Glamorgan Spring Bay Council

Triabunna Area Reserves

NATIVE FLORA AND FAUNA MANAGEMENT PLAN 2014 - 2019

SUMMARY

Glamorgan Spring Bay Council has developed this five year Native Flora and Fauna Management Plan for the Triabunna area Reserves under their management. The intent of the Plan is to provide Council with a strategic approach to the sustainable management of the Reserves.

Remnant native vegetation in the Reserves includes the following communities:

- *Eucalyptus ovata* forest & woodland (DOV)
- *Eucalyptus amygdalina* forest & woodland on sandstone (DAS)
- *Eucalyptus globulus* dry forest & woodland (DGL)
- *Eucalyptus viminalis – E. globulus* coastal forest & woodland (DVC)
- *Bursaria – Acacia* woodland & scrub (NBA)
- Succulent saline herbland (ASS)
- Lowland *Themeda triandra* grassland (GTL)
- Coastal grass and herbfield (GHC)

DOV, DAS, DGL and DVC are listed as threatened communities under the *Nature Conservation Act 2002*.

Other Tasveg non-native vegetation mapping units present are:

- Urban areas (FUR).

Two threatened plant species, *Limonium baudinii* and *Cynoglossum australe,* that are variously listed under the Tasmanian *Threatened Species Protection Act 1995* (TSPA) and/or the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBCA), are present in the Reserves.

The condition of the vegetation varies from excellent to very poor. However, it provides a diversity of habitat for native fauna. Fours species of threatened fauna, variously listed under the TSPA and/or EPBCA, for which the Reserves provide potential foraging habitat are the white-bellied sea-eagle, swift parrot, forty-spotted pardalote and fairy tern.

Notable weeds are mapped and described. These include 6 species of 'declared weeds' under the *Weed Management Act 1999* and 30 other species considered as environmental weeds.

Management issues identified include:

- Natural values –vegetation, flora, fauna and significant trees
- Weeds
- Illegal clearing of vegetation
- Reserve boundaries
- Coastal erosion and foreshore access
- Plantings and revegetation
- Fire

Recommendations and actions plans are provided to deal with these issues and guide management of the Reserves for all of their natural values whilst not compromising their associated cultural and social values.

ACKNOWLEDGMENTS

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Mapping*: Insight GIS

Photographs: Dr. Nicky Meeson, Biodiversity Officer

Weed identifications: Tasmanian Herbarium

*Maps in this publication have been reduced from their original A3 format. Hard copies of A3 maps are available upon request from:

NRM Department
Glamorgan Spring Bay Council
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CONTENTS

1. INTRODUCTION

1.1 BACKGROUND AND OBJECTIVES

Glamorgan Spring Bay Council has developed this five year Native Flora and Fauna Management Plan for the Triabunna Area Reserves in proximity to the coast that are under their management. The intent of the Plan is to provide Council with a strategic approach to the management of the Reserves' natural values whilst recognising and considering the Reserves' significant cultural and social values.

Therefore the main objectives of the Plan are to:

- Identify the natural, and associated cultural and social values of the Reserves,
- Identify threats to the natural values,
- Provide action plans to ensure that the Reserves are sustainably managed to preserve and enhance all of their natural values, in accordance with the Tasmanian Reserve Management Code of Practice 2003[1], whilst not compromising their cultural and social values, and
- Raise community awareness of the values of the Reserves and thereby encourage participation in activities that minimise threats to these values.

1.2 GENERAL DESCRIPTION OF THE RESERVE

Triabunna is situated on the east coast, in the Glamorgan Spring Bay municipality and in the Tasmanian South East bioregion[2]. It occurs in the moist subhumid warm climatic zone where the annual average rainfall is in the region of 600 mm. The altitude across the Reserve ranges from near sea level to approximately 30 m above a.s.l.

The location of the Reserves is depicted in Figure 1. They include sections of the foreshore in the town on both sides of Vicarys Rivulet estuary, the 'Inkerman Street Reserve' (between Inkerman and Ada Streets, on the southern side of Lord Street) and the foreshore parallel to Barton Avenue between the Tasman Highway and One Tree Point.

The foreshore sections, within the town and along Barton Avenue, are dominated by parkland with patches of remnant native vegetation or remnant native trees. Facilities include walking paths, picnic tables, barbeques and parking areas.

In the town, Esplanade West and East traverse the Reserves along the edges of the estuary. The Information Centre is located within the Reserve on the western side of the estuary. Access to the marina is also provided on the western side.

The Inkerman Street Reserve is dominated by native vegetation and is traversed by a network of walking tracks.

The main characteristics of the Reserves are provided in the table below. Section 2 provides a more detailed description of the natural values and other biological characteristics of the Reserves. Section 3 provides details of other values of the Reserves.

[1] Parks and Wildlife Service, Forestry Tasmania and Department of Primary Industries, Water and Environment 2003.

[2] IBRA5 – Peters & Thackway 1998. A bioregion is an area of land with similar environmental, physical and climatic conditions and containing characteristic ecosystems.

Reserve characteristics:

P.I.D.	Location	Extent (ha)	Land tenure	Management responsibility
1716406	Foreshore along Esplanade West	2.9	Authority Land Crown Lands Act DPIPWE	Recreation purpose - Triabunna Crown License Glamorgan Spring Bay Council
7271225	Foreshore along Esplanade West	0.3	Crown Land/ Crown Licence	Reclamation - Charles St, Triabunna Crown License Glamorgan Spring Bay Council
1869808	Foreshore along western bank of Vicarys Rivulet estuary (north & east of Esplanade West)	2.4	Authority Land Crown Lands Act DPIPWE	Triabunna – Esplanade – Recreation Crown License Glamorgan Spring Bay Council
1717601	Foreshore and road verges traversed by Esplanade East	4.5	Public Reserve Crown Lands Act DPIPWE	Recreation – Spring Beach, Orford Crown License Glamorgan Spring Bay Council
5968846	Inkerman Street Reserve	3	Public Reserve Crown Lands Act DPIPWE	Recreation – Ada St, Triabunna Crown Land Services
5969785	Barton Avenue foreshore	4	Glamorgan Spring Bay Council	Authority Land Public Reserve Glamorgan Spring Bay Council

Natural features:

Coastal vegetation including dry sclerophyll forest, non-eucalypt forest, saltmarsh and grassland communities, rocky and sandy shores, and remnant native trees within parkland.

Parkland, recreation areas and infrastructure:

Walking tracks, grassy parkland, park benches, barbeque and picnic areas, the Information Centre, public toilets, public roads and parking areas and access to the foreshore, public boat ramp and marina.


Triabunna
Barton Avenue
0
150
300
metres
N
W
E
S
GDA
Vegetation data, © Glamorgan Spring Bay Council
Imagery data supplied by STCA, © STCA
Figure 1
Triabunna Area Reserves
INSIGHTGIS
Seeing is Achieving
14/01/2013

2. BIOLOGICAL CHARACTERISTICS

The following details the natural values (vegetation, flora and fauna habitat) and other biological characteristics (weeds and plant pathogens) of the Reserves.

The information provided below is based on the results of a recent survey. The methods adopted for the survey and for assessment of conservation significance are provided in Appendix 1.

A list of vascular plants that occur within the Reserves is provided in Appendix 2. A review of the potential of the Reserves to support threatened species known to occur in the vicinity is provided in Appendices 3A and 3B.

The Council's legislative obligations in relation to the management of threatened species and communities as well as weeds occurring in the Reserves are provided in Appendix 4A. Other legislation and policies relevant to reserve management are provided in Appendix 4B.

2.1 VEGETATION

The vegetation has been classified according to the TASVEG[3]. The survey revealed a greater variation in the vegetation compared with current TASVEG coastal mapping of the Reserves, which is slightly more generalised.

Figure 2 depicts the vegetation communities and other TASVEG mapping units, which were mapped during the survey. In summary, across the Reserves there are eight native vegetation communities present. These include four dry eucalypt forest communities, one non-eucalypt forest communities, one saltmarsh community and two grassland communities.

The condition of the native vegetation varies from poor to excellent. A number of weeds are present in some communities, although only a few weeds are abundant. However, given the proximity to urban areas, this is to some extent only to be expected. Detailed descriptions of the significant (declared and environmental) weeds present are provided in section 2.6.

The only other TASVEG mapping unit present is 'Urban areas', which is classified as under the heading of 'non-native vegetation'. This mapping unit dominates most of the Reserves.

Table 1 provides a list of all mapping units within the Reserves together with the conservation status of the native vegetation. Detailed descriptions of each mapping unit are provided following table 1.

[3] TASVEG is the abbreviation for the Tasmanian Vegetation Mapping Program (the vegetation map of the entire State)

Table 1. Native vegetation communities and other TASVEG mapping units in the Reserves.

Tasveg code	Tasveg community name	Listed under the Tasmanian *Nature Conservation Act 2002*
NATIVE VEGETATION COMMUNITIES		
DOV	*Eucalyptus ovata* (black gum) forest & woodland	Yes
DAS	*Eucalyptus amygdalina* (black peppermint) forest & woodland on sandstone	Yes
DGL	*Eucalyptus globulus* (blue gum) dry forest & woodland	Yes
DVC	*Eucalyptus viminalis-Eucalyptus globulus* (white gum-blue gum) coastal forest & woodland	Yes
NBA	*Bursaria-Acacia* (prickly box-silver wattle) woodland & scrub	
ASS	Succulent saline herbland	
GTL	Lowland *Themeda triandra* (kangaroo grass) grassland	
GHC	Coastal grass & herbfield (not represented in Figure 2 as it occurs as narrow strips along the foreshores which could not be mapped)	
NON-NATIVE VEGETATION		
FUR	Urban areas (including parkland)	

Eucalyptus ovata **(black gum) forest & woodland (DOV)**

This threatened community occurs as one small patch near the corner of Esplanade West and Tasman Highway.

Under the canopy of black gums the understorey tree layer is dominated by silver wattle. Other trees and tall shrubs include oyster bay pine, dogwood, prickly box, prickly moses and pinkwood. The ground layer is dominated by sedges, grasses and low shrubs. A small patch of the adjacent saltmarsh intrudes into the this community

This condition of this community is moderate. Significant weeds present include blackberry, Japanese honeysuckle and cotoneaster as well as a few weedy herbs and grasses.

Eucalyptus amygdalina **(black peppermint) forest & woodland on sandstone (DAS)**

Remnants of this threatened community occur at the Inkerman Street Reserve and along the southern end of Esplanade East.

The community at the Inkerman Street occurs as a woodland formation (meaning a sparse canopy). Black peppermint is the dominant tree but white gum is also present. The most common understorey tree is silver wattle. Other small trees are common native-cherry, prickly box and black sheoak. The ground layer has a dense and highly diverse cover low shrubs, herbs, grasses, sagg and sedges.

The condition of the Inkerman Street community is generally excellent, but some significant weeds are present. The most insidious of these is spanish heath which occurs in relative abundance in the south eastern section of the remnant. A few other garden escapes are present, although in low abundance, in the western section. These include bluebell creeper, sweet briar, sweet pittosporum, agapanthus and gazania.

Along Esplanade East there are four remnants intersected by the road. Black peppermint and white gum are co-dominant over-storey trees. The understorey tree and tall shrub

layer is often dense and includes black sheoak, prickly box, silver wattle and common native-cherry. The ground layer is dominated by grasses, sedges, sagg and herbs.

The condition of the remnants along the edge of the bay is moderate. Several shrubby weeds are present, the most abundant of which is an introduced wattle. The smaller remnants that are intersected by roads are in much poorer condition. Montpellier broom is a common weed in these remnants.

***Eucalyptus globulus* (blue gum) dry forest & woodland (DGL)**

A small patch of this threatened community occurs near the corner of Tasman Highway and the Barton Avenue foreshore. It consists of several old-growth blue gums and few black wattle and dogwood. It is in very poor condition with the ground layer dominated by weedy grasses and herbs and, most significantly, a dense patch of blackberry.

***Eucalyptus viminalis-Eucalyptus globulus* (white gum-blue gum) coastal forest & woodland (DVC)**

This threatened community occurs along the middle section of the Barton Avenue foreshore. White gums are dominant with black peppermints occasionally present. The understorey is often dominated by the broadleaf hopbush but black sheoak, black wattle and oyster bay pine are also common. The ground layer is dominated by low shrubs, grasses, sedges and herbs.

The condition of the community is variable depending on the degree of disturbance or intrusion by adjacent gardens. However, generally it is in good to very good condition.

***Bursaria-Acacia* (prickly box-silver wattle) woodland & scrub (NBA)**

This community occurs as a very narrow strip along the western edge of Vicarys Rivulet, to the north of the Boyle Street bridge. Silver wattle dominates but other trees and shrubs present include black gum, common native-cherry, prickly box, blackwood and drooping sheoak. The ground layer includes a few native low shrubs, grasses, sagg and herbs.

It also appears that there has been some planting of native shrubs at the southern end of the community, although not all are local native species.

The condition of the community is moderate to poor. Apart from weedy grasses and herbs some significant weeds are also present, including Spanish heath, Montpellier broom and scrambling groundsel.

Succulent saline herbland (ASS)

This saltmarsh community occurs as a small patch close to the western end of the Barton Avenue foreshore. It is dominated by ground-hugging plants, notably glasswort, shiny swampmat and creeping brookweed. Grasses and sedges are also very common, including coast speargrass and sea rush.

It is generally in very good condition although species of plantain are present in patches.

Lowland *Themeda triandra* (kangaroo grass) grassland (GTL)

Two small patches of this community occur in the Reserves, on the eastern side of the Boyle Street bridge and on the Barton Avenue foreshore. Kangaroo grass is the dominant grass but other native grasses are also present. These remnant grasslands are also rich in low or prostrate shrubs, herbs and small sedges.

Both patches are in moderate condition. Weeds include introduced grasses and some herbs.

Coastal grass & herbfield (GHC)

This community occurs along sections of the foreshores. They are very narrow strips that are too narrow to be mapped and depicted on Figure 2, except for a patch near One Tree Point. They are most prominent along the south western edge of Esplanade West, the

north eastern edge of Esplanade East and along most of the length of the Barton Avenue foreshore.

Coast speargrass, a large tussock grass, is usually the dominant species with other very common species including chaffy sawsedge and sea rush. Common herbs include southern seablite, sea-celery and native pigface.

These strips are generally in very good condition. Only a few introduced herbs, such as buckshorn plantain and creeping orache, can tolerate such saline conditions.

Urban areas (including parkland) (FUR)

All areas that are largely devoid of native vegetation have been mapped as FUR. Most of these areas are comprised of grassy parkland with, or without, facilities such as walking tracks and picnic areas. Additionally, FUR includes public roads, parking areas and the Information Centre.

FUR also includes areas where at some stage in the past the native vegetation has been cleared adjacent to private property. Often these areas are infested with a wide array of weedy grasses and herbs as well as a number of significant weeds, some of which have obviously been deliberately planted.

2.2 Flora of Conservation Significance

A total of 190 vascular plant species were recorded during the survey including 2 threatened species and 79 introduced species. A full species list is given in Appendix 2.

The threatened species, Tasmanian sea-lavender and coast houndstongue, are variously listed under the Tasmanian *Threatened Species Protection Act 1995* (TSPA) and/or the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBCA). Further details are provided below.

Appendix 3A lists a total of 15 species of conservation significance previously recorded within the vicinity together with a description of their preferred habitat and an assessment of their likely occurrence within the Reserves.

In summary, apart from the two species recorded, there are 2 other species that are considered as having a moderate potential to occur in the Reserves. These are soft peppercress and shade peppercress. Further targeted surveys may reveal their presence. Habitat in the Reserves is generally unsuitable or only marginal for the other 11 species.

Threatened flora recorded in the Reserves

Tasmanian sea-lavender (*Limonium baudinii*) (TSPA & EPBCA: Vulnerable)

This Tasmanian endemic plant is known only from the saltmarshes around Triabunna. It is a short-lived perennial herb with a basal rosette of leaves and erect flowering stems 20 to 45 cm tall.

It is similar in overall appearance to the yellow sea-lavender (also a threatened species) but in 1986 it was described as a separate species by a Russian botanist using material collected during Nicolas Baudin's expedition to Tasmania in 1802. A recent study[4] has indicated that there is no overlap in the distribution of the two species and no other populations of the Tasmanian sea-lavender have been found. Threats to this species include: landfill; catchment modification; fire; grazing; off-road vehicles; and exotic species invasion[5].

[4] Schahinger 2004

[5] Threatened Species Section 2008

During the survey a few plants were observed near the DOV community at the western end of Esplanade West and many more are present in the ASS community along the Barton Avenue foreshore (Plates 1 & 2 and Figure 2).

Coast houndstongue (*Cynoglossum australe*) (TSPA: Rare)

Coast houndstongue commonly occurs near the coast and in dry places such as the landward margins of sand dunes, grassland and open forest. It is a perennial herb with a cluster of basal leaves as well as stem leaves. The stems are erect, spreading, rough and hairy up to 1m tall. The tiny flowers, commonly blue or pink, are produced in spring and summer.

Over 30 plants were recorded along the Barton Avenue foreshore (Plate 3 and Figure 2).

Plate 1: Tasmanian sea-lavender (close-up of flowers).

Plate 2: Tasmanian sea-lavender (whole plant).

Plate 3: Coast houndstongue.

2.3 Fauna Habitat

The diverse nature of the vegetation across all the Reserves, together with the interface with the marine environment, equates to a diverse range of habitat opportunities for native fauna, most notably for terrestrial and coastal birds, as well as mammals, reptiles and a variety of invertebrates.

2.4 Fauna of Conservation Significance

Appendix 3B lists threatened fauna species that have been recorded within the vicinity of the Reserves or that are considered to have the potential to occur. A brief discussion is given to indicate the reasons why habitat is suitable or unsuitable.

In summary, the Reserves are unlikely to provide core breeding habitat for any threatened fauna species. However, they do provide potential foraging habitat for the white-bellied sea-eagle, swift parrot, forty-spotted pardalote and fairy tern.

Additionally the shoreline, in some parts of the Reserves, provides high quality foraging habitat for the fairy tern and a number of shorebirds that, whilst not listed as threatened, are of high conservation significance. Further details are provided below.

White-bellied sea-eagle (*Haliaeetus leucogaster*) (TSPA: Vulnerable)

White-bellied sea-eagles nest and forage near the coast as well as near inland rivers and lakes. They generally nest within 5 km of open water and breed between August and January. Their nests are usually in large sheltered eucalypts, although they can be fairly tolerant of disturbance. They perch in a prominent place and glide down snatching fish, eels or birds from the surface of the water, or small vertebrates or carrion on land. Their home range may be up to 150 km.

Known nests in the vicinity are beyond the range of any disturbance from activities within the Reserves. However, the eagle is known to forage along the coast in the Triabunna area. The many large eucalypts in the Reserves may provide perching habitat for this species.

Swift parrot (*Lathamus discolour*) (TSPA & EPBCA: Endangered)

Swift parrots are annual migrants to the east coast of Tasmania, from August to March, where they breed, nesting in tree hollows. They feed on the nectar of Tasmanian blue gum (*Eucalyptus globulus*) and black gum (*E. ovata*), in forests, single trees in paddocks, and urban parks and gardens.

Known nest sites in the vicinity are south of Orford. However, the many blue and black gums in the reserves provide suitable foraging habitat.

Forty-spotted pardalote (*Pardalotus quadragintus*) (TSPA & EPBCA: Endangered)

This Tasmanian endemic bird is restricted largely to headlands, peninsulas and nearby islands in the eastern part of the State. It occurs only dry grassy forest and woodland containing mature white gum (*Eucalyptus viminalis*). Breeding colonies form around white gums where they feed in the foliage and nest in tree hollows, branch cavities, dead stumps, fence posts or other fallen wood.

Threats include loss of mature white gums throughout the species range, particularly in areas close to known colonies. A known colony is present on nearby Maria Island and dispersing fledgling may feed on the many mature white gums within the Reserves.

Fairy tern (*Sterna nereis nereis*) (TSPA & EPBCA: Vulnerable)

Breeding habitat includes sand or shingle beaches, dunes, estuaries, lakes and near coastal islands especially sites with driftline debris. Beach nests are exposed scrapes in the sand, shingle or on rock between the high water mark and coastal vegetation.

Some of the threats to these species include disturbance and destruction of nests through trampling by humans, domestic animals and stock; predation by rats, dogs and cats; habitat destruction through inappropriate coastal development, clearing, grazing and frequent fire; and the introduction of exotic plants such as marram grass, gorse, boneseed and African boxthorn.

For a number of years fairy terns have nested and successfully raised young on the sand spit at the mouth of the Prosser River in nearby Orford. The waters adjacent to the Reserves in Triabunna provide potential foraging habitat for these birds.

Shore birds

Shorebirds of conservation significance that are known to utilise the adjacent shorelines of the Reserves as foraging habitat include:

- **Hooded plover (*Thinornis rubricollis*)**
- **Pied oystercatcher (*Haematopus longirostris*)**
- **Red-capped plover (*Charadrius ruficapillus*)**

These birds breed in scrapes in the sand or in seaweed above the high water mark. Their numbers around Tasmanian has declined over recent years mainly due to increased beach use by people. Activities which threatened their breeding success include trampling by people, predation of eggs, chicks and adults by dogs and feral cats, invasive weeds, removal of seaweed and other beach debris and ingestion or entanglement in litter, especially fishing line.

2.5 Significant Trees

In addition to the many trees within the native vegetation communities there area many large mature eucalypts within areas mapped as 'FUR – parkland'. These include blue gums (*Eucalyptus globulus*), black gums (*E. ovata*)) and white gums (*E. viminalis*). The location of these is depicted in Figure 2.

Apart for the aesthetic, visual and cultural value of these trees, they provide valuable foraging and nesting habitat for a range of native birds. They are particularly important as foraging habitat for the and swift parrot and forty-spotted pardalote as well as potential perching habitat for the white-bellied sea-eagle (see section 2.4 above).

2.6 Weeds

Introduced species recorded during the survey numbered 70. This is over forty percent of all species recorded.

Six of these are 'declared weeds' under the Tasmanian *Weed Management Act 1999*, five of which are also Weeds of National Significance. Another 30 species are considered to be significant environmental weeds. All of these species are listed in Tables 2A and 2B, a photograph of each is provided in Appendices 5A and 5B, and their distribution is depicted in Figures 3 and 4.

Table 2A indicates that the most widespread declared weeds are Spanish heath and Montpellier broom. Table 2B indicates that by far the most widespread environmental weed is trailing daisy. Other weeds that are relatively widespread are agapanthus, cotoneaster, gazania, sweet briar and yellow pigface.

It should be noted that the number of observations provided in Tables 2A and 2B are intended to give a general indication of relative abundance and does not always reflect actual abundance. For example, there is likely to be more than 23 trailing daisy plants or 8 gazania plants but it would have been impractical to map each one.

Table 2A. Declared weeds* recorded in the Reserves.

* 'Declared weeds' under the *Weed Management Act 1999*. ** WONS = Weed of National Significance. *** Observations = the number of general locations across the Reserves where it was observed.

Common name	*Scientific name*	WONS**	Observations***
african boxthorn	*Lycium ferocissimum*	WONS	3
blackberry	*Rubus fruticosus* aggregate	WONS	7
bridal creeper	*Asparagus asparagoides*	WONS	1
gorse	*Ulex europaeus*	WONS	5
montpellier broom	*Genista monspessulana*	WONS	16
spanish heath	*Erica lusitanica*		27

Table 2B. Other environmental weeds recorded in the Reserves.

* Observations = the number of general locations across the Reserves where it was observed.

Common name	*Scientific name*	Observations*
aeonium	*Aeonium arboreum*	1
agapanthus	*Agapanthus praecox*	8
bluebell creeper	*Billardiera heterophylla*	3
bottlebrush	*Melaleuca* sp.	1
century plant	*Agave americana*	3
coast teatree	*Leptospermum laevigatum*	2
cotoneaster	*Cotoneaster* sp.	8
field marigold	*Calendula arvensis*	1
freesia	*Freesia* hybrid	2
gazania	*Gazania* sp.	8
hawthorn	*Crataegus monogyna*	4
howitt's wattle	*Acacia howittii*	1
japanese honeysuckle	*Lonicera japonica*	1
milkwort	*Polygala myrtifolia*	1
miniature pine tree	*Crassula tetragona*	1
mirrorbush	*Coprosma repens*	2
new zealand flax	*Phormium tenax*	1
noonflower	*Lampranthus glaucus*	2
poplar	*Populus* sp.	1
prickly pear	*Opuntia* sp.	2
prunus	*Prunus* sp.	1
radiata pine	*Pinus radiata*	3
scrambling groundsel	*Senecio angulatus*	2
sweet briar	*Rosa rubiginosa*	8
sweet pittosporum	*Pittosporum undulatum*	1
trailing daisy	*Osteospermum fruticosum*	23
tree lucerne	*Chamaecytisus palmensis*	1

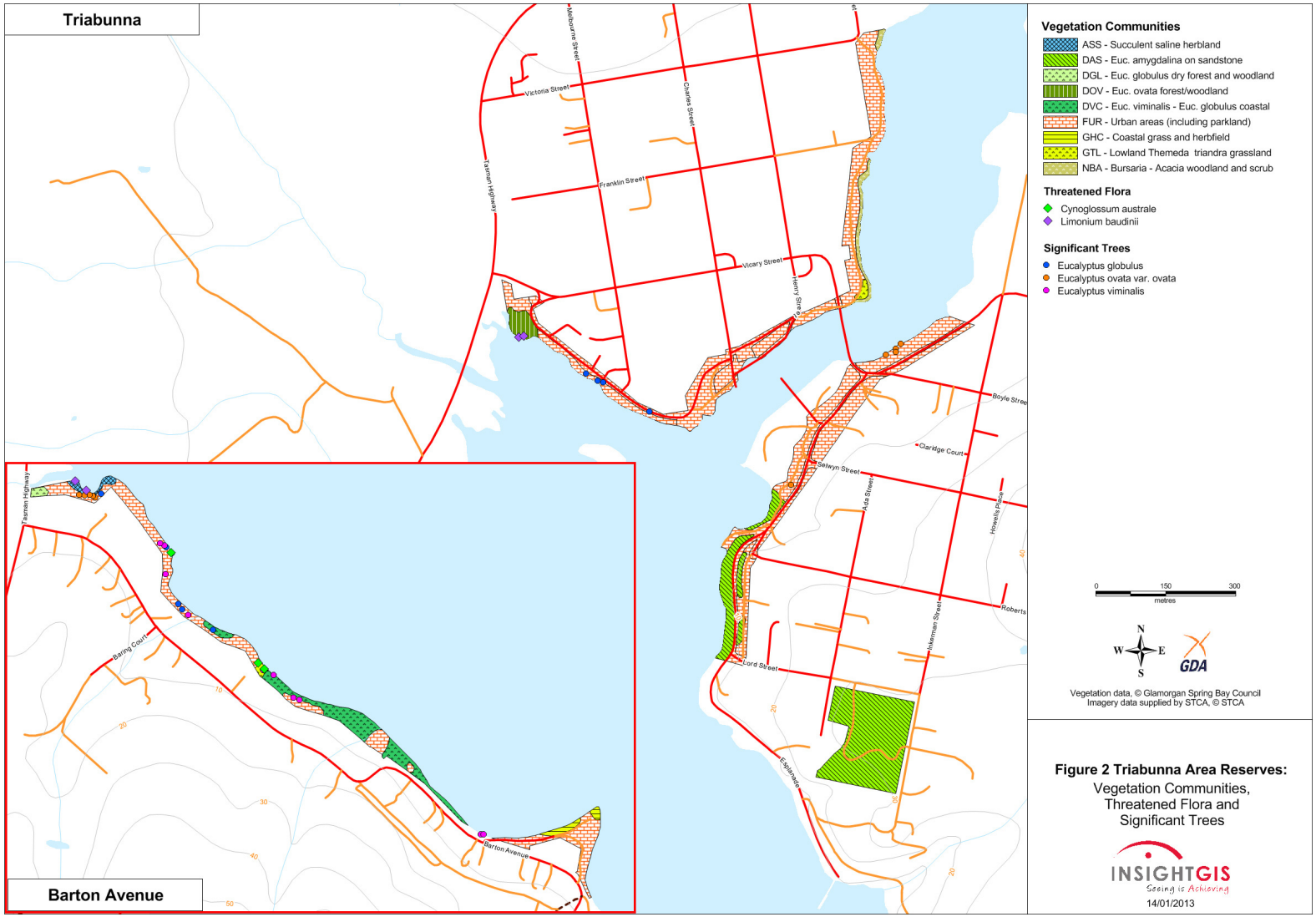
Common name	*Scientific name*	Observations*
tree mallow	*Malva dendromorpha*	2
wattle	*Acacia* sp.	4
yellow pigface	*Carpobrotus edulis*	7

2.7 *PHYTOPHTHORA CINNAMOMI*

Commonly known as dieback or root rot fungus, *P. cinnamomi* is a soil borne fungal pathogen that invades the roots of plants and starves them of nutrients and water. Heath communities are the most susceptible to infection with a consequent serious loss of species diversity. It is generally spread by the transportation of soil on vehicles, construction machinery and walking boots. The establishment and spread of *P. cinnamomi* is favoured in areas that receive above 600 mm of rainfall per annum, are below 800 m altitude and have a predominantly heathy shrub layer[6].

Triabunna is situated within the favoured climatic zone of *P. cinnamomi* and there are known infestations in the general area. The DAS community within the Reserves is variably or moderately susceptible to the fungus. Although *P. cinnamomi* is often difficult to detect in the field, no obvious evidence of its presence was observed during the survey. Furthermore, several species that are susceptible to the fungus were present in the DAS community.

[6] Rudman 2005


Triabunna
Barton Avenue
Tasman Highway
Victoria Street
Melbourne Street
Charles Street
Franklin Street
Vicary Street
Henry Street
Boyle Street
Claridge Court
Selwyn Street
Adit Street
Howells Place
Roberts
Ford Street
Esplanade
Barton Avenue
Baring Court
Vegetation Communities
ASS - Succulent saline herbland
DAS - Euc. amygdalina on sandstone
DGL - Euc. globulus dry forest and woodland
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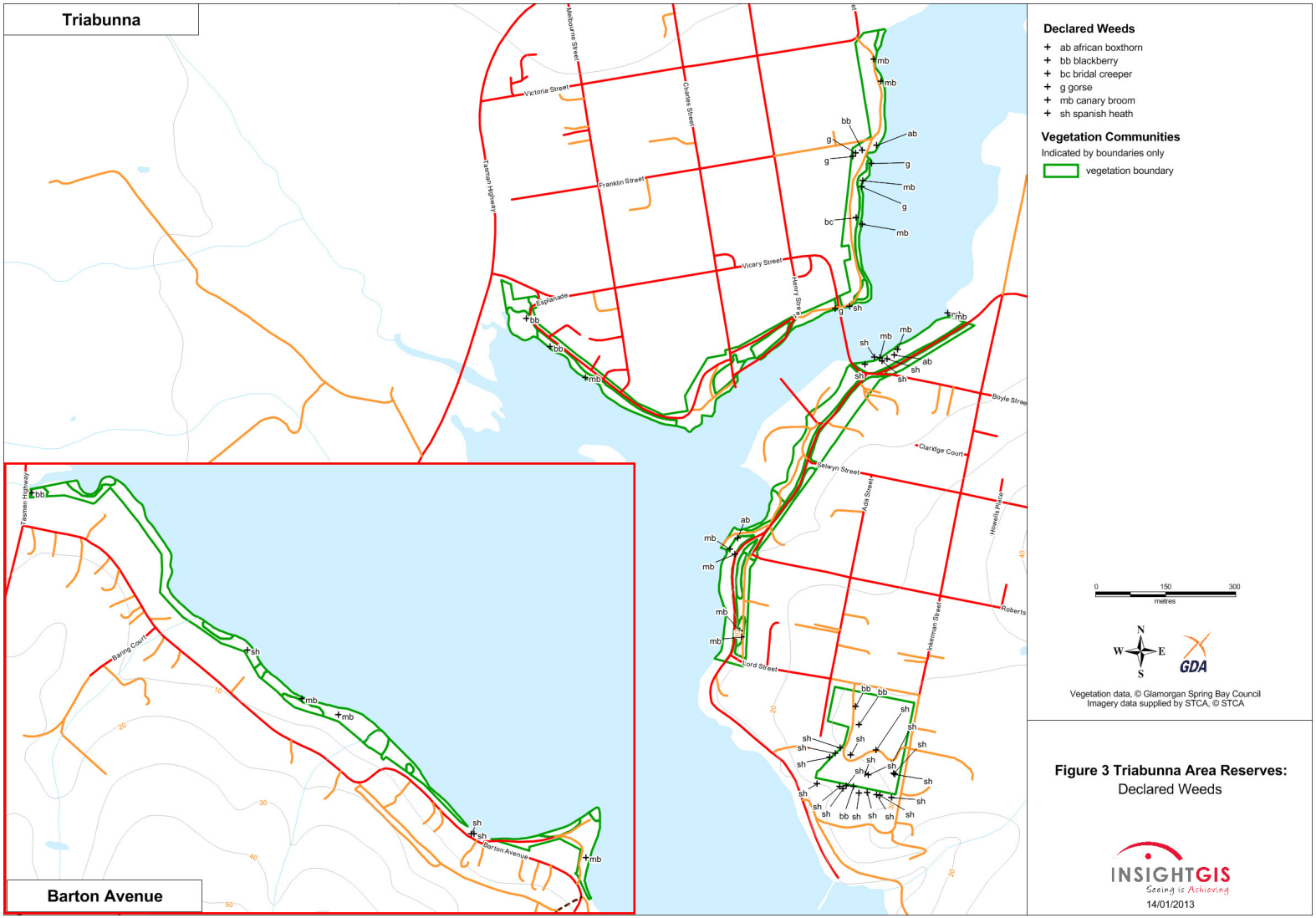
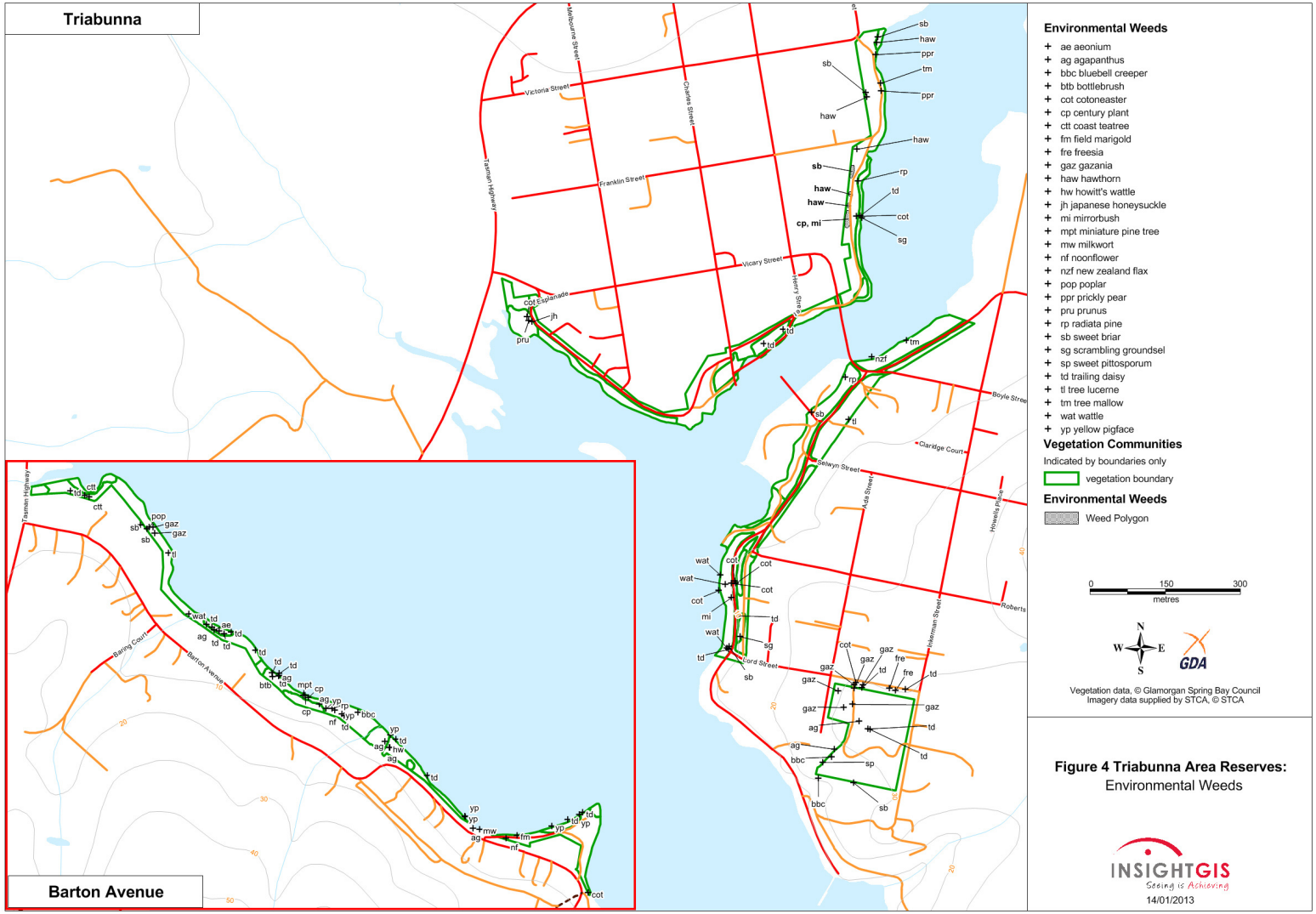
NBA - Bursaria - Acacia woodland and scrub
Threatened Flora
Cynoglossum australe
Limonium baudinii
Significant Trees
Eucalyptus globulus
Eucalyptus ovata var. ovata
Eucalyptus viminalis
0
150
300
metres
N
W
E
S
GDA
Vegetation data, © Glamorgan Spring Bay Council
Imagery data supplied by STCA, © STCA
Figure 2 Triabunna Area Reserves:
Vegetation Communities,
Threatened Flora and
Significant Trees
INSIGHTGIS
Seeing is Achieving
14/01/2013


Triabunna
Barton Avenue
Declared Weeds
ab african boxthorn
bb blackberry
bc bridal creeper
g gorse
mb canary broom
sh spanish heath
Vegetation Communities
Indicated by boundaries only
vegetation boundary
Victoria Street
Franklin Street
Vicary Street
Esplanade
Tasman Highway
Charles Street
Melbourne Street
Henry Street
Boyle Street
Claridge Court
Selwyn Street
Ada Street
Howells Place
Roberts
Waterman Street
Lord Street
Baring Court
Barton Avenue
0
150
300
metres
N
W
E
S
GDA
Vegetation data, © Glamorgan Spring Bay Council
Imagery data supplied by STCA, © STCA
Figure 3 Triabunna Area Reserves:
Declared Weeds
INSIGHTGIS
Seeing is Achieving
14/01/2013


Triabunna
Barton Avenue
Victoria Street
Franklin Street
Vicary Street
Esplanade
Melbourne Street
Charles Street
Tasman Highway
Henry Street
Boyle Street
Claridge Court
Selwyn Street
Aida Street
Howells Point
Roberts
Inkerman Street
Lord Street
Baring Court
Barton Avenue
Environmental Weeds
ae aeonium
ag agapanthus
bbc bluebell creeper
btb bottlebrush
cot cotoneaster
cp century plant
ctt coast teatree
fm field marigold
fre freesia
gaz gazania
haw hawthorn
hw howitt's wattle
jh japanese honeysuckle
mi mirrorbush
mpt miniature pine tree
mw milkwort
nf noonflower
nzf new zealand flax
pop poplar
ppr prickly pear
pru prunus
rp radiata pine
sb sweet briar
sg scrambling groundsel
sp sweet pittosporum
td trailing daisy
tl tree lucerne
tm tree mallow
wat wattle
yp yellow pigface
Vegetation Communities
Indicated by boundaries only
vegetation boundary
Environmental Weeds
Weed Polygon
0
150
300
metres
N
W
E
S
GDA
Vegetation data, © Glamorgan Spring Bay Council
Imagery data supplied by STCA, © STCA
Figure 4 Triabunna Area Reserves:
Environmental Weeds
INSIGHTGIS
Seeing is Achieving
14/01/2013

3. OTHER RESERVE VALUES

3.1 CULTURAL HERITAGE

- **Aboriginal heritage**

The Reserves hold cultural significance for the contemporary Aboriginal community. Cultural heritage values connect contemporary Aboriginal Tasmania with the people and events of the past. The Laremairremener band from the Oyster Bay nation occupied the area at the time of European arrival.

- **Post European settlement heritage**

The Post European settlement heritage values of the Reserves are closely linked with the histories of the town and the municipality. These have been documented in various publications, including Lester (1994), Tall (1994) and Guiler (1998).

Many other publications and historical documents and photographs on both Aboriginal and Post European Settlement heritage are housed at the Glamorgan Spring Bay Historical Society Inc, which is located at 22 Franklin Street, Swansea.

3.2 RECREATIONAL VALUES

Both residents and visitors use the Reserves for a wide range of passive and active recreational activities. These include walking, dog exercise, wildlife viewing and fishing. These activities are facilitated by the walking tracks along the western side of Vicarys Rivulet estuary, Barton Avenue and throughout the Inkerman Street Reserve. Other facilities provide additional recreational opportunities. These include barbeque and picnic areas and access to boat ramps.

3.3 EDUCATIONAL VALUES

All the reserves in the Glamorgan Spring Bay area have educational value, whether it be as an outdoor classroom for our local schoolchildren or for visitors to the area interested in our natural and cultural history. There are many opportunities to communicate the many values of our reserves to the locals and visitors alike, whether that be through interpretation signage, walk and talks over the summer months or information brochures and articles in the local newsletters. In the future other technology could be utilised such as smart phones to provide interaction educational experiences.

3.4 SUMMARY OF OTHER VALUES

Although there are many other values in our reserves this plan focuses on the management of the native vegetation and associated biodiversity values. Other values particularly recreational values are addressed through other processes and resourcing avenues such as Council's capital works and renewal programs for walking tracks, recreational facilities, parks and gardens.

4. MANAGEMENT ISSUES

4.1 NATIVE VEGETATION, FLORA, FAUNA AND SIGNIFICANT TREES

Maintaining the natural values of the Reserves is a primary objective of management. Protecting native vegetation communities is the most effective way of conserving flora and fauna values. A high priority should be given to managing threatening processes or activities that are likely to have an impact on species and communities of high conservation significance.

Within the Reserves these include two species of threatened flora and foraging habitat for four threatened bird species, which are variously listed under the TSPA and/or EPBCA. Four vegetation communities listed as threatened under the NCA are also present in the Reserve. Legislative obligations in relation to threatened species and communities are provided in Appendix 4.

The Inkerman Street reserve is particularly notable from a conservation perspective. It supports a relatively extensive area of the threatened DAS community with a diverse flora and it is generally in excellent condition. Active management to protect this reserve should be a high priority.

With regard to shorebirds, shorelines adjacent to the Reserves are important foraging habitat for the hooded plover, pied oystercatcher and red-capped plover. There are information signs at several beaches in the area requesting beach users to remain below the high water mark during the breeding season and keeping dogs and cats under control. This issue has gained prominence with the recent GSBC/NRM South Shorebird Project, the GSBC Dog Management Policy and the introduction of the Cat Management Act.

In addition to the many trees within the native vegetation communities there many large mature eucalypts present within areas mapped as 'FUR – parkland'. As these trees senesce they often form tree hollows which are important nesting habitat for many native birds and small mammals. Regeneration of trees within forest communities is vital to ensure the persistence of each community.

All mature trees are significant from a conservation perspective as well as from an aesthetic and visual perspective. Management should aim to retain as many trees as possible. Whilst some trees may be perceived as 'dangerous', it does not necessarily follow that they should be felled. Removing potentially dangerous limbs may be all that is required.

<u>Recommendation 1</u> – Train Council staff who are involved with day-to-day management of the Reserves to recognise the natural values present and provide them with strategies to protect these values during management activities.

<u>Recommendation 2</u> – Develop a plan for the Inkerman Street reserve to actively protect and enhance it and to provide educational material. A plan could include:

- **Developing a walking trail with interpretation signs and/or a brochure,**
- **Closing and rehabilitating minor tracks,**
- **Eradicating weeds (see also Recommendations 3 & 5), and**
- **Developing a fire management plan (see also Recommendation 12).**

4.2 Weeds

The Glamorgan Spring Bay Weed Management Plan (GSBWMP)[7] recognise that weeds are one of the most serious threats to the natural environment. Any plant growing outside its natural range is a potential weed that may have a detrimental effect on the natural values of reserves. Management objectives include eradicating weeds or preventing or minimising their spread to native vegetation communities.

It is recognised that weed control in the Reserves is currently an ongoing day-to-day management activity and that substantial progress has been made in reducing the levels of weed infestation. Declared weeds are to a large extent under control although some are still present, notably Spanish heath in the Inkerman Street reserve. Environmental weeds are more widespread but are patchily distributed. The survey conducted for this Plan provides a detailed inventory of weeds and the basis for a more strategic approach to their management.

It is important in weed management planning in an urban context to recognise the futility of eliminating all non-native species. Hence, in areas of parkland with a ground cover of introduced grasses and herbs the focus of weed management should be on containment.

Priorities for weed control should focus on declared and other environmental weeds that are having, or have the potential to have, a negative impact upon the native flora and which are also manageable. Therefore a hierarchy of priorities has been developed for weeds in the Reserve, which are applied to each species in Tables 3A and 3B. The priority system is as follows, where 1 is the highest priority and 3 is the lowest:

Priority	Reasons for priority rating
1	Declared weeds, and/or
	Easily controlled or eradicated, and/or
	Only small infestations or small numbers of infestations are present, and/or
	Likely to spread quickly.
2	Requires a substantial time allocation due to the size of infestations, and/or
	Creepers that require all plant parts to be remove, and/or
	Unlikely to spread quickly.
3	Plantings that require monitoring only to ensure that they do not spread.
	Large infestations of species that would require substantial investment in rehabilitation of the site.
NB:	**-Plants with more than one priority rating in Tables 3A & 3B indicate that infestations in different locations vary in size and/or manageability.** **-Most plants will require monitoring for re-emergence and follow-up control.**

[7] Glamorgan Spring Bay Natural Resource Management Committee 2008

Table 3A. Priorities for declared weeds in the Reserves.

* Observations = the number of general locations across the Reserves where it was observed.

common name	*Scientific name*	Observations*	Priority
spanish heath	*Erica lusitanica*	27	1
montpellier broom	*Genista monspessulana*	16	1
blackberry	*Rubus fruticosus* aggregate	7	1
gorse	*Ulex europaeus*	5	1
african boxthorn	*Lycium ferocissimum*	3	1
bridal creeper	*Asparagus asparagoides*	1	1

Table 3B. Priorities for other environmental weeds in the Reserves.

* Observations = the number of general locations across the Reserves where it was observed.
** Priority 1 = outlying, small infestations.

common name	*Scientific name*	Observations*	Priority
trailing daisy	*Osteospermum fruticosum*	23	1 & 2 **
agapanthus	*Agapanthus praecox*	8	1 & 2 **
cotoneaster	*Cotoneaster* sp.	8	1
gazania	*Gazania* sp.	8	1 & 2 **
sweet briar	*Rosa rubiginosa*	8	1
yellow pigface	*Carpobrotus edulis*	7	2
hawthorn	*Crataegus monogyna*	4	3
wattle	*Acacia* sp.	4	2
bluebell creeper	*Billardiera heterophylla*	3	1
century plant	*Agave americana*	3	1
radiata pine	*Pinus radiata*	3	3
coast teatree	*Leptospermum laevigatum*	2	3
freesia	*Freesia* hybrid	2	1
mirrorbush	*Coprosma repens*	2	1
noonflower	*Lampranthus glaucus*	2	1
prickly pear	*Opuntia* sp.	2	1
scrambling groundsel	*Senecio angulatus*	2	2
tree mallow	*Malva dendromorpha*	2	1
aeonium	*Aeonium arboreum*	1	1
bottlebrush	*Melaleuca* sp.	1	1
field marigold	*Calendula arvensis*	1	1
howitt's wattle	*Acacia howittii*	1	3
japanese honeysuckle	*Lonicera japonica*	1	1
milkwort	*Polygala myrtifolia*	1	1
miniature pine tree	*Crassula tetragona*	1	1
new zealand flax	*Phormium tenax*	1	1
poplar	*Populus* sp.	1	3
prunus	*Prunus* sp.	1	3
sweet pittosporum	*Pittosporum undulatum*	1	1
tree lucerne	*Chamaecytisus palmensis*	1	1

Recommendation 3 – Control Priority 1 weeds (see Tables 3A and 3B).

Recommendation 4 – Control Priority 2 weeds (see Tables 3A and 3B).

Recommendation 5 – Regularly monitor for re-growth of Priority 1 and 2 weeds, as well as the spread of Priority 3 weeds, and take follow-up control action as necessary.

It is also important to acknowledge that the presence of most weeds recorded is probably a consequence of the proximity of the reserves to urban areas and associated gardens, which provide a source of ongoing infestation. Therefore, in conjunction with direct on-ground weed control actions, a campaign to educate residents about the consequences associated with garden escapes and garden waste dumping on the Reserves should be ongoing.

Recommendation 6 – Continue to raise community awareness of the values present in their local environment focusing on the threats posed to these values most notably by garden escape plants and dumping of garden cuttings. Such a campaign could include:

- **making this Plan publicly available through the GSBC website,**
- **a public presentation/workshop,**
- **brochures/posters/articles in local news letter, and**
- **field days and working bees.**

4.3 Illegal Clearing of Vegetation

As noted in section 2.1 (at the end of the 'Urban areas' section), there are areas of the Reserves where, at some stage in the past, the native vegetation has been cleared adjacent to private property. Often these areas are infested with a wide array of weedy grasses and herbs as well as a number of significant weeds, some of which have obviously been deliberately planted.

Intermittently Council receives reports of illegal clearing of trees and other foreshore vegetation. Usually it is difficult for Council to apprehend or prosecute offenders. One strategy adopted in recent times has been to erect signs indicating that vegetation has been cleared from public land without authorisation and that the sign will remain in place until the vegetation has regrown.

Future alternative strategies could include the erection of Bush Watch signs. Bush Watch is a Tasmania Police initiative that encourages the public to report unusual, suspicious or criminal activity and vandalism to the Police. The signs provide a phone number (131 444), which is a direct link to the police. The GSBC Natural Resource Management (NRM) Committee is a member of Bush Watch.

Recommendation 7 – Raise community awareness of the problem illegal clearing, outlining the legislative implications and encouraging people to report offender to the police. This should be in conjunction with Recommendation 6, but also may involve the erection of signage, such as 'Bushwatch' signs. Investigate the development of a 'by-law' that addresses the illegal clearing of vegetation on Council managed public land.

4.4 Reserve Boundaries

In managing any reserve it is obviously important that reserve boundaries are known to both reserve managers and adjacent landowners. There are issues of undefined boundaries in some sections of the Reserves. Perhaps as a consequence, some gardens have encroached onto the reserves to varying degrees. This issue is linked to some extent with the issue of illegal clearing.

On-ground marking of undefined boundaries may be necessary in some instances in order to clarify the council's authority in implementing some of the actions required to protect the reserve values. Such on-ground markers could include fencing or a row of large boulders. Alternatively it may merely require a verbal recognition by other land owners.

Recommendation 8 - Clarify Reserve boundaries. Liaise with landowners regarding the most appropriate way to more clearly define these boundaries and, where deemed necessary, install on-ground boundary markers.

4.5 Coastal Erosion and Foreshore Access

Coastal erosion is often a natural process. For example, long shore drift results in the alternating process of seasonal erosion and accretion of sandy beaches. In the longer term coastal erosion is likely to be exacerbated by climate change and associated rises in sea level and increases in the size of storm surge.

Sandy shores and saltmarshes, such as those along the Barton Avenue foreshore, are the most susceptible to coastal erosion. Erosion can also be exacerbated by uncontrolled foreshore access, although this does not appear to be a significant issue in the Triabunna Reserves.

Recommendation 9 – Establish long-term photo-point monitoring sites along sandy shores and saltmarshes in the Reserves in order to plan for future rehabilitation or other amelioration measures.

4.6 Plantings and Revegetation

Plantings of introduced or non-local native species within the Reserves are present in a most areas mapped in Figure 2 as 'Urban areas – parkland (FUR)'. However, the use of introduced or non-local native species should be considered carefully. Many have the potential to 'escape' into native vegetation and exacerbate the problem of environment weeds, which in turn leads to the degradation of Reserves' natural values.

In consultation with the local community, any future plantings should preferably use local native species, which have a number of benefits. They are adapted to the local climate and soil and consequently require less maintenance, including watering, and the risk of escape resulting in degradation of the natural values is nullified. Furthermore, local native plants also attract and provide habitat for native birds, which in turn are natural pest control agents as well as providing pleasure to a great number of people.

Following weed control, it is preferable to allow areas to naturally regenerate with native species. However, if there is little or no nearby source of native species seed or other

regenerative parts then weed invasion may be ongoing. In such cases revegetation is likely to be required. Any of the native species listed in Appendix 2 are appropriate for revegetation work, as well as other plantings, in the Reserves.

<u>Recommendation 10</u> – In consultation with the local community, any plantings and revegetation work should preferably use local native species.

4.7 Fire

The primary objective of fire management in reserves is to protect human life and property from fire. Other objectives include the maintenance of biodiversity through appropriate fire regimes and the of protection conservation values from the adverse impacts of fire in so far as these are consistent with the primary objective.

Developing a fire management plan is complex. Many native vegetation communities and plant species require fire to trigger regeneration. Conversely, some communities and species are killed by fire depending on factors such as their growth stage, fire frequency and fire intensity. Therefore the maintenance of a mosaic of fire age classes is preferable. Total exclusion of fire may result in periodic and devastating hot summer wildfires. Conversely, over frequent and comprehensive fuel reduction burning will also modify the structure and composition of vegetation.

However, in a coastal setting it is generally recommended to exclude fire as fire can lead to the destabilisation of coastal landforms and soil. The use of fire as a tool to reduce fuel loads in urban reserves can also be controversial as well as hazardous to people and property. Furthermore, maintaining biodiversity values whilst minimising wildfire hazard may not always necessarily require the use of fire. Therefore alternative approaches, such as raking litter and removing dead wood by hand is preferable[8].

<u>Recommendation 11</u> – Conduct regular assessments of fuel loads and remove litter and dead wood as necessary but retain at least some large habitat logs if they are present.

Notwithstanding the above, small patch burns may be periodically necessary if, for example, localised fuel loads become unmanageable by other removal methods, or, as a management tool for particular weed infestations. In such cases a fire management plan should be developed with the advice of the Tasmania Fire Service.

<u>Recommendation 12</u> – Patch burn as the need arises in accordance with a fire management plan developed in consultation with the Tasmania Fire Service.

[8] Wood & Knee 1999

4.8 Plan Review

This Native Flora and Fauna Management Plan covers the 5 year period from 2014 to 2019. A review of the Plan, including the success in achieving its objectives, is due to be conducted in 2019 and an updated Plan will be developed. This process will be ongoing for each consecutive 5 year period.

<u>Recommendation 13</u> – Review the current Native Flora and Fauna Management Plan near the end of the current 5 year period, including the success in achieving its objectives, and develop a Plan for the period 2020 to 2024.

5. ACTION PLANS

The following tables provide action plans that are based on the above recommendations. Table 5.1 is a weed management action plan and Table 5.2 includes all other actions. Each action has been assigned a time frame and a performance measure.

With regard to weeds, the distribution of the declared and other environmental weeds recorded during the survey is provided in Figures 3 and 4 and a photo of each weed is provided in Appendices 5A and 5B. The maps and photos should be used as a resource to guide and direct weed control actions. However, the maps should be used with caution as the point locations of weeds were recorded with a hand-held gps with a potential error of several metres. Furthermore, the maps should not be considered as a comprehensive guide as some weeds may have emerged since surveys were undertaken and others may have been missed. Additionally, as weed control is an ongoing task performed by Council Officers, some weed may have already been treated.

5.1 Weed Action Plan

Recommendation No.	Recommendation / Specific Action	Timing	Performance Measure
3	Control Priority 1 weeds. (See Tables 3A & 3B and Appendices 5A and 5B).	Ongoing	Eradication of weeds, or at least, a reduction in weed abundance each year.
4	Control Priority 2 weeds. (See Tables 3A & 3B and Appendices 5A and 5B).	Ongoing following initial control of Priority 1 weeds	Eradication of weeds, or at least, a reduction in weed abundance each year.
5	Monitor for re-growth of Priority 1 and 2 weeds, Monitor for the spread of Priority 3 weeds, and Take follow-up control action as necessary.	At least once a year in Spring and opportunistically	Minimise new weed infestations.
13	Review the success of weed control actions through further weed mapping and develop a new weed action plan.	July-December 2019	New weed action plan in place for 2020-2024.

5.2 General Action Plan

Recommendation No.	Recommendation / Action	Timing	Performance Measure
1	Train Council staff who are involved with day-to-day management of the Reserve to recognise the natural values present and provide them with strategies to protect these values during management activities.	2015	Education of Council staff and added protection of Reserve natural values.
2	Develop a plan for the Inkerman Street reserve to actively protect and enhance it and to provide educational material. A plan could include: - Developing a walking trail with interpretation signs and/or a brochure, - Closing and rehabilitating minor tracks, - Eradicating weeds (see also Recommendations 3 & 5), and - Developing a fire management plan (see also Recommendation 12). Develop plan Implement plan	 2014 - 2016 2017 - 2019	Greater protection and enhancement of the reserve as well as public education and enhanced recreational experience.
6	Continue to raise community awareness of the values present in their local environment focusing on the threats posed to these values most notably by garden escape plants and dumping of garden cuttings. Such a campaign should include: - making this Plan publicly available through the GSBC website, - a public presentation/workshop, - brochures/posters/articles in local news letter, and - field days and working bees.	Ongoing	Education of community and reduction of risk of new weed infestations.

Recommendation No.	Recommendation / Action	Timing	Performance Measure
7	Raise community awareness of the problem illegal clearing, outlining the legislative implications and encouraging people to report offenders to the police. This should be combined with Recommendation 6, but also involve the erection of signage, such as 'Bushwatch' signs. These signs provide a phone number (131 444) which is a direct link to the police.	Ongoing	Education of community and reduction of risk and reports of illegal clearing.
	Investigate the development of a 'by-law' that addresses the illegal clearing of vegetation on Council managed public land.	2015	Investigation complete.
8	Clarify Reserve boundaries. Liaise with landowners regarding the most appropriate way to more clearly define these boundaries and, where deemed necessary, install on-ground boundary markers. Survey boundary line and liaise with landowners Install boundary markers as necessary	 2015 2016	Clarification of reserve boundary locations.
9	Establish long-term photo-point monitoring sites along sandy shores and saltmarshes in the Reserves in order to plan for future rehabilitation or other amelioration measures. Establish monitoring sites Monitor	 2014 Twice each year	Record of coastal erosion.
10	In consultation with the local community, any plantings and revegetation work should preferably use local native species.	As required	Natural values of Reserve enhanced.
11	Conduct regular assessments of fuel loads and remove litter and dead wood as necessary but retain at least some large habitat logs if they are present.	Late winter each year	Assessment of and reduction in wild fire hazard.

Recommendation No.	Recommendation / Action	Timing	Performance Measure
12	Patch burn as the need arises in accordance with a fire management plan developed in consultation with the Tasmania Fire Service.	As required	Reduced hazard (depending on reason for burn).
13	Review the current Native Flora and Fauna Management Plan near the end of the current 5 year period, including the success in achieving its objectives, and develop a Plan for the period 2020 to 2024.	2019	Publication of Plan for 2020-2024.

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APPENDIX 1 – SURVEY METHODS

Background Research

The following source was used for biological records from the region:

- Natural Values Atlas[9] - all threatened plant and animal records within 5 km of the study area plus potential suitability for other threatened fauna.

Botanical and Vegetation Survey

The reserve was surveyed during early spring 2011. The vegetation was mapped and all vascular plant species were recorded. The location of significant features, including threatened plants and weeds, were recorded by a hand-held GPS. Botanical nomenclature follows the current census of Tasmanian plants [10].

Fauna Habitat Assessment

The study area was assessed for fauna habitat with respect to threatened fauna species known from the area, or considered to potentially occur there. This assessment was based on the overall structure of the vegetation including identification of factors such as the presence of old growth trees with hollows and logs. Evidence of native animal presence, such as scats and burrows, were also noted.

Assessment of Conservation Significance

Vegetation types have been classified according to TASVEG[11]. The conservation status of a vegetation type relates to its current extent compared with the modelled extent prior to European settlement. This has allowed an estimate of the extent of loss to land clearing to be calculated. A 2007 amendment to the *Nature Conservation Act 2002* included the listing of threatened native vegetation communities in accordance with their conservation status.

The conservation significance of species is determined at a state and federal level by legislation (Tasmanian *Threatened Species Protection Act 1995* and Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*), the implications of which are considered in the light of relevant legislation (Appendix 4).

Limitations/Disclaimer

While the survey was undertaken in early spring, no botanical survey can guarantee that all vascular plants will be recorded due to the limitations of the sampling technique, seasonal and annual variation in abundance and the possible absence of fertile material for identification. Additional species are likely to occur that may be recorded by repeated visits over several years and at different seasons.

Fauna assessment is limited to the identification of habitat of significant fauna species known from the area.

[9] Natural Values Report # 43026 (29 August 2011), Threatened Species Section, DPIPWE

[10] Buchanan 2009

[11] Harris & Kitchener 2005

APPENDIX 2 – VASCULAR PLANT SPECIES LIST

Status codes:

STATE SCHEDULE – TSP Act 1995
e – endangered
v – vulnerable
r – rare

NATIONAL SCHEDULE – EPBC Act 1999
CR – critically endangered
EN – endangered
VU – vulnerable

ORIGIN
i - introduced
d - declared weed WM Act 1999
en - endemic to Tasmania

TSPA/ EPBCA	origin	**Group FAMILY** *Scientific name*	common name	DOV	DAS	DGL	DVC	NBA	ASS	GTL	GHC	FUR (parkland)
		Dicotyledonae										
		AIZOACEAE										
	i	*Carpobrotus edulis*	yellow pigface				+				+	
		Carpobrotus rossii	native pigface		+		+			+	+	
		Disphyma crassifolium subsp. *clavellatum*	roundleaf pigface	+				+			+	
	i	*Lampranthus glaucus*	noonflower									+
		APIACEAE										
		Apium prostratum subsp. prostratum	sea-celery				+		+		+	+
		ASTERACEAE										
	i	*Arctotheca calendula*	capeweed		+							+
	i	*Calendula arvensis*	field marigold									+
		Cassinia aculeata	dollybush	+	+		+					
		Chrysocephalum apiculatum	common everlasting		+			+		+		+
	i	*Cirsium vulgare*	spear thistle				+					+
		Coronidium scorpioides	curling everlasting		+							
		Cotula australis	southern buttons									+
	en	*Craspedia glauca*	common billybuttons							+		
		Euchiton collinus	common cottonleaf									+
	i	*Gazania* sp.	gazania		+							+
	i	*Hypochoeris radicata*	rough catsear		+		+			+		+
	i	*Leontodon taraxacoides* subsp. *taraxacoides*	hairy hawkbit									+
		Leptorhynchos sp.	buttons							+		

TSPA/ EPBCA	origin	**Group FAMILY** *Scientific name*	common name	DOV	DAS	DGL	DVC	NBA	ASS	GTL	GHC	FUR (parkland)
	i	*Osteospermum fruticosum*	trailing daisy		+		+	+			+	+
	i	*Senecio angulatus*	scrambling groundsel		+			+				
		Senecio quadridentatus	cotton fireweed	+	+		+	+		+		
		Senecio sp.	fireweed		+		+	+				
	i	*Sonchus asper*	prickly sowthistle				+					
	i	*Sonchus oleraceus*	common sowthistle	+	+		+		+		+	+
	i	*Taraxacum officinale*	common dandelion									+
	i	*Vellereophyton dealbatum*	white cudweed									+
		BORAGINACEAE										
r / -		*Cynoglossum australe*	coast houndstongue				+			+		
		Cynoglossum suaveolens	sweet houndstongue							+		
		BRASSICACEAE										
	i	*Cakile edentula*	american searocket								+	
		CACTACEAE										
	i	*Opuntia* sp.	prickly pear									+
		CAMPANULACEAE										
		Wahlenbergia sp.	bluebell		+		+			+		
		CAPRIFOLIACEAE										
	i	*Lonicera japonica*	japanese honeysuckle	+								
	i	*Viburnum tinus*	laurustinus									+
		CARYOPHYLLACEAE										
	i	*Petrorhagia dubia*	velvet pink				+					
	i	*Polycarpon tetraphyllum*	fourleaf allseed									+
		Scleranthus biflorus	twinflower knawel									+
		CASUARINACEAE										
		Allocasuarina littoralis	black sheoak		+		+					+
		Allocasuarina verticillata	drooping sheoak		+			+				+
		CHENOPODIACEAE										

TSPA/ EPBCA	origin	**Group FAMILY** *Scientific name*	common name	DOV	DAS	DGL	DVC	NBA	ASS	GTL	GHC	FUR (parkland)
	i	*Atriplex prostrata*	creeping orache								+	
		Einadia nutans subsp. *nutans*	climbing saltbush	+	+			+				+
		Rhagodia candolleana subsp. *candolleana*	coastal saltbush									+
		Sarcocornia quinqueflora	glasswort				+		+		+	
		Suaeda australis	southern seablite				+	+	+		+	
		Tecticornia arbuscula	shrubby glasswort	+				+	+		+	
		CONVOLVULACEAE										
		Dichondra repens	kidneyweed		+		+			+		+
		CRASSULACEAE										
	i	*Aeonium arboreum*	aeonium									+
		Crassula sieberiana	rock stonecrop									+
	i	*Crassula tetragona*	miniature pine tree									+
		DILLENIACEAE										
		Hibbertia riparia	erect guineaflower		+		+	+		+		
		DROSERACEAE										
		Drosera peltata	pale sundew							+		
		EPACRIDACEAE										
		Astroloma humifusum	native cranberry		+		+	+		+		+
		Epacris impressa	common heath		+							
		Leucopogon parviflorus	coast beardheath				+					
		Leucopogon virgatus	beardheath		+		+			+		
		Lissanthe strigosa subsp. *subulata*	peachberry heath	+	+		+	+		+		+
		Styphelia adscendens	golden heath		+							
		ERICACEAE										
	d	*Erica lusitanica*	spanish heath		+			+			+	+
		EUPHORBIACEAE										
		Amperea xiphoclada var. *xiphoclada*	broom spurge		+							
		Beyeria viscosa	pinkwood	+								

TSPA/ EPBCA	origin	**Group FAMILY** *Scientific name*	common name	DOV	DAS	DGL	DVC	NBA	ASS	GTL	GHC	FUR (parkland)
	i	*Euphorbia peplus*	petty spurge					+				
		Poranthera microphylla	small poranthera		+		+					
		FABACEAE										
		Aotus ericoides	golden pea		+							
		Bossiaea cinerea	showy bossia		+							
		Bossiaea prostrata	creeping bossia		+					+		+
	i	*Chamaecytisus palmensis*	tree lucerne									+
		Daviesia ulicifolia	spiky bitterpea		+							
		Dillwynia cinerascens	grey parrotpea	+	+			+		+	+	
	d	*Genista monspessulana*	montpellier broom		+		+	+			+	+
		Hovea heterophylla	winter purplepea		+							
		Indigofera australis	native indigo		+							
		Kennedia prostrata	running postman		+		+			+		
		Oxylobium sp. (planted)	shaggypea					+				
		Platylobium triangulare (planted)	arrow flatpea					+				
		Pultenaea juniperina	prickly beauty		+							
	i	*Trifolium* sp.	clover		+		+					+
	d	*Ulex europaeus*	gorse					+				+
	i	*Vicia* sp.	vetch		+		+					+
		FUMARIACEAE										
	i	*Fumaria muralis* subsp. *muralis*	wall fumitory	+	+		+				+	+
		GENTIANACEAE										
	i	*Centaurium erythraea*	common centaury		+							
		GERANIACEAE										
	i	*Erodium* sp.	heronsbill									+
		Geranium sp.	cranesbill		+		+					+
		GOODENIACEAE										
		Goodenia lanata	trailing native-primrose		+							

TSPA/ EPBCA	origin	**Group FAMILY** *Scientific name*	common name	DOV	DAS	DGL	DVC	NBA	ASS	GTL	GHC	FUR (parkland)
		Goodenia ovata	hop native-primrose		+			+				+
		Selliera radicans	shiny swampmat	+			+		+		+	
		HALORAGACEAE										
		Gonocarpus tetragynus	common raspwort		+					+		
		MALVACEAE										
	i	*Malva dendromorpha*	tree mallow								+	+
		MIMOSACEAE										
	i	*Acacia baileyana*	cootamundra wattle									+
		Acacia dealbata subsp. *dealbata*	silver wattle	+	+		+	+				+
		Acacia genistifolia	spreading wattle		+		+					
	i	*Acacia howittii*	howitt's wattle									+
		Acacia longifolia subsp. *sophorae*	coast wattle									+
		Acacia mearnsii	black wattle			+	+			+		+
		Acacia melanoxylon	blackwood		+		+	+				+
	i	*Acacia* sp.	wattle					+				+
		Acacia suaveolens	sweet wattle				+					
		Acacia verticillata	prickly moses	+	+							
		MYRTACEAE										
	en	*Eucalyptus amygdalina*	black peppermint		+		+					+
		Eucalyptus globulus subsp. *globulus*	tasmanian blue gum			+						+
		Eucalyptus ovata var. *ovata*	black gum	+	+			+				+
	i	*Eucalyptus* sp.	gum									+
		Eucalyptus viminalis subsp. *viminalis*	white gum		+		+			+		+
		Kunzea ambigua	white kunzea					+				
	i	*Leptospermum laevigatum*	coast teatree									+
	i	*Melaleuca armillaris* subsp. *armillaris*	giant honeymyrtle					+				
		Melaleuca ericifolia	coast paperbark									+
	i	*Melaleuca* sp.	bottlebrush					+				+

TSPA/ EPBCA	origin	**Group FAMILY** *Scientific name*	common name	DOV	DAS	DGL	DVC	NBA	ASS	GTL	GHC	FUR (parkland)
		OXALIDACEAE										
		Oxalis perennans	grassland woodsorrel		+		+	+		+		
		PITTOSPORACEAE										
	i	*Billardiera heterophylla*	bluebell creeper		+		+					
		Bursaria spinosa subsp. *spinosa*	prickly box	+	+		+	+				+
	i	*Pittosporum undulatum*	sweet pittosporum		+							
		PLANTAGINACEAE										
	i	*Plantago coronopus*	buckshorn plantain	+	+				+	+	+	+
	i	*Plantago lanceolata*	ribwort plantain				+				+	+
		PLUMBAGINACEAE										
v / VU	en	*Limonium baudinii*	tasmanian sea-lavender	+					+			
		POLYGALACEAE										
		Comesperma volubile	blue lovecreeper		+							
	i	*Polygala myrtifolia*	myrtleleaf milkwort									+
		POLYGONACEAE										
	i	*Acetosella vulgaris*	sheep sorrel							+		
	i	*Rumex crispus*	curled dock	+								+
		PRIMULACEAE										
	i	*Anagallis arvensis* var. *arvensis*	scarlet pimpernel				+	+				
		Samolus repens	creeping brookweed	+				+	+		+	
		PROTEACEAE										
		Banksia marginata	silver banksia				+	+				
	i	*Grevillea* sp.	grevillea hybrid		+							
		Hakea sp. (planted)	needlebush					+				
		RANUNCULACEAE										
	en	*Clematis gentianoides*	ground clematis		+			+				
		RHAMNACEAE										
		Pomaderris apetala	dogwood	+		+						+

TSPA/ EPBCA	origin	**Group FAMILY** *Scientific name*	common name	DOV	DAS	DGL	DVC	NBA	ASS	GTL	GHC	FUR (parkland)
		ROSACEAE										
		Acaena echinata	spiny sheepsburr		+		+			+		
		Acaena novae-zelandiae	common buzzy			+						
		Acaena sp.	buzzy									+
	i	*Cotoneaster* sp.	cotoneaster	+	+		+					+
	i	*Crataegus monogyna*	hawthorn									+
	i	*Prunus* sp.	prunus	+								+
	i	*Rosa rubiginosa*	sweet briar		+							+
	d	*Rubus fruticosus* aggregate	blackberry	+	+	+					+	+
		RUBIACEAE										
	i	*Coprosma repens*	mirrorbush		+							+
	i	*Galium aparine*	cleavers		+							+
		SALICACEAE										
	i	*Populus* sp.	poplar									+
		SANTALACEAE										
		Exocarpos cupressiformis	common native-cherry		+		+	+				
		SAPINDACEAE										
		Dodonaea viscosa subsp. *spatulata*	broadleaf hopbush		+		+	+				
		SCROPHULARIACEAE										
	i	*Verbascum thapsus* subsp. *thapsus*	great mullein		+							
		Veronica gracilis	slender speedwell							+		
	i	*Veronica persica*	persian speedwell		+							
		SOLANACEAE										
	d	*Lycium ferocissimum*	african boxthorn		+							+
		STACKHOUSIACEAE										
		Stackhousia monogyna	forest candles		+							
		STYLIDIACEAE										
		Stylidium graminifolium	narrowleaf triggerplant		+							

TSPA/ EPBCA	origin	**Group FAMILY** *Scientific name*	common name	DOV	DAS	DGL	DVC	NBA	ASS	GTL	GHC	FUR (parkland)
		THYMELAEACEAE										
		Pimelea humilis	dwarf riceflower		+		+			+		+
		TREMANDRACEAE										
		Tetratheca labillardierei	glandular pinkbells		+							
		Gymnospermae										
		CUPRESSACEAE										
		Callitris rhomboidea	oyster bay pine	+	+		+					+
		PINACEAE										
	i	*Pinus radiata*	radiata pine				+	+				+
		Monocotyledonae										
		AGAVACEAE										
	i	*Agave americana*	century plant									+
	i	*Phormium tenax*	new zealand flax								+	
		CENTROLEPIDACEAE										
		Centrolepis aristata	pointed bristlewort							+		
		CYPERACEAE										
		Ficinia nodosa	knobby clubsedge									+
		Gahnia filum	chaffy sawsedge	+			+	+	+		+	
		Gahnia sp.	sawsedge		+							
		Lepidosperma concavum	sand swordsedge		+		+			+		
		Lepidosperma curtisiae	little swordsedge							+		
		Lepidosperma gunnii	narrow swordsedge					+				
		Schoenus apogon	common bogsedge		+					+		+
		Schoenus sp.	bogsedge						+			
		IRIDACEAE										
	i	*Freesia* hybrid	freesia		+							

TSPA/ EPBCA	origin	**Group FAMILY** *Scientific name*	common name	DOV	DAS	DGL	DVC	NBA	ASS	GTL	GHC	FUR (parkland)
		JUNCACEAE										
		Juncus kraussii subsp. *australiensis*	sea rush	+			+	+	+		+	
		Juncus sp.	rush									+
		LILIACEAE										
	i	*Agapanthus praecox* subsp. *orientalis*	agapanthus		+							+
	d	*Asparagus asparagoides*	bridal creeper									+
		Dianella brevicaulis	shortstem flaxlily		+		+					
	i	*Muscari armeniacum*	common grape hyacinth					+				
		Thysanotus patersonii	twining fringelily							+		
		ORCHIDACEAE										
		Diuris chryseopsis	common golden moths							+		+
		POACEAE										
	i	*Aira* sp.	hairgrass							+		
		Austrodanthonia sp.	wallabygrass					+		+		+
		Austrostipa sp.	speargrass		+		+			+		
		Austrostipa stipoides	coast speargrass				+	+	+		+	
	i	*Briza maxima*	greater quaking-grass				+					
	i	*Briza minor*	lesser quaking-grass		+							+
	i	*Bromus* sp.	brome			+	+					+
	i	*Dactylis glomerata*	cocksfoot	+	+		+			+		+
		Distichlis distichophylla	australian saltgrass	+			+	+	+			+
	i	*Ehrharta erecta* var. *erecta*	panic veldtgrass		+							
	i	*Holcus lanatus*	yorkshire fog				+			+		
	i	*Hordeum* sp.	barleygrass				+					
	i	*Lolium perenne*	perennial ryegrass									+
		Microlaena stipoides var. *stipoides*	weeping grass		+							
	i	*Phalaris* sp.	canarygrass									+
	i	*Poa annua*	winter grass					+				

TSPA/ EPBCA	origin	**Group FAMILY** *Scientific name*	common name	DOV	DAS	DGL	DVC	NBA	ASS	GTL	GHC	FUR (parkland)
		Poa labillardierei	tussockgrass	+	+	+	+			+		
		Poa sp.	tussockgrass							+		
		Tetrarrhena distichophylla	hairy ricegrass		+							
		Themeda triandra	kangaroo grass		+			+		+		+
		RESTIONACEAE										
		Leptocarpus tenax	slender twinerush				+					
		XANTHORRHOEACEAE										
		Lomandra longifolia	sagg	+	+		+	+		+	+	
		Pteridophyta										
		DENNSTAEDTIACEAE										
		Pteridium esculentum	bracken		+		+					

APPENDIX 3A – REVIEW OF THREATENED FLORA

The following details threatened flora species, from the Natural Values Report, that have previously been recorded with a 5 km radius. It also provides an assessment of the likely occurrence of each within the study area.

Species	Status[12] TSPA/EPBCA	Potential to occur	Observations and Preferred Habitat[13]
Known from within 500 m			
Caladenia filamentosa daddy-long legs	Rare / -	LOW to MODERATE	Previous records, from the 1960s and 1990s, include 2 within 500m and 2 within 5km. Uncommon and very localised in distribution. It is known from heathy and sedgy open eucalypt forest and woodland on sandy soils. It can be abundant following fire but then numbers fall as the undergrowth thickens. This species would not have been in flower at the time of the survey and there was no evidence of a recent fire in potential habitat, which is present in the Inkerman St reserve.
Diuris palustris swamp doubletail	Endangered / -	VERY LOW	One previous record is from 2002. Rare and localised in coastal areas in grassy open eucalypt forest, sedgy grassland and heath with tea-tree and paperbark on poorly to moderately sandy peat and loams and sites that are usually wet in winter. No suitable habitat is present.
Juncus amabilis gentle rush	Rare / -	LOW	One previous record is from 2007. Occurs in moist grasslands often on roadsides and sometimes persists in improved valley flat pasture or the margins of farm dams. Present in a drain in the northern part of the town but unlikely to have been overlooked in the study area.
Lepidium hyssopifolium soft peppercress	Endangered / ENDANGERED	MODERATE	One previous record is from 2004. Habitat is the growth suppression zone beneath large native and exotic trees in grassy woodland, grassland, roadsides and farms. It occurs in dry warm areas, on flat ground, within an altitude range of 40 to 500 m, in fertile soils and weakly acid to alkaline soils derived from a range of rock types. Some suitable habitat present in parkland around the foreshore and possibly overlooked.
Lepidium pseudotasmanicum shade peppercress	Rare / -	MODERATE	Two of 3 previous records are recent. Found on bare ground in grassland and grassy woodland. It relies on gap-forming disturbance and is often associated with roads and tracks although road maintenance may have an adverse impact upon it. Potential habitat is present and this herb may have been overlooked during the survey.
Limonium baudinii tasmanian sealavender	Vulnerable / VULNERABLE	**Present**	Many recent records are from within 500m and 5km. A Tasmanian endemic, only known from the saltmarshes in the Triabunna area close to the high water mark. Observed during the survey. More details provided in section 2.2.

[12] TSPA - Tasmanian *Threatened Species Protection Act 1995;* EPBCA - Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*

[13] Natural Values Report; Notesheets and Listing Statements, Threatened Species Unit, DPIPWE

Species	Status[12] TSPA/EPBCA	Potential to occur	Observations and Preferred Habitat[13]
Pterostylis squamata ruddy greenhood	Rare / -	LOW to MODERATE	Two previous records are from 1969. Uncommon and localised in lowland heathy and grassy open eucalypt forest and heathland on well-drained sandy and loamy soils. Unlikely to have been in flower at the time of the survey but some suitable habitat in the Inkerman St reserve.
Scleranthus fasciculatus spreading knawel	Vulnerable / -	VERY LOW	One previous record is from 2000. Usually occurs in silver tussock grassland/grassy woodland in gaps between tussocks. Requires openness which is maintained by fire and stock grazing. No suitable habitat is present.
Stenanthemum pimeleoides propeller plant	Vulnerable / VULNERABLE	VERY LOW	Previous records, from between 1848 and 1999, include 4 within 500m and 1 within 5km. Occurs on dry, stony soils on siliceous, sandy gravels usually in heathy *E. amygdalina* or *E. pulchella* forest and usually where grasses and herbs are absent. No suitable habitat is present.
Viola cunninghamii alpine violet	Rare / -	VERY LOW	Two previous records from 1984 include 1 within 500m and 1 within 5km. Most commonly occurs to moist, sub-alpine areas. Records of this species in other environments may be erroneous.
Vittadinia gracilis woolly new-holland daisy	Rare / -	VERY LOW	One previous record is from 1929. Known from dry sites on dolerite and basalt, predominantly in dry sclerophyll forest. No suitable habitat is present.
Known from within 5 km			
Acacia ulicifolia juniper wattle	Rare / -	LOW to MODERATE	One previous record is from 2011. Occurs in sandy coastal heaths and open forests and woodlands. Some suitable habitat present in the Inkerman St reserve but unlikely to have been overlooked during the survey unless it occurs in low numbers.
Baumea gunnii slender twigsedge	Rare / -	VERY LOW	One previous record is from 1951. Occurs on wet moors, creeks and riverbanks. The estuary is probably too saline to support this species.
Cynoglossum australe coast houndstongue	Rare / -	**Present**	One previous record is from 2004. Occurs in grasslands, open forest, coastal dunes and other dry places. Present along the Barton Avenue foreshore. More details provided in section 2.2.
Lepilaena preissii slender watermat	Rare / -	VERY LOW	One previous record is from 1978. Occurs in fresh and brackish lagoons and estuaries. This slender annual herb is possibly present in the estuary but not within the coastal reserve.

APPENDIX 3B – REVIEW OF THREATENED FAUNA

The following details threatened fauna species, from the Natural Values Report, that have previously been recorded, or could potentially occur, with a 5 km radius. It also provides an assessment of the likely occurrence of each within the study area.

Species	Status TSPA/ EPBCA[14]	Potential to occur	Observations and preferred habitat[15]
MAMMALS			
Eastern-barred bandicoot *Perameles gunnii gunnii*	- / VULNERABLE	Foraging: VERY LOW Nesting: VERY LOW	Four previous sightings are from between 1976 & 1992. Favours a mosaic of open grassy areas for foraging with thick vegetation cover for shelter and nesting. Habitat in the reserves are very marginal and all previous sightings are from more than 500m.
Tasmanian devil *Sarcophilus harrisii*	Endangered / ENDANGERED	Foraging: VERY LOW Nesting: VERY LOW	Three previous sightings are from between 1975 & 1991. Inhabits forest, woodland and agricultural areas, sheltering during the day in caves, old burrows and thick scrub. Although devil facial tumour disease is the main threat to this species the protection of maternal dens to ensure successful breeding is important to assist recovery. All previous sightings are from more than 500m. Unlikely to currently occur in the reserves.
BIRDS			
Wedge-tailed eagle *Aquila audax fleayi*	Endangered / ENDANGERED	Foraging: MODERATE Nesting: NONE	One previous sighting is from 2008. Requires large sheltered trees for nesting and is highly sensitive to disturbance during the breeding season. There is no suitable nesting habitat within the reserves and a known nest in the vicinity is beyond the range of potential disturbance. However, it may forage in the general vicinity.
White-bellied sea-eagle *Haliaeetus leucogaster*	Vulnerable / -	Foraging: HIGH Nesting: NONE	Three previous sightings are from the 1980s, 2000s and one is undated. Similar habitat requirements to the wedge-tailed eagle but it is generally more tolerant of disturbance. There is no suitable nesting habitat within the reserves and known nests in the vicinity is beyond the range of potential disturbance. However, it may utilise some of the eucalypts in the reserves as perching trees whilst foraging in adjacent waters.
Grey goshawk *Accipiter novaehollandiae*	Endangered / -	Foraging: VERY LOW Nesting: NONE	Inhabits large tracts of wet forest. No suitable habitat is present. However, juveniles or non-breeding adults may visit the area on occasion.
Masked owl *Tyto novaehollandiae castanops*	Endangered / VULNERABLE	Foraging: MODERATE Nesting: NONE	Six previous sightings are from between 1950 & 1996. Preferred habitat is coastal and sub-coastal dry forest and woodland of the north, north east, east and south east. Requires a mosaic of forest and open areas for foraging and large old-growth hollow-bearing trees for nesting. There are no suitable nesting trees in the reserves and there are no known nests within 5km. However, it may forage in the general vicinity.

[14] TSPA – Tasmanian *Threatened Species Protection Act 1995*; EPBCA – Commonwealth *Environment Protection & Biodiversity Conservation Act 1999*

[15] Natural Values Report; Bryant & Jackson 1999.

Species	Status TSPA/ EPBCA[14]	Potential to occur	Observations and preferred habitat[15]
Swift parrot *Lathamus discolor*	Endangered / ENDANGERED	Foraging: HIGH Nesting: VERY LOW	Twelve previous sightings are from between 1980s & 2000s. It migrates from the mainland each year to breed mainly near the Tasmanian east coast. Requires tree hollows for nesting and feeds on nectar of blue gum and black gum flowers. There several blue and black gums in the reserves and probably some eucalypts with hollows but there are no known nests within 5km. However, it may well forage on blue and black gums in, and close to, the reserves during its migration.
Forty-spotted pardalote *Pardalotus quadragintus*	Endangered / ENDANGERED	Foraging: HIGH Nesting: LOW	Restricted to dry grassy forest and woodland along the east coast containing mature white gum. There is a known breeding colony on nearby Maria Island. Dispersing fledglings may forage on the many mature white gums in the reserves.
Great crested grebe *Poliocephalus cristatus* subsp. *australis*	Vulnerable / -	Nesting: NONE	One previous sighting is undated. An uncommon species that inhabit rivers, lakes and estuaries and nest in heaped floating vegetation anchored in reed beds or drooping branches. It may forage in the adjacent estuary but no suitable habitat is present within the reserves.
Fairy tern *Sterna nereis nereis*	Vulnerable / VULNERABLE	Foraging: HIGH Nesting: NONE	Three previous sightings are from 2003 and one is undated. Preferred breeding habitat includes sand or shingle beaches, dunes and estuaries. No suitable habitat is present. Previous sightings, all from within 5km, are from a known nesting area at Orford. However, they may forage in the estuary at Triabunna.
FROGS			
Green and gold frog *Litoria raniformis*	Vulnerable / VULNERABLE	NONE	Requires permanent fresh water for breeding preferably shallow water with diverse emergent vegetation. No suitable habitat is present.
FISH			
Australian grayling *Prototroctes maraena*	Vulnerable / VULNERABLE	NONE	Inhabits permanent rivers and streams. No suitable habitat is present. Known from the Prosser River at Orford.
INVERTEBRATES			
Broad-toothed stag beetle *Lissotes latidens*	Endangered / ENDANGERED	NONE	This species has a restricted range in the south east. It is known only from between Orford and Copping as well as on Maria Island. Preferred habitat is wet eucalypt forest, either in extensive stands or along drainage lines and wet gullies. Both adults and larvae live in the soil but decaying logs are important in providing shelter from desiccation, predation and habitat disturbance such as wildfire. No suitable habitat is present.

APPENDIX 4A – LEGISLATIVE OBLIGATIONS RELEVANT TO NATURAL VALUES OF RESERVES

Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBCA)

One species of flora listed as Vulnerable under the EPBCA that occurs in the Reserves is *Limonium baudinii.*

Fauna species listed under this Act that potentially forage in the Reserves are the swift parrot and forty-spotted pardalote, both listed as Endangered, and the fairy tern, listed as Vulnerable.

Referral under the EPBC Act is necessary if any management activity within the reserves are likely to have a significant impact on listed threatened species. In this regard the Act states:

'An action has, will have, or is likely to have a significant impact on a critically endangered, endangered or vulnerable species if it does, will or is likely to (amongst other things):

- modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline, or
- adversely affect habitat critical to the survival of a species.'

Tasmanian *Threatened Species Protection Act 1995* (TSPA)

Two flora species listed under the TSPA that occur in the Reserves are *Limonium baudinii*, listed as Vulnerable, and *Cynoglossum australe,* listed as Rare.

Four species of fauna listed under this Act potentially forage in the Reserves. These are the white-bellied sea-eagle and fairy tern, both listed as Vulnerable, and the swift parrot and forty-spotted pardalote, both listed as Endangered.

Any management activities in the Reserves that will impact on these species would require a permit application to be submitted to the Development and Conservation Assessment Branch (DCAB) of DPIPWE with regard to the populations affected.

Tasmanian Forest Practices Regulations 2005

The Forest Practices Regulations[16] require a Forest Practices Plan (FPP) where clearing of forest is in excess of 1 hectare or 100 tonnes of timber or involves 'vulnerable land' where the thresholds become less.

Under the terms of the Forest Practices Regulations, any native vegetation which has the potential to develop to a height exceeding 5 m is considered 'forest'. 'Vulnerable' land includes land supporting threatened vegetation communities or species listed as threatened under the TSPA and/or the EPBCA. Four threatened communities that occur in the Reserves are DOV, DAS, DGL and DVC. Threatened species are listed above under the EPBCA and TSPA headings.

Any clearing activities on 'vulnerable land' will require an FPP, irrespective of the volume of timber or area of vegetation involved (unless the clearing or harvesting is necessary to protect public safety or to maintain existing infrastructure and it involves less than 1 ha or 5 tonnes of timber).

[16] Tasmanian State Government 2005.

Tasmanian *Weed Management Act 1999* (WMA)

The following table summarises the status within the Glamorgan Spring Bay municipality of 'declared weeds' present in the reserves according to relevant Weed Management Plans prepared under the Act.

Common name	*Scientific name*	Status in the GSB municipality	Municipal classification
african boxthorn	*Lycium ferocissimum*	Localised infestation	B
blackberry	*Rubus fruticosus* aggregate	Widespread	B
bridal creeper	*Asparagus asparagoides*	Localised infestation	A
gorse	*Ulex europaeus*	Widespread	B
montpellier broom	*Genista monspessulana*	Localised infestation	A
spanish heath	*Erica lusitanica*	Isolated occurrences	A

According to the provisions of the WMA Zone A municipalities are those that host infestations of a 'declared weed' that are currently deemed eradicable. Achieving and maintaining a total absence of the weed from within the municipal boundaries is the ultimate management outcome.

Zone B municipalities are those that host infestations of the 'declared weed' that are not deemed eradicable because the feasibility of effective management is low at this time. Therefore, the objective is containment of infestations. The objective includes preventing spread of the 'declared weed' from the municipality and preventing spread to properties currently free of them. There is a requirement to prevent spread of the 'declared weeds' to properties containing sites for significant flora, fauna and vegetation communities such as those present here.

APPENDIX 4B – OTHER LEGISLATION AND POLICIES RELEVANT TO RESERVE MANAGEMENT

Strategic policies

- Glamorgan Spring Bay Planning Scheme
- State Coastal Policy
- Tasmanian Reserve Management Code of Practice 2003

Legislation

- *Aboriginal Relics Act 1975*
- *Cat Management Act 2009*
- *Crown Lands Acts 1976*
- *Environmental Management and Pollution Control Act 1994*
- *Historical Cultural Heritage Act 1995*
- *Land Use Planning and Approvals Act 1993*
- *Local Government Act 1993*
- *National Parks and Reserves Management Act 2002*
- *Nature Conservation Act 2002*

APPENDIX 5A – DECLARED WEED PHOTOS

african boxthorn *Lycium ferocissimum*

blackberry *Rubus fruticosus* aggregate

bridal creeper *Asparagus asparagoides*

bridal creeper *Asparagus asparagoides* (close-up of leaves)

gorse *Ulex europaeus*

montpellier broom *Genista monspessulana*

spanish heath *Erica lusitanica*

APPENDIX 5B – ENVIRONMENTAL WEED PHOTOS

aeonium *Aeonium arboreum*

agapanthus *Agapanthus praecox*

bluebell creeper *Billardiera heterophylla*

bottlebrush *Melaleuca* sp.

century plant *Agave americana*

coast teatree *Leptospermum laevigatum*

cotoneaster *Cotoneaster* sp.

field marigold *Calendula arvensis*

freesia *Freesia* hybrid

gazania *Gazania* sp.

hawthorn *Crataegus monogyna*

howitt's wattle *Acacia howittii*

japanese honeysuckle *Lonicera japonica*

milkwort *Polygala myrtifolia*

miniature pine tree *Crassula tetragona*

mirrorbush *Coprosma repens*

new zealand flax *Phormium tenax*

noonflower *Lampranthus glaucus*
(red variant)

poplar *Populus* sp.

prickly pear *Opuntia* sp.

prunus *Prunus* sp.

radiata pine *Pinus radiata*

scrambling groundsel *Senecio angulatus*

sweet briar *Rosa rubiginosa*

sweet pittosporum *Pittosporum undulatum*

trailing daisy *Osteospermum fruticosum*

tree lucerne *Chamaecytisus palmensis* (flowering)

tree lucerne *Chamaecytisus palmensis* (with fruit)

tree mallow *Malva dendromorpha*

wattle *Acacia* sp.

yellow pigface *Carpobrotus edulis*