOLVEMENT

Currently there is no Friends Group for Mount Claremont Oval Reserve. Should a member of the community wish to form a Friends Group for the Reserve an application needs to be made to the City of Nedlands in accordance with the Community Friends Group Policy.

The objectives and strategies for community involvement for all the City's community Friends Groups are detailed on pages 63 - 64 of the Natural Areas Management Plan 2013 - 2018. 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 groups remain sustainable through advertising, social media and the volunteer referral centre.

The City also has the opportunity to engage students from Mount Claremont Primary School which is located directly adjacent to the Reserve. There are opportunities to hold educational events in the Reserve with the school such as Clean Up Australia Day and planting or weeding days. This would increase the students' interest in the environment and specifically the conservation of Mount Claremont Oval Reserve.

MAPS





















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Appendix 1

Flora Inventory

Native Plant Inventory

Species	Common Name
<i>Acacia cochlearis</i>	Rigid Wattle (narrow phyllode variant)
<i>Acacia cyclops</i>	Coastal Wattle
<i>Acacia lasiocarpa</i>	Panjang
<i>Acacia pulchella</i>	Prickly Moses
<i>Acacia saligna</i>	Orange Wattle
<i>Acacia rostellifera</i>	Summer-scented Wattle
<i>Allocasuarina fraseriana</i>	Sheoak
<i>Allocasuarina humilis</i>	Dwarf Sheoak
<i>Banksia littoralis</i>	Swamp Banksia
<i>Banksia menziesii</i>	Firewood Banksia
<i>Banksia prionotes</i>	Acorn Banksia
<i>Banksia sessilis</i>	Parrot Bush
<i>Caladenia flava</i>	Cowslip Orchid
<i>Caladenia latifolia</i>	Pink Fairy Orchid
<i>Callitris preissii</i>	Rottnest Island Pine
<i>Calothamnus quadrifidus</i>	One-sided Bottlebrush
<i>Conostylis candicans</i>	Grey Cottonhead
<i>Corynotheca micrantha</i>	
<i>Corymbia calophylla</i>	Marri
<i>Crassula colorata</i>	Dense Stonecrop
<i>Dianella revoluta</i> var. <i>divaricata</i>	
<i>Eremophila glabra</i>	Tar Bush
<i>Eucalyptus gomphocephala</i>	Tuart
<i>Eucalyptus marginata</i>	Jarrah
<i>Grevillea crithmifolia</i>	
<i>Grevillea thelemanniana</i>	Spider Net Grevillea
<i>Grevillea vestita</i>	
<i>Guichenotia ledifolia</i>	Guichenotia
<i>Hakea prostrata</i>	Harsh Hakea
<i>Hardenbergia comptoniana</i>	Native Wisteria
<i>Jacksonia furcellata</i>	Grey Stinkwood
<i>Jacksonia sternbergiana</i>	Stinkwood
<i>Lepidosperma gladiatum</i>	Coast Sword-Sedge
<i>Leschenaultia linarioides</i>	Yellow Leschenaultia
<i>Macrozamia riedlei</i>	Zamia Palm
<i>Melaleuca huegelii</i>	Chenille Honey Myrtle
<i>Melaleuca lanceolata</i>	Rottnest Teatree
<i>Melaleuca systema</i>	
<i>Microtis</i> sp	Mignonette Orchid
<i>Olearia axillaris</i>	Coastal Daisybush
<i>Scaevola crassifolia</i>	Thick-leaved Fan-flower
<i>Senecio pinnatifolius</i>	

Species	Common Name
<i>Schoenus grandiflorus</i>	Large Flowered Bogrush
<i>Spyridium globulosum</i>	Basket Bush
<i>Stirlingia latifolia</i>	Blueboy
<i>Templetonia retusa</i>	Cockies Tongues
<i>Xanthorrhoea preissii</i>	Grass Tree

Weed Inventory

Species	Common Name
<i>Agonis flexuosa</i> "Nana"	Peppermint
<i>Aira caryophylla</i>	Silvery Hairgrass
<i>Allium triquetrum</i>	Three-cornered Garlic
<i>Arctotheca calendula</i>	Cape Weed
<i>Arctotis stoechadifolia</i>	White Arctotis
<i>Asparagus asparagoides</i>	Bridal Creeper
<i>Avena barbata</i>	Bearded Oat
<i>Avena fatua</i>	Wild Oat
<i>Briza maxima</i>	Blowfly Grass
<i>Briza minor</i>	Shivery Grass
<i>Bromus diandrus</i>	Great Brome
<i>Callistemon</i> sp. 1	Bottlebrush (narrow leaved)
<i>Callistemon</i> sp. 2	Bottlebrush (broad leaved)
<i>Carpobrotus</i> sp. (probably <i>C. Edulis</i>)	Pigface
<i>Centranthus macrosiphon</i>	Pretty Betsy
<i>Chamelaucium</i> sp	
<i>Chamelaucium uncinatum</i>	Geraldton Wax
<i>Chasmanthe floribunda</i>	African Cornflag
<i>Conyza</i> sp. (probably <i>C. bonariensis</i>)	Flaxleaf Fleabane
<i>Cotula turbinata</i>	Funnel Weed
<i>Cupressus</i> sp.	Cypress Pine
<i>Ehrharta calycina</i>	Perennial Veldt Grass
<i>Ehrharta longifolia</i>	Annual Veldt Grass
<i>Eucalyptus camaldulensis</i> subsp. <i>obtusa</i>	River Red Gum
<i>Eucalyptus conferruminata</i>	Bald Island Marlock
<i>Eucalyptus macrocarpa</i>	Mottlecah
<i>Eucalyptus utilis</i>	Coastal Moort
<i>Euphorbia peplus</i>	Petty Spurge
<i>Euphorbia terracina</i>	Geraldton Carnation Weed
<i>Ferraria crispa</i>	Black Flag
<i>Ficus carica</i>	Edible Fig
<i>Ficus macrophylla</i>	Moreton Bay Fig
<i>Freesia alba x leichtlinii</i>	Freesia
<i>Fumaria capreolata</i>	Whiteflower Fumitory
<i>Geranium molle</i>	Dove's Foot Cranesbill

Species	Common Name
<i>Hibbertia scandens</i>	Climbing Guinea Flower
<i>Hypochaeris glabra</i>	Flatweed
<i>Lachenalia aloides</i>	
<i>Lactuca serriola</i>	Prickly Lettuce
<i>Lagurus ovatus</i>	Hare's Tail Grass
<i>Leptospermum laevigatum</i>	Coast Tea Tree
<i>Lolium perenne</i>	Perennial Ryegrass
<i>Lupinus angustifolius</i>	Narrowleaf Lupin
<i>Lupinus cosentinii</i>	Sandplain Lupin
<i>Lycium ferocissimum</i>	African Boxthorn
<i>Melaleuca nesophila</i>	Mindiyed
<i>Orobanche minor</i>	Lesser Broomrape
<i>Oxalis pes-caprae</i>	Soursob
<i>Pelargonium capitatum</i>	Rose Pelargonium
<i>Petrorhagia dubia</i>	Velvet Pink
<i>Pinus pinaster</i>	Pinaster Pine
<i>Raphanus raphanistrum</i>	Wild Radish
<i>Schinus terebinthifolius</i>	Brazilian Pepper
<i>Sonchus asper</i>	Rough Sowthistle
<i>Sonchus oleraceus</i>	Common Sowthistle
<i>Trachyandra divaricata</i>	Dune Onion Weed
<i>Trifolium arvense</i>	Hare's Foot Clover
<i>Trifolium campestre</i>	Hop Clover
<i>Trifolium dubium</i>	Suckling Clover
<i>Trifolium tomentosum?</i>	Woolly Clover
<i>Tropaeolum majus</i>	Garden Nasturtium
<i>Ursinia anthemoides</i>	Ursinia
<i>Vicia sativa</i>	Common Vetch
<i>Wahlenbergia capensis</i>	Cape Bluebell

Appendix 2 Fungi Inventory

Species	Other Identifiers	Habitat	Life Mode
<i>Pycnoporus coccineus</i>	Scarlet Bracket Fungus	Dead wood	Saprotrophic
<i>Scleroderma cepa</i>	Earthball Fungus	Litter/ground	Mycorrhizal

Appendix 3 Fauna Inventory

Bird Inventory

Species	Common Name	Introduced
* <i>Streptopelia senegalensis</i>	Laughing Dove	*
* <i>Streptopelia chinensis</i>	Spotted Dove	*
<i>Calyptorhynchus latirostris</i>	Carnaby's Cockatoo	
<i>Eolophus roseicapilla</i>	Galah	
* <i>Trichoglossus haematodus</i>	Rainbow Lorikeet	*
<i>Bernardius zonarius</i>	Australian Ringneck	
* <i>Dracelo novaeguineae</i>	Laughing Kookaburra	*
<i>Anthochaera carunculata</i>	Red Wattlebird	
<i>Cracticus torquatus</i>	Grey Butcherbird	
<i>Cracticus tibicen</i>	Australian Magpie	
<i>Rhipidura leucophrys</i>	Willy Wagtail	
<i>Corvus coronoides</i>	Australian Raven	
<i>Grallina cyanoleuca</i>	Magpie Lark	

Mammals and Reptile Inventory

Mammals		Introduced
Fox	<i>Vulpes vulpes</i>	*
Reptiles		
Fence Skink	<i>Cyrtoblepharus buechananii</i>	
West Coast Ctenotus	<i>Ctenotus fallens</i>	
Western Bobtail	<i>Tiliqua rugosa</i>	
Western Marbled Gecko	<i>Christinus marmoratus</i>	

Appendix 4 Priority Weed Management Notes (Taken from Florabase)

Species Name	Common Name	Management Strategy	Timing (optimal)
1. <i>Arctotis stoechadifolia</i>	White Arctotis	Manually remove populations.	Mar - Oct
2. <i>Argyranthemum frutescens</i>	Marguerite Daisy	Manually remove populations.	June - Oct
3. <i>Asparagus asparagoides</i>	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
4. <i>Avena fatua</i>	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
5. <i>Carpobrotus edulis</i>	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
6. <i>Chamelaucium uncinatum</i>	Geraldton Wax	Cut to base and paint with 50% glyphosate. Control seedlings following fire.	All Year
7. <i>Chasmanthe floribunda</i>	African Cornflag	Dig out isolated plants.	June - Sept
8. <i>Ehrharta calycina</i>	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)
9. <i>Ehrharta longiflora</i>	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
10. <i>Euphorbia terracina</i>	Geraldton Carnation Weed	Manually remove populations. Undertake control after any fire event.	June – Nov
11. <i>Ferraria crispa</i>	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
12. <i>Freesia alba x leichtlinii</i>	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
13. <i>Fumaria capreolata</i>	Whiteflower Fumitory	Hand remove seedlings in good bushland areas.	July – Aug
14. <i>Lachenalia aloides</i>		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 - Sept

Species Name	Common Name	Management Strategy	Timing (optimal)
15. <i>Leptospermum laevigatum</i>	Coast Teatree	Remove juvenile seedlings.	All year
16. <i>Lupinus angustifolius</i>	Narrowleaf Lupin	Manually remove populations.	June - Oct
17. <i>Lupinus cosentinii</i>	Sandplain Lupin	Manually remove populations.	June - Oct
18. <i>Lycium ferocissimum</i>	African Boxthorn	Hand pull or dig out small seedlings ensuring removal of all roots. For mature plants cut and paint with 50% glyphosate and follow up treatment on regrowth or apply 250 ml Access® in 15 L of diesel to basal 50 cm of stem (basal bark).	March – May Sept- Nov
19. <i>Pelargonium capitatum</i>	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
20. <i>Raphanus raphanistrum</i>	Wild Radish	Manually remove populations.	June - Oct
21. <i>Schinus terebinthifolius</i>	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
22. <i>Vicia sativa</i>	Common Vetch	Hand remove small/isolated populations. Lontrel® 10 mL/10 L + wetting agent provides effective control in early growth stages, otherwise apply metsulfuron methyl 0.1 g/10 L + wetting agent.	July - Sept