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Purpose of the Remnant Native Vegetation Plan

The City of Marion has undertaken extensive community consultation in forming the *Community Vision - towards 2040*.

The community vision has six themes, one of which is valuing nature. Council has a vision to create a city that reflects a deep value of the natural world. The City of Marion Business Plan 2016 to 2019 contributes to this vision through the delivery of a plan and program for the protection of remnant native vegetation in Council reserves. This Remnant Native Vegetation Plan outlines the City of Marion's priorities and actions for managing remnant native vegetation as we move towards 2040. It focuses on the key principle of protecting and actively managing sites with high value remnant native vegetation. It also considers revegetation that contributes to managing remnant sites, buffers remnant vegetation and that can create linkages across the landscape for native vegetation and native fauna.

The Remnant Native Vegetation Plan outlines why biodiversity and remnant native vegetation are important and details our intent to protect remnant vegetation and biodiversity. It identifies where remnant native vegetation occurs in the City of Marion and the areas on our reserves that are of the highest priority. The Remnant Native Vegetation Plan discusses the key values and threats to remnant vegetation in the City of Marion. It also outlines the principles that will underpin the management of remnant native vegetation and the strategies that will be implemented to protect and manage remnant vegetation.





What is Biodiversity?

Biodiversity is the variety of life in all its forms. The diversity is found from the largest ecosystems which vary across the landscape, to species of plants and animals, to the genetic diversity that exist within individuals and populations. By working together, the three levels of diversity allow the complex interactions of life on earth.

Biodiversity in the City of Marion consists of our street trees, parks, reserves, roadsides and backyards but most commonly biodiversity refers to our areas that remain as local indigenous vegetation. Biodiversity provides many functions such as clean air, the recycling of nutrients, water filtration, minimising soil erosion and providing opportunities for recreation and education. Our iconic Coastal Walking Trail through our remnant coastal vegetation is one of the most valued assets within the City of Marion.

What is Remnant Native Vegetation?

Remnant native vegetation comprises native plants that are indigenous to the City of Marion, including trees, shrubs, herbs and grasses. Remnant native vegetation is the biodiversity that includes areas of native. The areas of highest biodiversity value are remnants, usually pre-European vegetation that has been relatively undisturbed by human activity and land clearing and is able to maintain functional ecological process.



Coastal heathland at the Hallett Headland Reserve. Photo: J. Smith



Landscape of the City of Marion

Pre-European Vegetation of the City of Marion

Before the arrival of European settlers in 1836, the landscape of the City of Marion reflected the natural features found on the plains and foothills, with diversity of landforms and soil types supporting a diverse mosaic of vegetation types from coastal heathlands on geologically ancient coastal clifftops and beaches, grassy woodlands to Open Forest along watercourses.

Some of these particularly the grassy woodlands have been preferentially cleared and very little remains. Across the city less than 1% of the pre-European vegetation remains.

Kaurna People Managed the Landscape

The Kaurna people are the traditional custodians of the Adelaide Plains. The Tjilbruke Dreaming track starts in the City of Marion at Warriparinga ("windy place by the river"). Tjilbruke is an important creation ancestor of the Kaurna people. The Tjilbruke springs along the coastline are marked by the tears of Tjilbruke which formed the springs. The story of Tjilbruke tells that at sunset every night of his journey Tjilbruke would cry over his nephew's body and his tears became a spring. The City of Marion has one known Tjilbruke spring at Weerab Reserve in Hallett Cove.



Calostemma purpureum (Garland Lily) with masses of autumn wildflowers at Clifftop Crescent Reserve, Hallett Cove, Photo: I. Smith



Our Remaining Native Vegetation

The City of Marion has been largely cleared for agricultural and then urban development. Despite this there are still some important remnant areas. The single largest patch of remnant vegetation is at the Hallett Headland (13ha) which contains over 100 native plant species and over 30 species considered to be of conservation significance in the Mount Lofty Ranges.

Along the coast there are other remnant coastal heathlands and cliff face vegetation, with some better examples at Marine Parade Marino, Kurnabinna Gully and Clifftop Crescent at Hallett Cove. The coastal clifftop environment is the most significant and highest quality area of remnant native vegetation and should be the major focus of our efforts to protect remnant vegetation.

The other significant remnants occur largely in the Hallett Cove area and two of these are remnants at Glade Crescent Reserve and Manunda Way Reserve. Glade Crescent Reserve is a large remnant patch along the Waterfall Creek, a watercourse which runs into Hallett Cove Conservation Park. This large 10 hectare site has over 40 native plant species and is a critical linkage for flora and fauna from the coast to the hills.

On the Hills Face Zone there are a few small important remnants close to the O'Halloran Hill Recreation Park. Morphett Road Reserve is a large patch adjacent the recreation park, that contains populations of Wallaby Grasses

(Rytidosperma sp.), Vanilla Lily
(Arthropodium strictum), Cut Leaf Goodenia
(Goodenia pinnatifida), Curved Riceflower
(Pimelea curviflora) and Garland Lily
(Calostemma purpureum). Roy Lander
Reserve has a small section of derived native
grassland, but with some extensive
populations of native plants such as Whiteflowered Goodenia (Goodenia albiflora), Pale
Fan Flower (Scaevola albida) and Narrow-leaf
New Holland Daisy (Vittadinia blackii).

The Lower Field River is an important remnant area with one of the few River Red Gum (*Eucalyptus camaldulensis*) creeklines and steep slopes with remnant derived grasslands. Significant species found here include Tufted Bluebell (*Wahlenbergia luteola*), Blanket Fern (*Pleurosorus rutifolius*), Tall Scurf-pea (*Cullen australasicum*) and Chocolate Lily (*Arthropodium fimbriatum*).

On the plains there are very few remnant areas, with native vegetation limited to small populations of native grasses or small stands of remnant overstorey with highly modified understorey. The Sturt River in Warriparinga is one significant area of River Red Gum (Eucalyptus camaldulensis) forest, its connection to the nearby Sturt Gorge means it contains some important areas for flora and fauna.

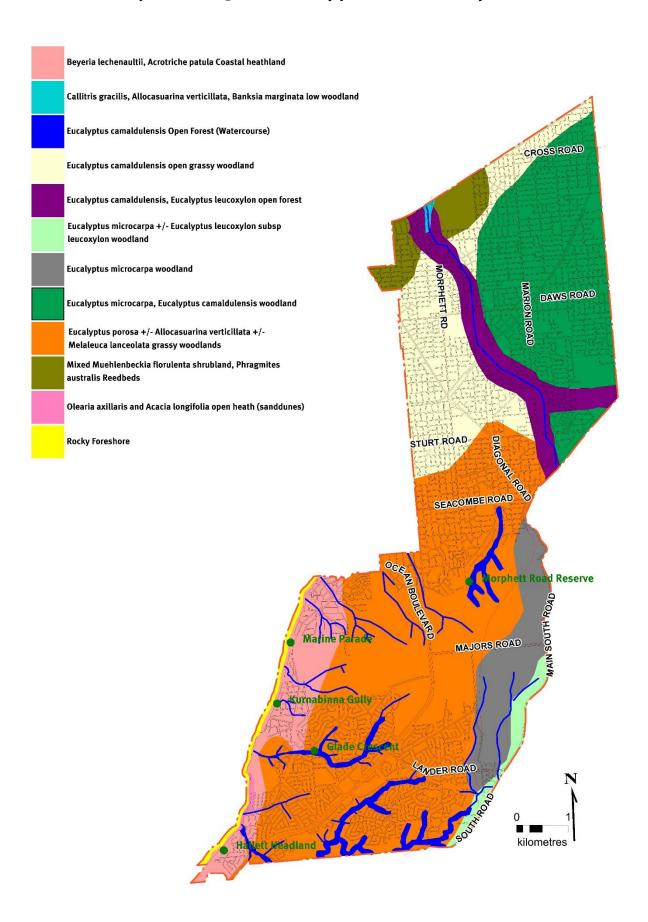
The vegetation associations found in the City of Marion are shown on the map on the following page.



A remnant River Red Gum (Eucalyptus camalduensis) ephemeral creekline in Morphett Road Reserve. Photo: J. Smith



Pre-European Vegetation Types of the City of Marion





The Hallett Headland



The Hallett Headland is the most important parcels of remnant native vegetation owned and managed by the City of Marion. It is a remnant of the coastal heathland that once occurred right along the Marion clifftops. It is important for a number of reasons. The area is significant in size and largely unmodified. It has over 100 native plant species and over 30 of these are considered to be of conservation significance in the Mount Lofty Ranges. The heathland is composed of Turpentine Bush (Beyeria lechenaultii) and Prickly Ground Berry (Acrotriche patula) and shows strong endemism to South Australia. The City of Marion contains some outstanding remnant clifftop heathlands and residents are lucky enough to have a magnificent coastal walking trail through which they can enjoy this area. The coastal heathland at the Hallett Headland is home to a myriad of flora and fauna, if you are walking through keep your eyes out for the Singing Honey eaters, Nakeen Kestrel, Sleep Lizards or even a Brown Snake.



Top to bottom: *Comesperma volubile* (Love Creeper), *Ptilotus spathulatus* (Pussy tails), *Acacia acinacea* (Gold Dust Wattle), *Drosera whittakerii* (Whitakers Sundew).

Bottom Right: Coastal Heathland at the Hallett Headland. Photos: J. Smith



Values of our Remnant Vegetation

Remnant vegetation has a number of values including; conservation values where there are important vegetation types, plants of national significance, international migratory bird species or other values as determined by research priorities. There are also the inherent benefits that can easily be taken for granted like clean air, recreation and general feeling of wellbeing.

Landscapes that contain remnant vegetation have developed a character that has diversified and stabilized over thousands of years. The plant and animal species in these habitats have a rare and unique identity and are icons of the area.

The opportunity for people to have real and meaningful connections with nature and in particular 'wild' areas has well documented benefits for improved physical and mental health. The complexity and visual character, the opportunity to see unexpected things and even the chemical compounds, fragrances and volatile oils in the atmosphere can have positive impacts on health and wellbeing.

Areas of diverse native vegetation also offer technical services for surrounding activities such as reduced stormwater runoff and erosion, improved water quality, reduced pest species, reduced plant and animal disease and improved pollination.

Vegetation of Significance – Grassy Woodlands and Grassy Habitats

Before European settlement, expanses of grassy woodlands and grassy habitats were found over much of the Mount Lofty Ranges, except for the highest spine of the ranges. Eucalyptus forests occur in the high rainfall

and poor soil areas of the Mt Lofty Ranges, while grassy habitats and grassy woodlands grow on the flat ground, gentle slopes and foothills. Grassy woodlands in South Australia have been preferentially cleared because they tend to occur on soils well suited to agriculture. Much of the pre-European vegetation in the City of Marion was composed of grassy habitats.

Grassy Habitats have Conservation Value

The conservation values of remnant grasslands and grassy woodlands are increasingly being recognised.

Grassy habitats are important because they:

- are the local natural heritage
- help with the long term survival of woodland birds
- provide habitat for wildflowers and native animals
- are a biological resource for revegetation projects
- help reduce soil erosion, manage water use and salinity.

Many plant and animal species, some endangered, depend almost exclusively on these remnants for habitat.



Sida petrophila (Rock Sida) Photo: J Smith



Greybox Grassy Woodlands

Greybox (Eucalytpus microcarpa) is an especially significant vegetation community that can be found growing from Burnside to Sellicks Beach on the foothills and plains. Nationally there is less than 5% of Greybox woodlands remaining and the Australian Government listed Greybox Grassy woodlands as a nationally threatened ecological community under the Environment Protection and Biodiversity Conservation (EPBC) Act 1999. Within the Greybox woodlands are plant, bird, reptile and insect species that rely on the Greybox community for their ongoing survival, including declining woodland bird species such as the Blackchinned Honey eater and Crested shrike-tit. Both bird species have been seen in the suburbs of O'Halloran Hill and Trott Park. The Greybox in Marion is not in perfect condition, but has a vital significance to national and global conservation efforts. In particular opportunities for large scale restoration of this woodland in areas such as Glenthorne Farm, the Field River Valley and Nari Reserve are critically important to ensuring the long term survival of Greybox. Restoring areas of Greybox and improving the values of even small remnant areas is very important.



The Crested Shrike-tit (*Falcunculus frontatus*), a declining woodland bird sometimes seen in Trott and Sheidow Park (Photo: Les Peters)

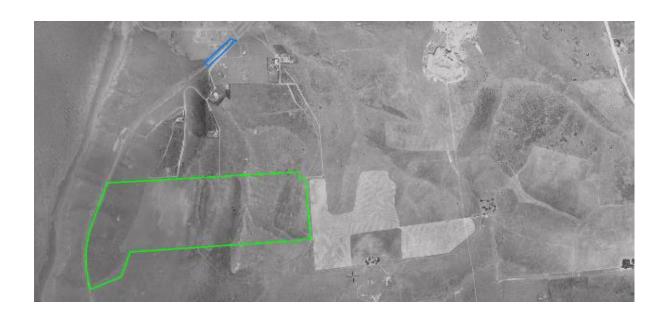


Scented Mat-rush (Lomandra effusa) Photo: J Smith

Vegetation of Significance – Coastal Heathlands

The Turpentine Bush (Beyeria lechenaultii) and Prickly Ground Berry (Acrotriche patula) shrublands located predominantly on cliff escarpment adjacent the coast, shows strong endemism and rarity for South Australia. These two shrubs are located in a diverse plant community with herbs, other shrubs, grasses and sedges and a moderately high number of species. They are special because they are strongly endemic but also they represent flora normally associated with dry arid areas such as the Flinders Ranges. In winter these areas come alive with shows of wildflowers; the short nature of the shrubs in the salt sea spray creates long vistas out across the cliffs, making them very special places in the City of Marion. The coastal heathlands at Marino in particular were extensive, aerial imagery from 1949 shows that virtually no trees existed in Marino, largely just coastal heathland plants. By 2016 the aerial imagery shows that virtually all of the heathland areas have been destroyed.





The above aerial photograph shows Marino in 1946, the location of Marino Conservation Park is outlined in green and the Marino Rocks station in blue. Note there are virtually no trees, the vegetation is composed of the original coastal heathland.



The above aerial photograph shows Marino in 2017, note the significant increase in tree cover and the removal of almost all of the coastal heathland for housing development. The fragmentation and removal of vegetation is a key threatening process in the localized extinction of species.



Grassy Woodlands and Grassy Habitats

A native grassy habitat has native grasses as a major part of the understorey. These are naturally open looking areas with scattered native trees; sometimes with very few trees at all. The understorey consists of a wide variety of native grasses, which usually grow in clumps, bunches or tussocks. The spaces in between the grasses are where spring wildflowers come up from bulbs, tubers and seeds. Medium-sized and tall shrubs are often absent, at low densities, or in small scattered groves. Instead of wattles, tea-trees, banksias, grevilleas, heaths, and other shrubs found in mallee and stringybark forests, grasses and wildflowers such as a variety of lilies, native peas and daisies dominate grassy habitats.

Grassy habitats are essential habitats for wildlife. The openness of grassy woodlands provide places for native birds that specialise in watching the ground for insects from low tree branches and those which specialise in eating grass seeds. The spaces between grass tussocks are where insects and reptiles move around to feed and breed.



A remnant Iron Grass (*Lomandra effusa*) grassland patch at Trumara Rd adjacent the Marino Conservation Park, with shows of wildflowers between tussocks. Photo: J. Smith



Remnant Native Plants of Significance Endangered Species

No plant species of national significance are known to occur on land owned or managed by the City of Marion. However, there are historic records of the nationally vulnerable Winter Spider-orchid (Arachnorchis brumalis) from the Marino Conservation Park. Winter Spider-orchid is endemic to South Australia. Populations grow near Adelaide, on Eyre Peninsula and on Yorke Peninsula. The current distribution of the species is relatively uncertain but there are records from the Marino Conservation Park in 1998. Assisting the Friends of Marino Conservation Park to manage this species should be a high priority and looking for opportunities to re-establish populations into City of Marion owned coastal heathlands should be explored.

Extinct Species

It is likely that many species of plants have become extinct within the City of Marion. One such species is Behr's Swainson Pea (*Swainsona behriana*), last recorded in 1967 growing on limestone outcrops at Marino Rocks Railway Station. It is likely this species is now extinct in the region.

A full list of all species recorded on priority sites with the City of Marion land with conservation Status at National, State and Regional (Mount Lofty Ranges) levels is included in Appendices 1 and 2.



Swainsona behriana (Behr's Swainson Pea). Photo: J. Smith

Maireana rohrlarchii (Rohrlarch's Bluebush)



Rohlarch's Bluebush is a species considered to be rare in South Australia. It is a listed species under the National Parks and Wildlife Act schedules and on current trends it is considered it could be extinct in the wild within 100 years. There are a number of locations where this plant species occurs along the City of Marion coastline, it is threatened by weeds, maintenance of the coastal trail and lack of regeneration. Species that are rare in the City of Marion should be propagated and managed for ongoing survival.



Ptilotus nobilis (Regal Fox Tails)

The Regal Fox Tail is one of the most impressive and beautiful plants found in remnant vegetation in the City of Marion. It is found in the Hallett Headland, at Marine Parade Reserve, Glade Crescent Reserve, Lucretia Way Reserve and sporadically elsewhere along the coast. It is a striking plant and is normally found in dry arid areas. It has always been thought that this plant, which is considered rare in the Mount Lofty Ranges, was the variety *Ptilotus nobilis* variety *angustifolius*. However recent reviews of this taxa suggest that the form of this plant along the coast is not just a different variety, but that it is a separate species and is likely to be renamed. This new species of very limited distribution around the coastal heathlands on southern Adelaide cliffs and another disjointed population in the southern Flinders Ranges as far north as Orroroo, is likely to be highly endangered.

This shows that we can never stop learning, what we assumed to be a common plant could in fact turn out to be very rare and one of our highest conservation priorities. Time will tell. Regardless it is a fantastic plant and an icon for our coastal remnant vegetation.



Regal Fox Tail (*Ptilotus nobilis* var. *angustifolius*) at the Hallett Headland Reserve. Photo: J. Smith



City of Marion Priority Remnant Vegetation Sites

The City of Marion is responsible for managing over 80 ha of remnant native vegetation. The largest of these is the Hallett Headland at 13 ha. Some sites are very small or contain low species diversity. To assist with determining the remnant vegetation of the highest priority, potential sites were surveyed to determine: the vegetation type, species present, weeds present and any other threats. The data was then used to rank each site using;

- The rarity of the vegetation type
- The diversity of indigenous plant species
- The presence of conservation significant species
- Size and shape of the remnant
- The presence and degree of threats.

This data was not intended to be comprehensive, but it does represent the most up to date knowledge we have. Twenty nine priority remnant vegetation sites have been identified for future management across the City of Marion, sites that did not get included in the priority sites are considered as opportunity sites and may be managed for remnant protection or restoration in the future.



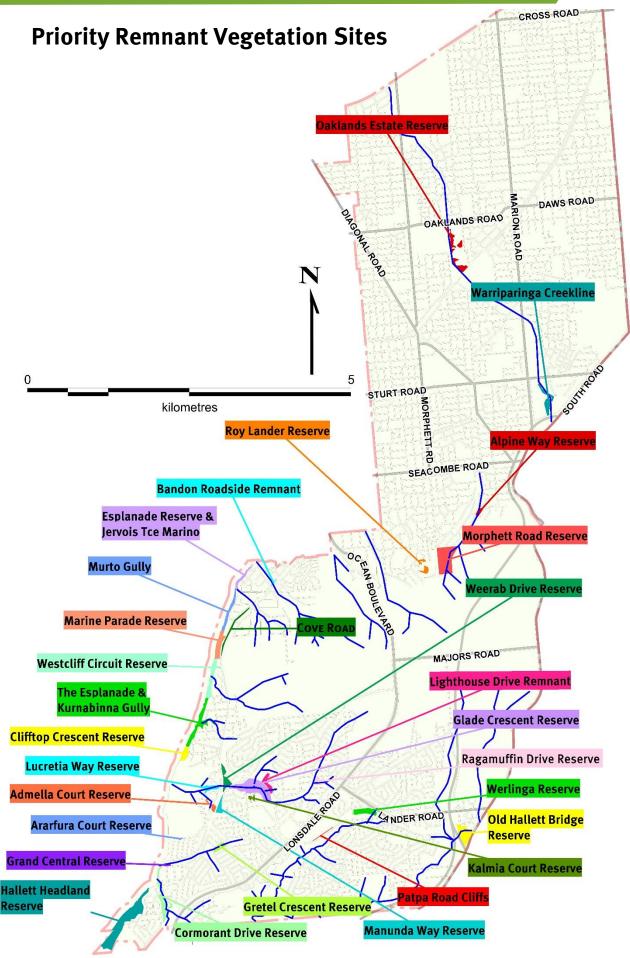
Caesia calliantha (Blue Grass-lily). Photo: J. Smith

Our Priority Remnant Vegetation Sites

- 1. Hallett Headland Reserve (13.23 ha)
- 2. Marine Parade Reserve (3.3 ha)
- 3. Esplanade Reserve and Jervois Terrace Marino (1.4 ha)
- 4. Westcliff Circuit Reserve (3.7 ha)
- 5. Murto Gully (2.3 ha)
- 6. Cormorant Drive Reserve (4.4 ha)
- 7. The Esplanade & Kurnabinna Gully (5.2 ha)
- 8. Clifftop Crescent Reserve (1.6 ha)
- 9. Glade Crescent Reserve (10 ha)
- 10. Lucretia Way Reserve (1.4 ha)
- 11. Manunda Way Reserve (1.3 ha)
- 12. Morphett Road Reserve (9.5 ha)
- 13. Grand Central Avenue Reserve (0.3 ha)
- 14. Lighthouse Drive Remnant (1.7 ha)
- 15. Old Hallett Bridge Reserve (4.3 ha)
- 16. Alpine Way Reserve (0.7 ha)
- 17. Warriparinga Creekline (2.5 ha)
- 18. Oaklands Estate Reserve (3.7 ha)
- 19. Roy Lander Reserve (1.3 ha)
- 20. Weerab Drive Reserve (2.4 ha)
- 21. Admella Drive Reserve (0.6 ha)
- 22. Ararfura Court Reserve (0.2 ha)
- 23. Werlinga Reserve (2.6 ha)
- 24. Gretel Crescent Reserve (1.3 ha)
- 25. Ragamuffin Drive Reserve (1.1 ha)
- 26. Bandon Terrace Roadside (0.15 ha)
- 27. Cove Road Marino (1.6 ha)
- 28. Kalmia Court Reserve (0.5 ha)
- 29. Patpa Drive Cliffs (0.2 ha)

82 Hectares of Remnant Native Vegetation







City of Marion Opportunities for Revegetation and Landscape Linkages

To manage remnant native vegetation in the long term it is important that the focus is not always just on managing priority remnant pieces but also looks at opportunities for revegetation and the creation of vegetation corridors across the landscape. This also allows the inclusion of managing sites where:

- The vegetation may not be of sufficient quality to warrant being a priority vegetation site.
- Where community members are actively engaged in management or there is cultural significance.
- Where there are multiple park uses such as irrigated spaces, playspaces and opportunities to have diverse plantings of local species that contribute to landscape, amenity and biodiversity.
- Where there is an opportunity to create connectivity between neighbouring Local Government Areas and to State owned conservation assets.

This list is not exhaustive and does not represent all areas of opportunity or even areas that will be revegetated. The mapping on the following page is indicative and most sites would require some design prior to implementation. The opportunity sites are supported by the *Natural Landscaping Design and Maintenance Guidelines* and this will inform the progress of a number of these sites. The guidelines will present an opportunity to further increase revegetation and restoration in reserves.

Our Opportunity Sites

Sites currently managed with Friends Groups

- 1. Kenton Reserve
- 2. Nari Drive Reserve

Sites currently managed by City of Marion

- 3. Linear Park Reserve Hallett Cove
- 4. Reserve Street Reserve
- 5. Byron Gums Reserve
- 6. Trott Park Creek Greybox woodlands
- 7. Newland Avenue Community Garden
- 8. Alpine Reserve Creekline
- 9. Quailo Slopes
- 10. Sturt River Linear Trail (not mapped)

Future Sites

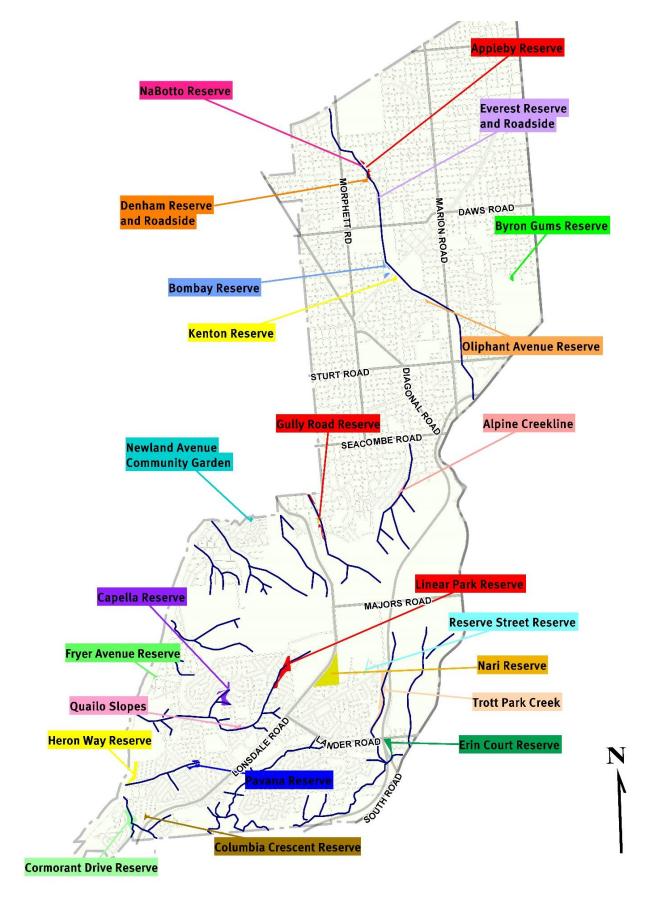
- 11. Oliphant Avenue Reserve
- 12. Gully Road Reserve
- 13. Capella Reserve
- 14. Fryer Avenue Reserve
- 15. Everest Reserve and Roadside
- 16. Denham Reserve and Roadside
- 17. Heron Way Reserve
- 18. NaBotto Reserve
- 19. Appleby Reserve
- 20. Pavana Reserve
- 21. Columbia Crescent Reserve
- 22. Bombay Reserve
- 23. Erin Court Reserve



Thysanotus patersonii (Twining Fringe-lily). Photo: J. Smith



Opportunity Vegetation Sites





Scaevola linearis subsp confertifolia (Bundled Fanflower)

Scaevola linearis subsp confertifolia (Bundled Fanflower) is a plant with a flower shaped like a fan, it is found in the Goodeniacea family of plants which are named after Sir Samuel Goodenough the Bishop of Carlisle (1808 to 1827) who was an avid amateur botanist. The Bundled Fanflower is an endangered plant in the Mount Lofty Ranges, a 2014 Regional Species Conservation Assessment project by the Department of Environment, Water and Natural Resources suggested it may be extinct in the region, however the City of Marion is lucky to have 22 plants in the Hallett Headland. This is a very important find and highlights the value of our Remnant Vegetation in conserving plants that were once thought extinct. City of Marion has been actively protecting this species by undertaking weed control and also is growing more plants in partnership with Trees for Life and Greening Australia for replating in other areas at the headland.



Bundled Fanflower (*Scaevola linearis* subsp *confertifolia*) at the Hallett Headland Reserve. Photo: J. Smith



Threats to our Remnant Vegetation

Habitat Loss and Fragmentation

Habitat loss is the main threat to remnant native vegetation. Habitat loss can be instant such as clearance for urban development, roads, farms or tracks for recreation. It can also be accumulative over many years such as pollution in watercourse slowly killing aquatic vegetation or changes in fire ecology leading to a lack of recruitment and eventually loss of native vegetation.

Past land clearing has left small isolated remnants and fragmentation of the vegetation. Having fragmented "islands" of remnant vegetation makes it harder for species to move between areas, it increases the chances of extinction due to random events such as fire and disease and small islands have limited resources with populations become smaller and smaller eventually resulting in local extinctions.



Cliff face vegetation at the Hallett Headland. Photo: J. Smith

Small island patches are also subject to edge effects. As the patches get smaller only the centre "core" area remains suitable for remnant vegetation. Due to changes in light, water and weed infiltration the edges become less diverse effectively resulting in further habitat loss and fragmentation.

Tracks and Trails

Tracks and trails are a contributor to habitat fragmentation in already small remnant patches, they reduce core habitat and provide pathways and edges where weeds enter sites. Tracks need to be sited to minimise fragmentation and damage, maintenance of tracks needs to be undertaken in a manner that does not result in vegetation destruction.

Weeds and Pest Species

Weeds are a significant threat to the native plants within remnant vegetation, with flow on effects to all the organisms that rely on the plants for food and habitat. Weeds compete for space, light, water, nutrients and can change soil conditions suppressing regeneration of native plants.

In the City of Marion there are a number of key weed species that directly threaten our native vegetation. Gazania, Olive, Boxthorn, Rice Millett, Boneseed, Golden pallenis, Scabious, Sour Sob amongst many others pose a significant and ongoing threat. Managing weeds in remnant vegetation will likely be a lifelong activity as the areas are all small and isolated and thereby prone to ongoing infestation.



The major animal pest species are the introduced invertebrates such as rabbits, hares and foxes. Rabbits and hares are a significant pest as the grazing by rabbits and hares reduces the recruitment and survival of native plants, favouring weeds. The burrowing can cause serious erosion problems and modify entire landscapes.

Common white snail is also a pest that through its grazing can cause significant damage. Usually a pest of crop areas in some areas within the City of Marion it can be found in large numbers. In particular, the snail likes sandy alkaline areas and within the Hallett Headland there are sections of these soil types with common white snail. Small herbaceous plants in low numbers can be easily decimated by the impact of common white snail.

Inappropriate Land Use

Illegal dumping, trail bikes, off track walking and running, uncontrolled dogs and nonremoval of dog faeces can impact upon native vegetation. Illegal dumping can smother native plants and subsequent removal also can be costly as well as have potential for further damage to native vegetation. Trail Bike use and off track walking can damage the vegetation, trampling plants and creating edges that weeds can infiltrate. Dogs that are not controlled can chase native wildlife and kill animals, dog faeces can create localized nutrient increases and upset the delicate balance of phosphorus and nitrogen resulting in native plant death, it is also a significant deterrent to people wanting to utilize the area for appropriate recreation.

Erosion and Storm water Management

Erosion due to storm water management along the unstable coastal cliffs is significant and is directly resulting in native vegetation loss. As the plants are removed due to the force of water, it erodes the area increasing loss and fragmentation of the remnant vegetation. Storm water also carries numerous weed seeds becoming an infiltration point into the remnant vegetation. It is common to see many of the stormwater points providing a significant source of weed infiltration.

Waterway Degradation

Pollution and erosion are significant issues for the remaining waterways in the City of Marion. Pollutants such as oil, petrol, heavy metals, sediment, household chemicals and industrial waste can enter streams directly or via stormwater. The pollutants create an aquatic environment inhospitable to fauna and flora, particularly sensitive species like frogs and macrophytic or floating plants that clean water. Development and activities adjacent to waterways should not significantly alter local flows and sediment from development activities should not be allowed to flow into watercourse either directly or via stormwater. Management of sediment from building sites entering via stormwater needs to be closely monitored and managed.



Lack of Community Connectedness to Remnant Vegetation

Building a connection to places or landscapes of value increase people's appreciation and acceptance of care and protection for areas. The community vision expresses a desire to connect deeply with nature and flows through to a desire for protection of remnant areas, it can be difficult to ensure this protection when there are diverse community views and often misunderstanding of the values of green over natural. The remnant vegetation in the City of Marion is not easily appreciated like an irrigated green lawn, forest in the Adelaide Hills or the green rainforest of the eastern states. Some see it as visually unappealing or as a pest of dry blown grasses. This is because the vegetation in Marion has many affinities with dry arid areas like the Flinders Ranges, however the urban pressures minimize the landscape relief, vastness and isolation that enable that connectedness and appreciation when somewhere like the Flinders Ranges. Whilst some community members understand and support protecting remnant vegetation, very few people know



Themeda triandra (Kangaroo Grass). Photo: J. Smith

what it is, many are threatened by it due to snakes and fire and many fail to understand the benefits it provides.

Climate Change

Whilst the specific effects of climate change on remnant vegetation are unknown, an assessment undertaken by the Resilient South Project in 2014 suggested that natural landscapes in the Southern Adelaide Region will be impacted by climate change. Lower rainfall is expected to stress plant communities increasing the effects of drought and plant death creating opportunities for weeds, disease and catastrophic community decline. Increasing drought is expected to stress remnant plant communities. Increased storm activity is expected to increase coastal erosion and erosion of waterways and cliffs from stormwater. Increased temperatures and urban infill are expected to create urban heat islands that will also increase the impacts of climate change on remnant vegetation.

Street Tree Management

Street trees provide a significant benefit to remnant native vegetation, the major contribution being to allow the movement of fauna and insects across landscapes which provides a means for pollination. Trees also provide arboreal habitat such as hollows for fauna and also bark for insects and provide a visual relief in the urban environment. Trees that do not provide habitat for native birds and animals as well as potentially weedy species are threats to the long term survival of native vegetation. Reductions in tree canopy also contribute to urban heat effects and this can also be a long term danger to the ongoing survival of remnant native vegetation as temperatures increase and evaporation also increase increasing salinity.



Inappropriate Land Management

The management of remnant vegetation can conflict with safety, recreational use, drainage and other uses. Tidying up remnant areas is a threatening process, removal of native grasses for snakes or clearing dead branches and sweeping up fallen leaves to make the area look neater are at odds with ecological objectives. Dead wood is important in maintaining a healthy ecosystem, supporting fungi and insects, as well as roosting spots for birds and habitats for lizards.

Leaf litter keeps the soil moist and supports the tiny creatures that provide food for birds and lizards. The eradication of weeds and pests is essential in the long term survival of remnant native vegetation and to provide maximum ecosystem services from vegetation, rather than cleaning areas to improve perceived aesthetics we must concentrate on helping remnant native vegetation survive.



Restoring the Mallee Box (*Eucalyptus porosa*) grassy woodland at Morphett Road Reserve. Photo: J. Smith





Scleranthus pungens (Prickly Knawel). Photo: J. Smith



Principles Underpinning our Remnant Native Vegetation Management

Manage the High Priority Sites

Our highest priority is the protection and maintenance of high value remnant vegetation, as outlined in our priority sites.

Protection of Remnant Vegetation is about Bush Regeneration

Bush regeneration is not about planting trees and shrubs. It is about looking after the remnants we still have by reducing threats and returning them to health that with minimal ongoing intervention can protect them for future generations.

Sites Require Active Management

Remnant native vegetation should be considered an asset to the community and afforded the same consideration as other assets. The effective management of remnant vegetation assets requires ongoing budgets for maintenance. Bushcare or remnant vegetation management requires specialist teams and contractors with comprehensive vegetation knowledge, weed identification and control knowledge and an

ability to manage sites that have changing conditions from season to season and as the sites change due to previous and/or ongoing management. The specialist workers must understand that active management is not tidying the areas but removing the weeds and other threats at the sites, which requires a very distinctive skill set.

No Net Species Loss principles

City of Marion will ensure the long term survival of all species currently growing on Council managed land. This may be through weed control, removal of threats and propagation and revegetation.

City of Marion will ensure that any native vegetation that is cleared or removed across the council is replaced like for like, with areas cleared replaced nearby in appropriate locations with sufficient budget and ongoing management input to ensure it is returned to the same condition and with the same area and density of plants as that which was cleared.



Remnant River Red Gum (*Eucalyptus camaldulensis var. camaldulensis*) at Oaklands Estate Reserve. Photo: J. Smith



Revegetation Principles

Revegetation should enhance existing remnants through buffer plantings and linkage corridors. Local provenance material should be used, that is local species of local genetics.

Land Acquisition and Disposal Principles

Reserves and council owned land with biodiversity should not be disposed of unless the alternative management can be seen to be beneficial to remnant native vegetation. Any changes to proposed land use, development and ongoing management as part of land disposal or changes to management structure must create a net benefit greater than that currently provided by the City of Marion. It must be supported by our community.

Supporting Conservation on Non-Council Land

The activities of groups on non-council managed land is important in protecting remnant vegetation on Council land. Groups managing the largest tracts of remnant vegetation in state Conservation Parks within the City of Marion are reducing the impacts of fragmentation. The ongoing support by Council through the community grants program is important in assisting these groups to maintain these areas.

Fire Management

Fire management must be considered as a key management action in the urban landscape. To facilitate appropriate management and to minimise unnecessary clearance, council staff require appropriate training in assessing fuel loads and determining clearance zones, especially in

those areas that fall outside the bushfire safer precincts. Regular clearance works on designated firebreaks can be undertaken by staff and/or contractors, these areas should be designated on fire break maps.

Recreation Principles

The use of important remnant vegetation areas for recreational purposes should not have an impact upon the quality or long term survival of these areas. Remnant vegetation is already highly fragmented, tracks and recreation use can further fragment these areas. Conservation scientists estimate that at least 24% of remnant vegetation in a landscape needs to remain for long term survival; even the removal of small components for recreation in an area as cleared as Marion with less than 1% remnant vegetation will have a significant impact on long term viability. Where construction is required, sensitive construction methods should be employed, including the use of trained contractors, micro-siting of trails and board walks and appropriate management during construction.



Stackhousia monogyna (Creamy Candles). Photo: J. Smith



Community Involvement

Environmental volunteers are integral to the preservation and management of remnant native vegetation areas and our native revegetation programs. Some environmental volunteers have been involved in managing areas of Council land for over twenty years, and their knowledge of our natural areas and commitment to preservation is of great value to council. Groups do not always work on our priority vegetation sites but the value they provide means they should be supported. Volunteers are entitled to a safe working environment, support in their aims and ideals and the resources required to do the tasks they seek to undertake.

Weedy Species Principles

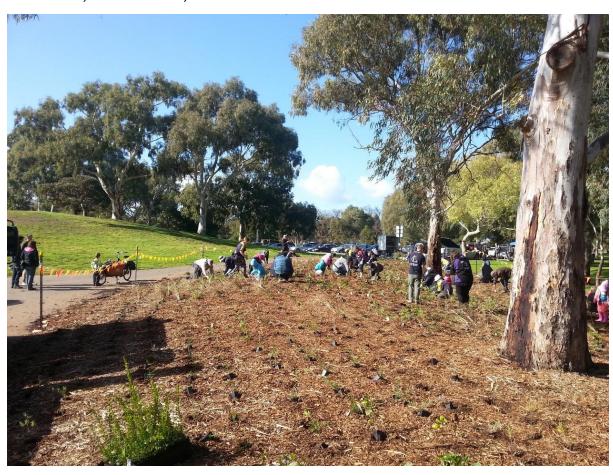
The City of Marion will not use or promote any species of plant that has a weedy potential or is invasive by nature. The City of Marion will

remove and actively manage pest plants declared by the minister with the Natural Resources management Act 2004. In revegetation and where possible in landscaping we will use local indigenous species. Where local indigenous plants are used they must be of local provenance to preserve genetic diversity.

Engaging and Educating the Community

To connect the community with nature and remnant vegetation we must educate, create ownership and engage them in active management and care.

To create knowledge, we can use simple tools such as updating the website to further explain what the values, vegetation, plants and animals are in our remnant vegetation.



Volunteers revegetating the understorey of the River Red Gum (*Eucalyptus camaldulensis*) woodland at Oaklands Estate Reserve. Photo: I. Smith



On the sites we are managing, interpretive signs can be used to explain why the site is important and what works are being undertaken.

Brochures and factsheets are important tools, to inform the community about remnant native vegetation, local native plants and native garden design. They can be used to convey information about important remnant vegetation sites or how they can get involved in bush care. Other sets of information such as the indigenous plants of the City of Marion or ways in which people can become involved in caring for and managing remnant vegetation.

Small booklets can promote indigenous plants, native plant garden design or educate the community on the value of remnant vegetation that remains and what we are doing to protect and manage the areas.

To engage the community in active management we will continue to support our existing Friends Groups and build our resources to support and provide them with a safe friendly working environment. We will also continue to support and expand our relationship with Bush for Life, a volunteer bush care program through Trees For Life and assist them with ongoing support for the work they are undertaking on Council land.



Arthropodium strictum (Vanilla Lily). Photo: J. Smith



Planning and Policy Context

The City of Marion will plan and manage land and biodiversity assets in accordance with federal, state and local legislation, policies and strategies. The Remnant Native Vegetation Plan will operate within the context of this legislation, policy and strategy and complement their approach. In addition, the plan will support and complement a number of other Council strategies and plans. In particular, the Remnant Native Vegetation *Plan* will be complemented by the *Natural* Landscaping Design and Maintenance *Guidelines.* This will detail opportunities for revegetation activities on reserves with an Open Space Classification of natural landscapes and will form the basis for actions that serve to complement remnant vegetation areas but do not undertake immediate threat abatement. Remnant Vegetation areas will be classified as Nature Conservation areas in the Open Space Classifications. The policy context is displayed on the following page.

Implementation and Stakeholders

The plan is largely to be implemented by the City of Marion Open Space Department but has aspects that are delivered in conjunction or consultation with other stakeholders including internal teams, State Government, Non-Government Agencies and research bodies. Internal teams include Environmental Sustainability, Open Space Recreation Planning and Engineering teams. State Government partners such as SA Water, Department of the Environment Water and Natural Resources and the Adelaide and Mount Lofty Ranges Natural Resource Management Board. Non-Government Partners include Trees For Life, Conservation Volunteers and Bushcare Contractors as well as potential partnerships with research bodies such as Flinders University, Technical and Further Educations, University of Adelaide and University of South Australia.



Low Coastal heathland at Marine Parade Reserve Marino. Photo: J. Smith

Community Vision - Towards 2040

Desired Community Vision "Valuing Nature" A City that reflects a deep value of the natural world



Council Business Plan 2016 to 2019

Plan and deliver a program for the protection of remnant vegetation in Council reserves

City of Marion Remnant Native Vegetation Plan

Implementation of works for reserves with a primary or secondary classification of "Nature Conservation" as per the Open Space Policy.

City of Marion Natural Landscaping Design and Maintenance Guidlines

Implementation of biodiversity restoration works for reserves with a primary or secondary classification of "Natural Landscape Area" as per the Open Space Policy.

Open Space Directions and Plans

Resilient South	Tree Management Framework	Landscape Open Space Irrigation Policy Management Plan		Community Garden Policy	Natural Landscape Design Guide	
Playspace policy	Walking and Cycling Strategy	Streetscape Design Guide	Coastal Management Plan (in development)	Reconciliation Action Plan	Climate Change Policy	



Open Space Annual Works Program (Implementation of actions in Remnant Vegetation Plan)



Opportunities to Enhance Remnant Native Vegetation

Threat	Activity	Opportunity for Enhancement	Related Action(s)
Habitat loss and	Plant native plants to secure	There are opportunities to buffer existing remnant native vegetation creating larger	1.5, 1.8, 2.2,
fragmentation	nentation rare plant populations and islands and also to create linkages across the landscape. If we are to avoid further local		2.4
	buffer existing vegetation within	plant species extinctions some plant species will need to be propagated and revegetated	
	conservation reserves and along	into key sites.	
	waterways		
	Increase the planting of	There is an opportunity to develop individual site plans for recreation reserves that	2.2, 2.4, 3.1
	indigenous trees and shrubs on	maximize amenity, shade and shelter, habitat for wildlife, build linkages and reducing	
	streetscapes and within council	our carbon footprint through reduced mowing.	
	managed reserves for amenity,		
	shade and wildlife habitat		
	Support the implementation of	Largescale landscape schemes such as the Great Southern Urban Forest or Glenthorne	
	the Great Southern Urban Forest	National Park improve landscape connectivity, increase levels of habitat and provide	
	or Glenthorne National Park and	recreation opportunities that will see people better engaged with nature. The City of	
	other schemes that will reduce	Marion should support these initiatives in conjunction with the State Government and	
	landscape fragmentation	other Local Governments.	
	Implement the nationally	The Native Vegetation marker scheme is a nationally recognized system that can be used	1.3
	accredited Native Vegetation	to assist staff, contractors and general public in identifying areas of remnant vegetation.	
	marker scheme	The main message of the marker scheme is 'if in Doubt, stay out" and it provides a point	
		of contact for Council to assist with management requirements.	
Weeds	Manage Conservation sites on	Continue to support Bush For Life in actively managing six Bush for Life sites in the City of	1.1, 1.2,
	Council managed land through	Marion and where appropriate expand this program. Develop and implement action	
	weed control, fencing and	plans for sites that address the key threats such as weeds and that determine other	
	revegetation	management requirements. Develop weed control guidelines in remnant native	
		vegetation for City of Marion biodiversity team.	



Threat	Activity	Opportunity for Enhancement				
	Implement an annual	Establishing a monitoring program provides Council with reliable data on the state of	4.1			
	monitoring program within	each conservation site and can track trends that show improvement or decrease in				
	conservation reserves	habitat quality, density of weeds and other indicators. Monitoring the success of our				
		actions will allow us to establish if our remnant vegetation strategy is successful				
Lack of community	Update existing biodiversity and	The current information on the website is limited and does little to explain the values of	2.6			
connectedness to	remnant vegetation pages on	our remnant vegetation. Information about the types of vegetation, the plants and				
nature	the City of Marion website	animals as well as planting guides could be developed. Opportunities to become				
		actively involved in managing remnant vegetation areas can be promoted.				
	Install interpretive signs at key	Interpretive signs are a simple and effective way of building knowledge amongst the	2.1			
	sites	community about the value of remnant vegetation sites and the management that is				
		being undertaken to protect and conserve the sites.				
	Create a booklet/e-booklet	Building knowledge of the remnant native vegetation communities and plants will enable	2.7			
	about the vegetation	the community to identify with the natural values within the City of Marion and develop				
	communities and plants within	ownership over the unique plants and habitats within the city.				
	the City of Marion					
Develop an indigenous plant		Residents can contribute to the efforts of protecting remnant vegetation by planting and	2.7			
	garden design and suburb	using indigenous native plants in their homes. To assist this a planting guide to the City				
	planting lists booklet	of Marion could be produced.				
	Undertake regular staff	To ensure an understanding of the objectives of remnant vegetation management and	2.6, 2.7,2.8			
	information sessions and create	how other staff members can ensure protection of these areas in project planning,				
	regular articles for the internal	implementation and maintenance, regular information sessions can be held with internal				
	magazine, social media and	staff.				
	City Limits					
	Trees for Life to manage	Volunteers working on Council Land are afforded the same rights as workers of the City of	2.2			
	environmental volunteers	Marion under the Work Health and Safety Act (2012). Trees for Life are able to provide a				
		system of safe work management and guidance for Friends Groups, that will ensure				
		Friends Volunteers do not need to be managed as registered volunteers of Council.				



Threat	Activity	Opportunity for Enhancement				
Undertake regular workshops, field days and site tours Regular field trips and visits allow the community to experience and understand the complexities and subtleties of managing these natural areas. Building the understanding of the values of these areas allows for greater appreciation and recognition. These can be standalone events or incorporated into existing events the City of Marion "Common Thread"			2.8			
Inappropriate Land Management	Create maps of no-mow zones for City of Marion field staff					
	Ensure training of staff in fuel load assessment	DEWNR and the CFS have a rigorous process for undertaking fuel load assessments of remnant vegetation. Staff should be trained in Fuel Load assessments and ensure all native vegetation areas and/or fire breaks are managed to be a low to medium risk.	1.8			
	Encourage and support landholders to retain any existing remnant vegetation on private land	During development landholders should be encouraged to protect any existing remnant vegetation. Volunteers should be given opportunity to salvage remnant plants from development sites if they cannot be retained.				
	Open Space Policy	The open space policy reflects the values of the reserves designated as remnant vegetation. This document provides a basis for determining whether a reserve has environmental values. Work with the Open Space and Recreation Planning team to ensure all remnant vegetation areas have a Nature Conservation classification in the Open Space Policy classifications.				
	Ensure policy positions are incorporated into Council procedures	Incorporate principles of remnant vegetation management into a Biodiversity Policy and into procedures that are implemented through the Environmental management System				
			3.2,3.3			



Threat	Activity	Opportunity for Enhancement				
	Undertake revegetation in buffer areas around existing remnant vegetation	Increasing the buffer around existing remnant vegetation provides cooling effects and limits the damage to remnant areas				
Erosion and Stormwater management	Investigate stormwater management in areas where it impacts Remnant Native Vegetation	There are a number of key sites where stormwater management is having a serious impact on remnant vegetation. At the Hallett Headland it is causing significant weed infestation and degradation. Opportunities for better management that result in better remnant vegetation and reduced outflow to the gulf St. Vincent can be investigated.				
Waterway Degradation	Investigate impacts of sediment and stormwater upon small sections of remaining natural waterways in the City of Marion.	Natural waterways create fantastic opportunities for wildlife corridors. They help filter stormwater and create an aesthetically stimulating environment for people to undertake passive recreation. Managing waterways to improve the quality of remnant vegetation they contain will contribute to these aims. The impacts of developments and site management upon storm water quality need to be managed.				
	Undertake weed control and restoration of riparian habitat in watercourses and detention basins across City of Marion	Waterways provide substantial areas of biodiversity and corridors across landscapes, they are very expensive to maintain as they are subject to significant changes due to the impacts of water flow, nutrient loads and stormwater increases. Managing watercourses is important to ongoing remnant vegetation management				
Tracks and trails	Ensure any tracks and trails placed in remnant vegetation areas are minimal in impact	Tracks, trails and paths in remnant vegetation areas have a significant impact on the remaining 1.0% of remnant vegetation. Current theories suggest a minimum of 24% remnant vegetation is required for ecological processes, so any impacts on what remains must be minimized. Trails need to be appropriately placed to minimise damage and offset with appropriate maintenance budgets factored into projects, where this is not possible.				



Action Plan - Goal 1 Management of Remnant Native Vegetation

ID	Action	Responsibility	Complete Action	Resource and Implementation Timeframe			Estimated		
			by:	18/19	19/20	20/21	21/22	22/23	Budget
1.1	Implement weed control components for all sites identified as priority sites within the City of Marion	Coordinator Biodiversity City of Marion City of Marion Biodiversity Team Bushcare Contractors	Ongoing	✓	✓	✓	✓	✓	\$110,000
1.2	Implement other actions identified for priority sites, eg signs, fire breaks etc.	Coordinator Biodiversity City of Marion	Ongoing	✓	✓	✓	✓	✓	\$55,000
1.3	Implement a Native Vegetation Marker Scheme	Coordinator Biodiversity City of Marion	June 2019	✓	√	✓			\$5,000
1.4	Implement projects that secure rare native plant populations	Coordinator Biodiversity City of Marion	Ongoing	✓	✓	✓	√	√	\$10,000
1.5	Undertake training with biodiversity team on remnant vegetation management	Coordinator Biodiversity City of Marion	Ongoing	✓	✓	✓	√	✓	\$5,000



ID	Action	Responsibility	Complete Action	Resource	e and Imp	lementat	ion Time	frame	Estimated
			by:	18/19	19/20	20/21	21/22	22/23	Budget
1.6	Collect and lodge with the SA Herbarium all previously unrecorded plants in Mount Lofty Ranges	Coordinator Biodiversity City of Marion	Ongoing	✓	✓	✓	✓	✓	NA
1.7	Where possible collect and lodge seed collections of rare plants for Mount Lofty Ranges with the South Australian Seed Conservation Centre	Coordinator Biodiversity City of Marion	Ongoing	√	✓	✓	✓	✓	NA
1.8	Develop maps that stipulate appropriate fire risk ratings and areas for implementation of fire breaks	Coordinator Biodiversity City of Marion Field Supervisor Open Space	December 2020	✓	✓	✓			NA
1.9	Working with engineering team, look for ways to better manage coastal stormwater outfall	Coordinator Biodiversity City of Marion Engineering	Ongoing	✓	✓	✓	✓	✓	NA



Action Plan - Goal 2: Creating a community that values and connects with remnant native vegetation

ID	Action	Responsibility	Complete Action	Resource	and Implen	nentation Tin	neframe		Estimated
			by:	18/19	19/20	20/21	21/22	22/23	Budget
2.1	Install interpretive signage at three sites per year	Coordinator Biodiversity City of Marion	2021	✓	✓	✓	✓	√	\$5000
2.2	Engage Trees For Life to manage the Environmental Friends Groups program	Lead: Coordinator Biodiversity City of Marion Partner: Trees For Life	December 2017	✓	✓	✓	✓	✓	\$40,000
2.3	Support site maintenance at sites with volunteer groups and/or revegetation projects	Coordinator Biodiversity City of Marion Biodiversity Team Members	ongoing	✓	✓	✓	✓	✓	\$35,000
2.4	Undertake an annual community planting event	Lead: Coordinator Biodiversity City of Marion Partner: Friends of Sturt River Land care Group	ongoing	✓	✓	✓	✓	1	\$15,000



ID	Action	Responsibility	Complete	Resource	and Implem	nentation Tim	eframe		Estimated
			Action by:	18/19	19/20	20/21	21/22	22/23	Budget
2.5	Support existing Bush For Life sites and seek opportunities to expand this program with volunteers who wish to protect and manage remnant vegetation	Coordinator Biodiversity City of Marion Partner: Trees For Life	Ongoing	✓	✓	✓	✓	✓	\$10,000
2.6	Update biodiversity and remnant vegetation on City of Marion website, contribute to City Limits and Green Thymes	Environmental Community Engagement Officer city of Marion Coordinator Biodiversity City of Marion	December 2018 then ongoing	✓	✓	✓	✓	✓	NA
2.7	Undertake workshops and education sessions with community members	Coordinator Biodiversity City of Marion	ongoing	✓	✓	✓	✓	✓	NA
2.8	Create information booklets on pre-European communities of Marion, using indigenous plants in local gardens and others	Coordinator Biodiversity City of Marion Environmental Community Engagement Officer city of Marion.	ongoing	✓	✓	✓	✓	✓	NA



Action Plan – Goal 3: Creating connections across landscapes and reducing the effects of climate change through suburbs that are leafier with increased canopy

ID	Action	Responsibility	Complete Action	Resource	e and Imp	lementa	tion Time	frame	Estimated
			by:	18/19	19/20	20/21	21/22	22/23	Budget
3.1	Implement revegetation projects that buffer and expand native vegetation at priority and opportunity sites.	Coordinator Biodiversity City of Marion	June 30 2016		✓	✓	✓	✓	Informed by Natural Landscape Design Guidelines
3.2	Provide input into review of Tree Management Framework	Coordinator Biodiversity City of Marion	June 30 2017		✓				NA
3.3	Identify and implement opportunities for character plantings of native species that lead to reserves	Coordinator Biodiversity City of Marion Coordinator Arboriculture City of Marion	Ongoing	✓	✓	✓	✓	✓	NA
3.4	Review areas of urban heat effect for impact upon remnant vegetation for targeted plantings	Coordinator Biodiversity City of Marion Coordinator Arboriculture City of Marion	Ongoing	✓	✓	✓	✓	✓	NA



Action Plan Goal 4 - Measuring our success

A significant number of actions and opportunities have been identified in the remnant vegetation plan. To determine our success there needs to be a program to monitor, quantify, measure and report on our success.

ID	Action	Responsibility	Complete Action	Resource	e and Imp	lementa	tion Time	frame	Estimated
			by:	18/19	19/20	20/21	21/22	22/23	Budget
4.1	Undertake annual Bushland Rapid Assessment Technique (BUSHRAT) monitoring at priority sites, alternating over a three year period	Lead: Coordinator Biodiversity City of Marion Activity: ecological consultant	Ongoing	✓	✓	√	✓	√	\$5,000
4.2	Continue to document and collate new plant species records.	Coordinator Biodiversity City of Marion	June 30 2017	✓	✓	✓	✓	✓	NA
4.3	Undertake annual photo point monitoring of revegetation projects at opportunity sites as they are established.	Coordinator Biodiversity City of Marion		✓	✓	✓	✓	✓	\$5,000
4.4	Annual reporting on areas of native vegetation (as defined by native Vegetation Act) that have been cleared or removed in City of Marion.	Coordinator Biodiversity City of Marion	Ongoing	✓	✓	✓	✓	✓	NA



Appendix 1 Master Indigenous Species List for Priority Sites 1 to 15

Conservation Ratings based upon Environment Protection and Biodiversity Conservation Act (EPBC Act). Cwth. South Australian Ratings are from the schedules of the National Parks and Wildlife Act (1972) and the regional Mount Lofty Ranges ratings are from the Adelaide and Mount Lofty ranges NRM Region Regional Species Conservation assessment Project 2014. Further explanations are given for each category in Appendix 3.

Species Name	Common Name	Act	Mount Lofty Ranges (NRM Region Regional Species Conservation assessment Project 2014)	Hallett Headland	Marine Parade Reserve	Esplanade Reserve/Jervois Tce	Westcliff circuit	Murto Gully	Cormorant Drive Reserve	The Esplanade and Kurnabinna Gully	Clifftop Crescent Reserve	Glade Crescent Reserve	Lucretia Way Reserve	Manunda Way Reserve	Morphett Road Reserve	Grand Central Avenue Reserve	Lighthouse Drive Remnant	Old Hallett Bridge Reserve
Acacia acinacea	Gold Dust Wattle		NT	✓	✓	✓		✓	✓					✓				✓
Acacia cupularis	Cup Wattle		RA	✓	✓	√	√	√	✓	√		√	√					
Acacia longifolia ssp. sophorae*	Coastal Wattle																	
Acacia notabalis*	Noteable wattle										√							
Acacia paradoxa	Kangaroo Thorn			√	√	✓	√	✓	✓	✓			√					√
Acacia pycnantha	Golden Wattle					✓					√	√	√	✓	✓			√
Acacia spinescens	Spiny Wattle			√		√												
Acacia victorea ssp. victorea	Elegant Wattle		VU					✓	√									✓
Acrotriche patula	Prickly Ground-berry		NT	√		√	✓	V		✓				√				
Adriana quadripartita	Coast Bitter-bush		RA						√	√								
Allocasuarina muelleriana subsp muelleriana	Common Oak-bush			√		√			√									
Allocasuarina verticillata	Drooping Sheoak			√		✓			√			√	√	√	√		✓	
Alyxia buxifolia	Native Box		RA	✓	✓	√	√	√		√								
Amyema miquelii	Box Mistletoe			√														
Aristida behriana	Brush Wire Grass			√					√				√	√			✓	
Arthropodium fimbriatum	Summer Vanilla-lily			√	√						✓		√	√		√		
Arthropodium strictum	Vanilla Lily			✓	✓	√	√			√	√	√	√	✓	✓	√	√	
Asperula conferta	Common Woodruf		NT									√	√					
Atriplex cinerea	Coast saltbush						√		✓	✓								
Atriplex paludosa subsp cordata	Marsh Saltbush			√	√	✓	√	✓		✓								
Atriplex semibaccata	Seaberry Saltbush			√		√	✓	✓	√	✓		✓	✓	✓		√		✓
Atriplex suberecta	Lagoon Saltbush			✓					√	✓			√	√		√		
Austrostipa blackii	Crested Spear Grass												✓		✓			
Austrostipa curticoma	A spear Grass											√	✓			✓		
Austrostipa drummondii	Cottony Spear Grass		NT	√														
Austrostipa elegantissima	Feather Spear-grass			√	√													
Austrostipa eremophila	Desert Spear Grass											√						
Austrostipa flavescens	Coast Spear Grass			√														
Austrostipa hemipogon	Half-beard Spear Grass			√														
Austrostipa scabra ssp falcata	A spear Grass			√	√					✓	√	√	√	√	√	√	✓	√
Austrostipa sp.	A spear grass					✓		√	✓	✓	√		✓	✓		✓	✓	✓
Banksia marginata*	Silver Banksia								√									
Beyeria lechenaultii	Pale Turpentine Bush		NT	√	√	√				✓								
Bulbine bulbosa	Golden Lily											√	√					
Burchardia umbellata	Milkmaids			√														
Bursaria spinosa	Sweet Bursaria			√			✓						√					
Caesia calliantha	Blue Grass Lily			√	√	√	√						√	✓				
Calandrinia eremaea	Dryland Purslane		NT	√				V										
Calandrinia volubilis	Twining Purslane		VU	√			✓											
Callitris gracilis	Southern Cypress Pine								✓									
Calocephalus citreus	Lemon beauty-heads		NT		√													
Calostemma purpureum	Garland Lily			√	√	√	✓	✓	√	√	✓	√	√	√	√	✓	✓	✓
Calystegia sepium	Greater Bindweed		RA						✓									



Species Name	Common Name	EPBC Act (Aus)	NPWS Act (SA)	Mount Lofty Ranges (NRM Region Regional Species Conservation assessment Project 2014)	Hallett Headland	Marine Parade Reserve	Esplanade Reserve/Jervois Tce	Westcliff circuit	Murto Gully	Cormorant Drive Reserve	The Esplanade and Kurnabinna Gully	Clifftop Crescent Reserve	Glade Crescent Reserve	Lucretia Way Reserve	Manunda Way Reserve	Morphett Road Reserve	Grand Central Avenue Reserve	Lighthouse Drive Remnant	Old Hallett Bridge Reserve
Calytrix tetragona	Common Fringe Myrtle				✓	V													
Carex brevigulmis	Short stem sedge																		
Carpobrotus rossii	Angular Pigface				✓		✓		✓	✓	✓			✓					
Cheilanthes austrotenuifolia	Annual Rock-fern				✓	✓	✓	✓		✓									
Chloris truncata	Windmill Grass				✓	✓	✓			✓		✓		✓	✓		_		
Chrysocephalum apiculatum	Everlasting																		
Chrysocephalum semipapposum	Clustered Everlasting			NT		✓													
Comesperma volubilis	Love Creeper			RA	✓														
Convulvulus remotus	Australian Bindweed				✓	✓		✓			✓		✓	✓	✓	✓	✓		
Crassula sp.	Stonecrop																		
Cullen australasicum	Tall Scurf-pea			NT		√				√				√					
Cymbopogon obtectus	Silky-head Lemon-grass			RA	√							✓		√					✓
Cynogolssum suaveolens	Sweet Hound's Tongue			NT									√						
Cyperus gymnocaulos	Spiny Flat-sedge																		
Cyperus vaginatus	Stiff Leaf Flat-sedge																		
Dampiera rosmarinfolia	Rosemary Dampiera			NT	√														
Daucus glochidiatus	Native Carrot			141	√														
Dianella brevicaulis	Short-stem Flax Lily			NT	√		✓	✓							√		✓		✓
Dianella revoluta var. revoluta	Black-anther Flax-lily				√	√	✓	✓		✓	✓	✓	✓	✓	✓				√
Dianella longifolia var. grandis	Yellow-anther Flax Lily		VU	VU									✓						
Dicanthium sericeum var. sericeum	Silky Blue-grass			VU	✓														
Dichondra repens				VU															
	Kidney Weed				✓	✓	✓	✓			✓	✓		✓					
Disphyma crassifolium ssp. crassifolium	Round-leaf Pigface			D.4	✓	/	 	/	/		-								
Dissocarpus biflorus var. biflorus	Two-horn saltbush			RA	✓	✓	√	✓	✓	✓	√	✓	✓						
Dodonaea viscosa ssp. spathulata	Sticky Hop-bush				√				-			-	✓						-
Drosera whittakerii	Whittakers Sundew				·	V				 ✓			,						-
Einadia nutans ssp. Nutans	Climbing Saltbush				· ·	· ·	·	/		· ·	✓	_	_	V	1		✓		
Enchyleana tomentosa	Ruby Saltbush				./	· ·	,	· ·	ļ ·	· ·	· ·	•	· ·	· ·	•		·	•	· ·
Enneapogon nigricans	Black Head Grass				V	· ·		V		V	· ·	· ·	· ·	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	•		,	v	-
Erodium crinitum	Blue Heron's-bill			RA	_			V		✓			✓	✓					
Eucalyptus camaldulensis var. camaldulensis				NT								(5)							V
Eucalyptus porosa	Mallee Box			NT	✓	✓	✓		_	√		√P	✓	✓	V				✓
Eucalytpus microcarpa	Greybox																		V
Eucalyptus leucoxylon subsp leucoxylon	South Australian Blue Gum																		√
Eutaxia microphylla	Common Eutaxia				V	V	✓	✓	V	✓	√								<u> </u>
Exocarpos aphyllus	Leafless Cherry			VU	✓	✓	✓		V										ļ
Frankenia pauciflora	Southern Sea-heath							_	✓		✓								
Gahnia lanigera	Black Grass Saw-sedge			RA	✓	V	✓		_			✓							
Geranium retrosum	Native Geranium					√					√				✓				
Glycine rubiginosa	Twining Glycine				✓	✓		✓		✓		✓		✓					
Gonocarpos mezianus	Broad-leaf raspwort				✓			✓											
Gonocarpos tetragynus	Small-leaf raspwort							✓											
Goodenia albiflora	White Flowered Goodenia												✓						
Goodenia amplexans	Clasping Godenia			NT	√		√	√	✓					√					
Goodenia pinnatifida	Cut-leaf Goodenia			NT	√	√							✓			√			
Goodenia pussiliflora	Small-flower goodenia			VU		√													
Goodenia varia+	Sticky Goodenia			VU			✓												
Grevillea lavandulacea spp. Lavandulacea	Spider Flower					✓	√												
Hakea rugosa	Dwarf Hakea			NT		✓	✓	✓	✓										



Species Name	Common Name	EPBC Act (Aus)	NPWS Act (SA)	Mount Lofty Ranges (NRM Region Regional Species Conservation assessment Project 2014)	Hallett Headland	Marine Parade Reserve	Esplanade Reserve/Jervois Tce	Westcliff circuit	Murto Gully	Cormorant Drive Reserve	The Esplanade and Kurnabinna Gully	Clifftop Crescent Reserve	Glade Crescent Reserve	Lucretia Way Reserve	Manunda Way Reserve	Morphett Road Reserve	Grand Central Avenue Reserve	Lighthouse Drive Remnant	Old Hallett Bridge Reserve
Hardenbergia violacea	Native Lilac				✓	✓	_			✓				V					
Helichrysum leucopsideum	Satin Everlasting			NT	✓														
Hypoxis glabella var. glabella	Tiny Star				✓								✓		✓		✓		
Isolepis nodosa	Knobby Club-rush						✓			✓									
Kennedia prostrata	Running Postman					√	✓												
Kunzea pomifera*	Muntries																		
Lawrencia squamata	Thorny lawrencia			VU							✓								
Lepdiosperma viscisdum	Sticky Sworde-sedge				✓		✓	✓				✓							
Leptospermum lanigerum	Silky tea-tree			RA															✓
Leucophyta brownii	Coast Cushion Bush						✓	✓	✓		✓	✓							
Lomandra collina	Sand Mat-rush			RA	✓														
Lomandra densiflora	Pointed Mat-rush				√		√	√		√		√	√	√		√		√	
Lomandra effusa	Scented Mat-rush			RA	✓	√	V	√	V	√	✓	✓	✓	✓			✓		
Lomandra micrantha	Small-flower Mat-rush				√								√						
Lomandra multiflora subsp dura	A Mat Rush																		√
Lotus australis	Austral Trefoil			NT	√		✓		✓				√						
Lycium australe	Australian Boxthorn			EN							✓								
Lysiana exocarpi	Ngantja (mistletoe)																		
Maireana brevifolia	Small-leaf Bluebush				√	✓	√	√	✓	✓				✓					
Maireana enchylaenoides	Wingless Bluebush				✓	✓			✓	✓	√		✓	✓	✓		✓	√	
Maireana oppositifolia	Salt Bluebush							√	✓										
Maireana rohrlachii	Rohrlach's Bluebush		RA	RA	√	✓			√		√	✓							
Malva preissiana	Native Hollyhock			NT				√						✓		✓			
Melaleuca lanceolata	Dryland Tea-tree			RA	✓	✓	✓		✓	✓		✓						✓	
Microseris lanceolata					✓														
	Yam Daisy			RA	✓				✓										
Minuria leptophylla	Minnie Diasy				✓	✓	✓	✓	✓	✓		✓		✓					
Muehlenbeckia gunnii	Native Sarsparilla			NT	✓	✓			✓	✓	✓								
Myoporum insulare	Common boobialla		D.4			✓	/		-	✓									-
Myoporum parvifolium	Creeping Boobialla		RA	VU			√	✓	√										-
Myoporum petiolatum	Sticky Boobialla			NT	 ✓			·	ļ ·										
Neurachne alopecuroidea	Fox-tail Mulga-grass				·														
Nicotina maritima	Coast Tobacco			RA	V	✓	 		 		 	/							-
Nitraria billardierei	Nitre-bush				,	, ·	, ·	✓	ļ •	✓	•	· ·							
Olearia axillaris	Coast Daisy-bush				 ✓	✓	-	V		V	✓	✓							
Olearia ramulosa	Twiggy Daisy-bush					,	V	*		V	V	· ·							
Opercularia turpis	Twiggy Stinkweed			NT	√		-												
Oxalis perennans	Native Sour Sob				✓	√			✓	√		✓	✓	√	✓	✓	✓	✓	✓
Phragmites australis	Common Reed									V									
Pimelea curvifolia var. gracilis	Curved Riceflower			RA	√	V		✓		V			V	V	V	√	✓	✓	
Pimelea micrantha	Small Riceflower			NT		✓		✓		√	√	✓	✓	✓	✓	✓	✓	✓	
Pittosporum angustifolium	Native Apricot				✓	√				✓				✓					
Plantago gaudichaudii	Colony plantain					✓		✓											
Pleurosorus rutifolius	Blanket fern							✓		✓									
Poa poiformis var. poiformis	Coast Tussock-grass						✓	✓	✓				✓						
Poamderris paniculosa ssp. Paniculosa	Mallee Pomaderris			NT	✓	√	✓		√										
Pogonolepis muelleriana	Stiff Cup-flower			NT	√														
Portulaca oleracea	Common Purslane				√														
Pterostylis nana	Small Greenhood																		
Pterostylis pedunculata	Maroon Hood																		



Species Name	Common Name	EPBC Act (Aus)	NPWS Act (SA)	Mount Lofty Ranges (NRM Region Regional Species Conservation assessment Project 2014)	Hallett Headland	Marine Parade Reserve	Esplanade Reserve/Jervois Tce	Westcliff circuit	Murto Gully	Cormorant Drive Reserve	The Esplanade and Kurnabinna Gully	Clifftop Crescent Reserve	Glade Crescent Reserve	Lucretia Way Reserve	Manunda Way Reserve	Morphett Road Reserve	Grand Central Avenue Reserve	Lighthouse Drive Remnant	Old Hallett Bridge Reserve
Ptilotus nobilis var. nobilis	Yellow-tails			VU	√	_		✓	_		✓		✓	✓					
Ptilotus spathulatus var. spathulatus	Pussy-tails			RA	✓	✓													
Rhagodia candolleana ssp. candolleana	Sea-berry Saltbush				✓			✓		✓	✓				✓		√		
Rytidosperma setaceum	Bristly Wallaby Grass				✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓
Rytidosperma sp.	Wallaby Grass species																		
Salsola kali	Buckbush				✓	√	√	✓	✓		✓								
Santalum acuminatum	Quondong			RA	✓					✓									
Scaevola albida	White Fan Flower					√	✓	√		√			√	✓	√	✓		√	
Scaevola crassifolia	Cushion Fanflower			VU	✓		✓	✓	√	✓									
Scaevola linearis ssp. Confertifolia	Bundled Fanflower			EN	√														
Scleranthus pungens	Prickly Knawel			RA		√		✓			✓								
Sclerolaena uniflora	Short-spine bindyi			RA	✓	√	✓		√								✓		
Senecio glossanthus	Annual Groundsel			NT	√														
Senecio pinnatifolius var. maritimis	Variable Groundsel Elegant Yellow-top			RA	√	√		✓											
Setaria clementii	Clement's paspalidum												√	✓					
Sida corrugata var. angustifolia	Corrugated Sida			RA	√	√		√		√				√			√	√	
Sida petrophila	Rock Sida			RA		√		✓			✓								
Spinifex hirsutus	Rolling Spinifex									√									
Stackhousia monogyna	Creamy Candles			NT									✓	√					
Themeda triandra	Kangaroo Grass				✓			✓		√				√	√				
Threlkeldia diffussa	Coast Bonefruit				√		✓		√			√							
Thysanotus baueri	Mallee Fringe-lily			EN	√														
Thysanotus patersonii	Twining Fringe-lily				√														
Typha dominigensis	Bulrush												√						
Velleia arguta	Toothed Velleia			RA	√														
Vittadinia blackii	Narrow-leaf New Holland Daisy			NT	√	√	√	√					√				√		
Vittadinia australasica	New Holland Daisy			NT				√					√	√	✓				
Vittadinia cuneata	Fuzzy new Holland Daisy					√							√		√			√	
Vittadinia megacephala	Giant New Holland Daisy			RA	✓	İ													
Vittadinia gracilis	Woolly New Holland daisy				✓														
Wahlenbergia luteola	Yellow-wash Bluebell			RA						√				✓					
Wahlenbergia stricta	Australian Bluebell																		
Wurmbea diocia ssp. diocia	Early Nancy				√														
Zygophyllum confluens	Forked Twinleaf			VU		✓	✓		✓	✓	✓	√							
Zygophyllum glaucum	Pale Twinleaf			RA		✓													



Appendix 2 Master Indigenous Species List for Priority Sites 16 to 29

Threat ratings based upon Environment Protection and Biodiversity Conservation Act (EPBC Act). Cwth. South Australian Ratings are from the schedules of the National Parks and Wildlife Act (1972) and the regional Mount Lofty Ranges ratings are based upon the International Union for Conservation of Nature (IUCN) Red List criteria for regional levels. Further explanations are given for each category in Appendix 3.

Species Name	Common Name	EPBC Act (Aus)	NPWS Act (SA)	Mount Lofty Ranges (IUCN Criteria from SA Seed Conservation	Alpine way Reserve	Warriparinga Creekline	Oaklands Estate Reserve	Roy Lander Reserve	Weerab drive Reserve	Admella Reserve	Arafura Court Reserve	Werlinga Reserve	Gretel Crescent Reserve	Ragamuffin Reserve	Bandon Terrace Roadside	Cove Road Marino	Kalmia Crescent Reserve	Patpa Drive Cliff
				Centre)														
Acacia acinacea	Gold Dust Wattle			NT		✓	✓	√				√			✓	✓	✓	
Acacia cupularis	Cup Wattle			RA												√		
Acacia longifolia ssp. sophorae*	Coastal Wattle																	
Acacia notabalis*	Noteable wattle																	
Acacia paradoxa	Kangaroo Thorn					✓	✓								✓	✓		✓
Acacia pycnantha	Golden Wattle				✓	✓	✓	✓	✓	✓		✓			✓	✓	✓	✓
Acacia spinescens	Spiny Wattle																	
Acacia victorea ssp.	Elegant Wattle			VU														
victorea	_																	
Acrotriche patula	Prickly Ground- berry			NT					√		✓					√		
Adriana quadripartita*	Coast Bitter-bush			RA														
Allocasuarina muelleriana subsp muelleriana	Common Oak-bush					V	V											
Allocasuarina verticillata	Drooping Sheoak				√	V	√	✓		√				✓		V	V	√
Alyxia buxifolia	Native Box			RA														
Amyema miquelii	Box Mistletoe												√					
Aristida behriana	Brush Wire Grass							√		✓						√	√	✓
Arthropodium fimbriatum	Summer Vanilla-lily																	V
Arthropodium strictum	Vanilla Lily					√		√								✓	✓	✓
Asperula conferta	Common Woodruf			NT														✓
Atriplex cinerea*	Coast Saltbush																	
Atriplex paludosa subsp cordata	Marsh Saltbush															√		
Atriplex semibaccata	Seaberry Saltbush					√	✓	√		√	√						✓	
Atriplex suberecta	Lagoon Saltbush					√	✓	√									✓	
Austrostipa blackii	Crested Spear Grass					*		√	√	√		✓					✓	
Austrostipa curticoma	A spear Grass							√										
Austrostipa	Cottony Spear			NT														
drummondii	Grass																	
Austrostipa	Feather Spear-					✓	√		√									
elegantissima	grass																	
Austrostipa eremophila	Desert Spear Grass																	
Austrostipa flavescens	Coast Spear Grass							+										
Austrostipa	Half-beard Spear																	
hemipogon	Grass																	



Species Name	Common Name	EPBC Act (Aus)	NPWS Act (SA)	Mount Lofty Ranges (IUCN Criteria from SA Seed Conservation Centre)	Alpine way Reserve	Warriparinga Creekline	Oaklands Estate Reserve	Roy Lander Reserve	Weerab drive Reserve	Admella Reserve	Arafura Court Reserve	Werlinga Reserve	Gretel Crescent Reserve	Ragamuffin Reserve	Bandon Terrace Roadside	Cove Road Marino	Kalmia Crescent Reserve	Patpa Drive Cliff
Austrostipa scabra ssp falcata	A spear Grass			centrey		✓		-	V			/				V		-
Austrostipa sp.	A Spear Grass				√	√	✓	√	✓	✓	✓	✓		√	✓	✓	✓	✓
Banksia marginata	Silver Banksia																	
Beyeria lechenaultii	Pale Turpentine Bush			NT							√					√	√	
Bulbine bulbosa	Golden Lily																	√
Burchardia umbellata	Milkmaids																	
Bursaria spinosa	Sweet Bursaria					√	√											
Caesia calliantha	Blue Grass Lily																	
Calandrinia eremaea	Dryland Purslane			NT		1												
Calandrinia volubilis	Twining Purslane			VU														
Callitris gracilis	Southern Cypress Pine			-										√				
Calocephalus citreus	Lemon beauty- heads			NT														
Calostemma purpureum	Garland Lily					√		√	~								√	√
Calystegia sepium	Greater Bindweed			RA		√												
Calytrix tetragona	Common Fringe Myrtle																	
Carex brevigulmis	Short stem sedge											✓						
Carpobrotus rossii	Angular Pigface																	
Cheilanthes austrotenuifolia	Annual Rock-fern																	√
Chloris truncata	Windmill Grass							✓	√	√	✓		✓			√	✓	√
Chrysocephalum apiculatum	Everlasting						✓											
Chrysocephalum semipapposum	Clustered Everlasting			NT														
Comesperma volubilis	Love Creeper			RA														
Convulvulus remotus	Australian Bindweed				√			√	V							✓	V	√
Crassula sp.	Stonecrop																	
Cullen australasicum	Tall Scurf-pea			NT		✓	√											
Cymbopogon obtectus	Silky-head Lemon- grass			RA														
Cynogolssum suaveolens	Sweet Hound's Tongue			NT														
Cyperus gymnocaulos	Spiny Flat-sedge					✓												
Cyperus vaginatus	Stiff Flat-sedge					✓												
Dampiera rosmarinfolia	Rosemary Dampiera			NT							✓							
Daucus glochidiatus	Native Carrot																	
Dianella brevicaulis	Short-stem Flax Lily			NT												✓		
Dianella revoluta var. revoluta	Black-anther Flax- lily							√	√	√			√		√	√	√	√
Dianella longifolia var. grandis	Yellow-anther Flax Lily		VU	VU														



Species Name	Common Name	EPBC	NPWS	Mount Lofty	Alpine	Warriparinga	Oaklands	Pov	Weerab	Admella	Arafura	Werlinga	Gretel	Ragamuffin	Bandon	Cove	Kalmia	Patpa
Species Name	Common Name	Act (Aus)	Act (SA)	Ranges (IUCN Criteria from SA Seed Conservation Centre)	way Reserve	Creekline	Estate Reserve	Roy Lander Reserve	drive Reserve	Reserve	Court Reserve	Reserve	Crescent Reserve	Reserve	Terrace Roadside	Road Marino	Crescent Reserve	Drive Cliff
Dicanthium sericeum	Silky Blue-grass			VU	✓													
var. sericeum																		
Dichondra repens	Kidney Weed																	
Disphyma crassifolium ssp. crassifolium	Round-leaf Pigface																	
Dissocarpus biflorus var. biflorus	Two-horn saltbush			RA														
Dodonaea viscosa ssp. spathulata	Sticky Hop-bush				✓	√	√	√	√			√				√	~	~
Drosera whittakerii	Whittakers Sundew																	
Einadia nutans ssp.	Climbing Saltbush							~	√									
Nutans																		
Enchyleana tomentosa	Ruby Saltbush							√	√	√	✓		√		√	√	√	√
Enneapogon nigricans	Black Head Grass							✓	✓	✓			√	✓		✓	√	√
Erodium crinitum	Blue Heron's-bill			RA NT		✓	√								✓			
Eucalyptus camaldulensis var.	River Red Gum			NI		•	Ť								•			
camaldulensis	M. II. D.			NT				 	✓	✓		 ✓				✓	 	
Eucalyptus porosa	Mallee Box			141		✓												
Eucalytpus microcarpa Eucalyptus leucoxylon	Greybox South Australian					✓						✓						
subsp leucoxylon	Bluegum																	
Eutaxia microphylla	Common Eutaxia															✓		
Exocarpos aphyllus	Leafless Cherry			VU												√		
Frankenia pauciflora	Southern Sea- heath																	
Gahnia lanigera	Black Grass Saw- sedge			RA												√		
Geranium retrosum	Native Geranium																	
Glycine rubiginosa	Twining Glycine																	
Gonocarpos mezianus	Broad-leaf raspwort																	
Gonocarpos tetragynus	Small-leaf raspwort																	
Goodenia albiflora	White Flowered Goodenia				√			√				✓						V
Goodenia amplexans	Clasping Godenia			NT														
Goodenia pinnatifida	Cut-leaf Goodenia			NT														√
Goodenia pussiliflora	Small-flower goodenia			VU														
Goodenia varia+	Sticky Goodenia			VU														
Grevillea lavandulacea spp. Lavandulacea	Spider Flower																	
Hakea rugosa	Dwarf Hakea			NT														
Hardenbergia violacea	Native Lilac														√			
Helichrysum leucopsideum	Satin Everlasting			NT														
Hypoxis glabella var. glabella	Tiny Star																	
Isolepis nodosa	Knobby Club-rush																	



Species Name	Common Name	EPBC Act (Aus)	NPWS Act (SA)	Mount Lofty Ranges (IUCN Criteria from SA Seed	Alpine way Reserve	Warriparinga Creekline	Oaklands Estate Reserve	Roy Lander Reserve	Weerab drive Reserve	Admella Reserve	Arafura Court Reserve	Werlinga Reserve	Gretel Crescent Reserve	Ragamuffin Reserve	Bandon Terrace Roadside	Cove Road Marino	Kalmia Crescent Reserve	Patpa Drive Cliff
				Conservation														
Kennedia prostrata	Running Postman			Centre)														
Kunzea pomifera*	Muntries																	
Lawrencia squamata	Thorny lawrencia			VU														
Lepdiosperma	Sticky Sworde-																	
viscisdum	sedge																	
Leptospermum lanigerum	Silky tea-tree			RA														
Leucophyta brownii	Coast Cushion Bush																	
Lomandra collina	Sand Mat-rush			RA														
Lomandra densiflora	Pointed Mat-rush							√				√						√
Lomandra effusa	Scented Mat-rush			RA						√						√		√
Lomandra micrantha	Small-flower Mat- rush																	
Lomandra multiflora subsp dura	A Mat Rush																	
Lotus australis	Austral Trefoil			NT														
Lycium australe	Australian Boxthorn			EN														
Lysiana exocarpi	Ngantja (mistletoe)																	
Maireana brevifolia	Small-leaf Bluebush																	
Maireana enchylaenoides	Wingless Bluebush							✓	V					√				V
Maireana oppositifolia	Salt Bluebush																	
Maireana rohrlachii	Rohrlach's		RA	RA														
	Bluebush																	
Malva preissiana	Native Hollyhock			NT		✓	✓											
Melaleuca lanceolata	Dryland Tea-tree			RA					✓	✓	✓					✓		✓
Microseris lanceolata	Yam Daisy																	
Minuria leptophylla	Minnie Diasy			RA														
Muehlenbeckia gunnii	Native Sarsparilla			NT					✓		√				 			
Myoporum insulare	Common boobialla			NT														
Myoporum parvifolium	Creeping Boobialla		RA	VU											✓			
Myoporum petiolatum	Sticky Boobialla			NT														-
Neurachne	Fox-tail Mulga-																	
alopecuroidea Nicotina maritima	grass Coast Tobacco			RA														
Nicotina maritima Nitraria billardierei	Nitre-bush			KM													✓	
Olearia axillaris	Coast Daisy-bush																	
Olearia ramulosa	Twiggy Daisy-bush				✓	✓	✓	√							✓	✓	✓	
Opercularia turpis	Twiggy Stinkweed			NT														
Oxalis perennans	Native Sour Sob													✓	√			
Phragmites australis	Common Reed					✓	√											
Pimelea curvifolia var.	A Riceflower			RA	✓			✓	✓									✓
gracilis																		
Pimelea micrantha	Curved Riceflower			NT				✓	✓				✓	√			√	✓
Pittosporum angustifolium	Native Apricot					√		✓	V						✓	√		



Species Name	Common Name	EPBC Act (Aus)	NPWS Act (SA)	Mount Lofty Ranges (IUCN Criteria from SA Seed Conservation Centre)	Alpine way Reserve	Warriparinga Creekline	Oaklands Estate Reserve	Roy Lander Reserve	Weerab drive Reserve	Admella Reserve	Arafura Court Reserve	Werlinga Reserve	Gretel Crescent Reserve	Ragamuffin Reserve	Bandon Terrace Roadside	Cove Road Marino	Kalmia Crescent Reserve	Patpa Drive Cliff
Plantago gaudichaudii	Colony plantain																	
Pleurosorus rutifolius	Blanket fern																	
Poa poiformis var.	Coast Tussock-																	
poiformis	grass																	
Poamderris paniculosa ssp. Paniculosa	Mallee Pomaderris			NT							✓					V		
Pogonolepis	Stiff Cup-flower			NT														
muelleriana																		
Portulaca oleracea	Common Purslane																	
Pterostylis nana	Small Greenhood					✓												
Pterostylis	Maroon Hood					✓												
pedunculata																		
Ptilotus nobilis var. nobilis	Yellow-tails			VU														
Ptilotus spathulatus var. spathulatus	Pussy-tails			RA														
Rhagodia candolleana ssp. candolleana	Sea-berry Saltbush						√			~								
Rytidosperma	Bristly Wallaby					√	√	√		√	√		√	√			√	√
setaceum	Grass																	
Rytidosperma sp.	Wallaby Grass								✓	✓	✓	✓		✓	✓		✓	√
Salsola kali	Buckbush										✓					√		
Santalum acuminatum	Quondong			RA														
Scaevola albida	White Fan Flower				✓	√	✓	√	√							√	✓	√
Scaevola crassifolia	Cushion Fanflower			VU														
Scaevola linearis ssp.	Bundled Fanflower			EN														
Confertifolia																		
Scleranthus pungens	Prickly Knawel			RA														
Sclerolaena uniflora	Short-spine bindyi			RA							✓							
Senecio glossanthus	Annual Groundsel			NT														
Senecio pinnatifolius	Variable Groundsel			RA														
var. maritimis	Elegant Yellow-top																	
Setaria clementii	Clement's paspalidum									√							V	
Sida corrugata var. angustifolia	Corrugated Sida			RA														
Sida petrophila	Rock Sida			RA					İ	İ								
Spinifex hirsutus	Rolling Spinifex																	
Stackhousia	Creamy Candles			NT														
monogyna	,																	
Themeda triandra	Kangaroo Grass					✓	✓		İ	İ								
Threlkeldia diffussa	Coast Bonefruit										√							
Thysanotus baueri	Mallee Fringe-lily			EN														
Thysanotus patersonii	Twining Fringe-lily																	
Typha dominigensis	Bulrush																	
Velleia arguta	Toothed Velleia			RA														
Vittadinia blackii	Narrow-leaf New Holland Daisy			NT	√	✓		√	√	√		√	√				√	
Vittadinia australasica	New Holland Daisy			NT		√												

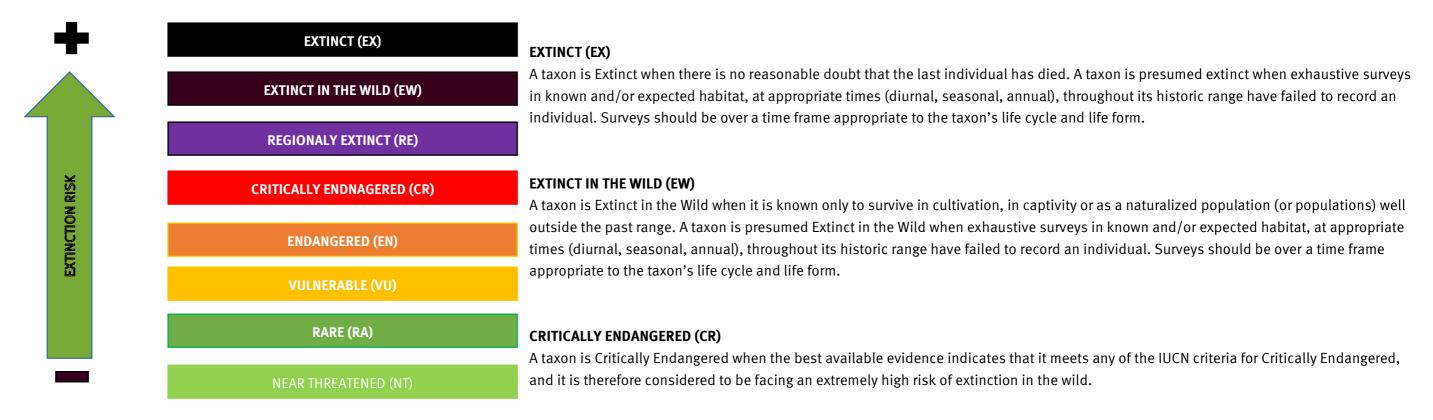


Species Name	Common Name	EPBC Act (Aus)	NPWS Act (SA)	Mount Lofty Ranges (IUCN Criteria from SA Seed Conservation Centre)	Alpine way Reserve	Warriparinga Creekline	Oaklands Estate Reserve	Roy Lander Reserve	Weerab drive Reserve	Admella Reserve	Arafura Court Reserve	Werlinga Reserve	Gretel Crescent Reserve	Ragamuffin Reserve	Bandon Terrace Roadside	Cove Road Marino	Kalmia Crescent Reserve	Patpa Drive Cliff
Vittadinia cuneata	Fuzzy new Holland Daisy									-								
Vittadinia megacephala	Giant New Holland Daisy			RA														
Vittadinia gracilis	Woolly New Holland daisy																	
Wahlenbergia luteola	Yellow-wash Bluebell			RA														
Wahlenbergia stricta	Australian Bluebell																	
Wurmbea diocia ssp. diocia	Early Nancy																	
Zygophyllum confluens	Forked Twinleaf			VU												√		
Zygophyllum glaucum	Pale Twinleaf			RA											√			



Appendix 3: Explanation of conservation categories.

A representation of the relationships between the categories is shown below in order of increasing risk of extinction



ENDANGERED (EN)

A taxon is Endangered when the best available evidence indicates that it meets any of the IUCN criteria for Endangered, and it is therefore considered to be facing a very high risk of extinction in the wild.

VULNERABLE (VU)

A taxon is Vulnerable when the best available evidence indicates that it meets any of the IUCN criteria Vulnerable, and it is therefore considered to be facing a high risk of extinction in the wild.

Rare (RA) A taxon is Rare if it occurs in small numbers, and is at some risk due to low numbers. Taxon in this category are usually localised within restricted geographical areas, or are thinky scattered over a more extensive range, this also includes taxa that are considered to be dependent on conservation programs to prevent them moving into the Critically Endangered, Endangered or Vulnerable categories.

NEAR THREATENED (NT)

A taxon is Near Threatened when it has been evaluated against the criteria but does not qualify for Critically Endangered, Endangered or Vulnerable now, but is close to qualifying for or is likely to qualify for a threatened category in the near future.

LEAST CONCERN (LC)



A taxon is Least Concern when it has been evaluated against the criteria and does not qualify for Critically Endangered, Find Endangered, Vulnerable or Near Threatened. Widespread and abundant taxa are included in this category.

DATA DEFICIENT (DD)

A taxon is Data Deficient when there is inadequate information to make a direct, or indirect, assessment of its risk of extinction based on its distribution and/or population status. A taxon in this category may be well studied, and its biology well known, but appropriate data on abundance and/or distribution are lacking. Data Deficient is therefore not a category of threat. Listing of taxa in this category indicates that more information is required and acknowledges the possibility that future research will show that threatened classification is appropriate. It is important to make positive use of whatever data are available. In many cases great care should be exercised in choosing between DD and a threatened status. If the range of a taxon is suspected to be relatively circumscribed, and a considerable period of time has elapsed since the last record of the taxon, threatened status may well be justified.

NOT EVALUATED (NE)

A taxon is Not Evaluated when it has not yet been evaluated against the criteria

The IUCN criteria are further explained in this booklet: **Guidelines for Application of IUCN Red List Criteria at Regional and National Levels.**



Appendix 3b). Outline of each Status Category used in workshops (adapted from: Guidelines for Using the IUCN Red List Categories and Criteria V7.0 (2008) — all categories except Regionally Extinct and Rare; Guidelines for Application of IUCN Red List Criteria at Regional and National Levels V4.0 (IUCN 2012a) - Regionally Extinct category; National Parks and Wildlife Act, 1972 — Rare category).

-		B C 111 1 11
Sto	tus Category	Definition / Use
RE	Regionally Extinct	A taxon is Regionally Extinct when there is no reasonable doubt that the last individual potentially capable of reproduction within the region has died or disappeared from the region, or, in the case of a former visiting taxon, individuals no longer visit the region.
CR	Critically Endangered	A taxon is Critically Endangered when the best available evidence indicates that it meets any of the criteria A to E for Critically Endangered, and it is therefore considered to be facing an extremely high risk of extinction in the wild.
EN	Endangered	A taxon is Endangered when the best available evidence indicates that it meets any of the criteria A to E for Endangered, and it is therefore considered to be facing a very high risk of extinction in the wild.
VU	Vuinerable	A taxon is Vulnerable when the best available evidence indicates that it meets any of the criteria A to E for Vulnerable, and it is therefore considered to be facing a high risk of extinction in the wild.
RA	Rare	A taxon is Rare if it occurs in small numbers, and the best available evidence indicates that it meets any of the criteria A to D for Rare, and it is at some risk due to low numbers. Taxa in this category are usually localised within restricted geographical areas or are thinly scattered over a more extensive range. This may include taxa which are perceived to be at risk for which there is insufficient information available to assign them any other category, and taxa that are considered to be dependent on ongoing conservation programs to prevent them moving into the Critically Endangered, Endangered or Vulnerable categories.
NI	Near Threatened	A taxon is Near Threatened when it has been evaluated against the criteria but does not qualify for Critically Endangered, Endangered, Vulnerable or Rare now, but could qualify for a threatened category in the future. This category is applied to taxa where populations are 'uncommon', i.e. if it occurs in relatively low numbers, and does not meet the criteria for Rare.
ιc	Least Concern	A taxon is Least Concern when it has been evaluated against the criteria and does not qualify for Critically Endangered, Endangered, Vulnerable, Rare or Near Threatened. Widespread and abundant taxa are included in this category.
DD	Data Deficient	A taxon is Data Deficient when there is inadequate information to make a direct, or indirect, assessment of its risk of extinction based on its distribution and/or population status. Listing of taxa in this category indicates that more information is required and acknowledges the possibility that future research will show that a threatened classification may be appropriate. It is important to make positive use of whatever data are available. In many cases great care should be taken in choosing between DD and a threatened status. If the range of a taxon is suspected to be relatively restricted, and/or if a considerable period of time has elapsed since the last record of the taxon, threatened status may be well justified.
NE	Not Evaluated	A taxon is Not Evaluated when it has not been evaluated against the criteria. (Used for flora with taxonomic issues and not rated.)

Appendix 3a). Criteria for the threatened categories (CR, EN, VU) (source: IUCN 2001) plus Rare (Source: *National Parks and Wildlife Act, 1972*)

IUCN 2001 CATEGORIES AND CRITERIA

IUCH ZUUT CATE GURIE		LINA	
Criteria	*Critically Endangered CR	*Endangered EN	*Vulnerable VU
A. Reduction in population size based on any of the following:			
1. An observed, estimated, inferred or suspected population size reduction over the last 10 years or three generations, whichever is the longer, where the causes of the reduction are clearly reversible AND understood AND ceased, based on (and specifying) any of the following:	> 90%	> 70%	> 50%
(a) direct observation (b) an index of abundance appropriate to the taxon (c) a decline in area of occupancy, extent of occurrence and/or quality of habitat (d) actual or potential levels of exploitation (e) the effects of introduced taxa, hybridization, pathogens, pollutants, competitors or parasites.			
 An observed, estimated, inferred or suspected population size reduction over the last 10 years or three generations, whichever is the longer, where the reduction or its causes may not have ceased OR may not be understood OR may not be reversible, based on (and specifying) any of (a) to (e) under A1. 	> 80%	> 50%	> 30 %
Apopulation size reduction projected or suspected to be met within the next 10 years or three generations, whichever is the longer (up to a maximum of 100 years), based on (and specifying) any of (b) to (e) under Al.		. 50%	
4. An observed, estimated, inferred, projected or suspected population size reduction over any 10 year or three generation period, whichever is longer (up to a maximum of 100 years), where the time period includes both the past and the future, and where the	> 80%	> 50%	> 30%
reduction or its causes may not have ceased OR may not be understood OR may not be reversible, based on (and specifying) any of (a) to (e) under Al.	> 80%	> 50%	> 30%
B. Geographic range in the form of either B1 (extent of occurrence) OR B2 (area of occupancy) OR both:			
Estimated extent of occurrence (km²) and estimates indicating at least two of a-c:	<100 km²	<5000 km²	<20,000 km²
a. Severely fragmented or # locations. b. Continuing decline, observed, inferred or projected, in any of the following: (i) extent of occurrence	= 1	≤5	≤ 10
(ii) area of occupancy (iii) area, extent and/or quality of habitat (iv) number of locations or subpopulations (v) number of mature individuals. c. Extreme fluctuations in any of the following: (i) extent of occurrence (ii) area of occupancy (iii) number of locations or subpopulations (iv) number of mature individuals.			
Estimated area ofoccupancy(km²), and estimates indicating at least two of a-c:			
 a. Severely fragmented or # locations. b. Continuing decline, observed, inferred or projected, in any of the following: 	<10km²	<500km²	<2,000km²
(i) extent of occurrence (ii) area of occurrence (iii) area, extent and/or quality of habitat (iv) number of locations or subpopulations (v) number of mature individuals. c. Extreme fluctuations in any of the following: (i) extent of occurrence (ii) area of occupancy (iii) number of locations or subpopulations	= 1	≤5	≤ 10
(iv) number of mature individuals.			



Criteria	*Critically Endangered CR	*Endangered EN	*Vulnerable VU
C. Population size estimated (#mature individuals) and either:	<250	<2,500	<10,000
An estimated continuing decline, whichever is longer, (up to a maximum of 100 years in the future) OR	25% in 3yr or 1 generation	20% in 5yr or 2	10 % in 10 yr or 3
Acontinuing decline, observed, projected, or inferred, in numbers of mature individuals. AND at least one of the following (a-b):		generations	generations
(a) Population structure in the form of one of the following: (b) Extreme fluctuations in number of mature individuals.	(i) no subpop' >50 mature individuals or (ii) 90-100 % mature individuals in one subpop'	(i) no subpop' >250 mature individuals or (ii) 95-100 % mature individuals in one subpop'	(i) no subpop' >1,000 mature individuals or (ii) 100 % mature individuals in one subpop'
D. Estimated population size (#mature individuals).	<50	<250	1. <1,000 or 2. Ao 0 <20km² or # locations ≤5
E. Quantitative analysis showing the probability of extinction in the wild (up to a maximum of 100 years).	>50% within 10yr or 3 generations	>20 % within 20 yr or 5 generations	>10% within 100yr

RARE CATEGORY AND CRITERIA

Rare (RA)

- a. Reduced area of occupancy and/or extent of occurrence: Taxa that have disappeared from >50% of their former area of occupancy and/or extent of occurrence and it is observed, estimated, inferred or suspected that further decline is continuing.
- b. Declined in abundance: Taxa that have experienced a significant decline in abundance in >50% of their former area of occupancy and/or extent of occurrence and it is observed, estimated, inferred or suspected that further decline is continuing.
- c. Small populations: Taxa where it is observed, estimated, inferred or suspected that the total population size numbers < 3000 mature individuals and specifying any of the following:
 - Resident population

 - Regular visitors to the state (e.g. migratory taxa)
 Irregular visitors to the state (e.g. in response to episodic rainfall events)
 Taxa that are experiencing range extensions into SA, with data for other areas showing that they are increasing in range and abundance.
- d. Restricted extent of occurrence or area of occupancy. Taxa with either i) or ii)
 - Relatively limited extent of occurrence (e.g. approximately 10% or <20,000 km² of area assessed)
 - Relatively limited area of occupancy (e.g. approximately 1% or <2,000 km² of area assessed) that is highly fragmented.